The Essential PEIRCE

Selected Philosophical Writings

VOLUME 1 (1867–1893)

EDITED BY

Nathan Houser and Christian Kloesel

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Contents

THE *MONIST* METAPHYSICAL SERIES

CHRONOLOGY

1839 Born on 10 Sept. in Cambridge, MA, to Benjamin and Sarah Hunt (Mills) Peirce
1855 Entered Harvard College
1859 Graduated (A.B.) from Harvard
Temporary aide in U.S. Coast Survey, fall to spring '60
1860 Studied classification with Agassiz, summer-fall
1861 Entered Lawrence Scientific School at Harvard
Appointed regular aide in Coast Survey, 1 July
1862 Married to Harriet Melusina Fay, 16 Oct.
1863 Graduated *summa cum laude* (Sc.B.) in chemistry from Lawrence Scientific School
1865 Harvard lectures on "The Logic of Science," spring
Began Logic Notebook, 12 Nov.; last entry in Nov. '09
1866 Lowell Institute lectures on "The Logic of Science; or Induction and Hypothesis," 24 Oct.—1 Dec.
1867 Elected to American Academy of Arts and Sciences, 30 Jan.
1869 First of ca. 300 *Nation* reviews, in Mar.; last in Dec. '08
Assistant at Harvard Observatory, Oct. '69–Dec. '72
Harvard lectures on "British Logicians," Dec.—Jan.
1870 First Survey assignment in Europe: 18 June—7 Mar. '71
1872 Founding member of Cambridge Metaphysical Club, Jan.
In charge of Survey office, spring-summer
Put in charge of pendulum experiments, beginning in Nov.
Promoted to rank of Assistant in the Survey, 1 Dec.
1875 Second Survey assignment in Europe: Apr. '75–Aug. '76
Served as first official American delegate to International Geodetic Association in Paris, 20–29 Sept.
1876 Separated from Melusina in Oct.
1877 Elected to National Academy of Sciences, 20 Apr.
Third Survey assignment in Europe: 13 Sept.—18 Nov.
Represented U.S. at International Geodetic Association conference in Stuttgart, 27 Sept.—2 Oct.
1878 *Photometric Researches* published in Aug.
1879 Lecturer in Logic (till '84) at Johns Hopkins University
First meeting of JHU Metaphysical Club, 28 Oct.
1880 Elected to London Mathematical Society, 11 Mar.
Fourth Survey assignment in Europe: Apr.—Aug.
French Academy address on value of gravity, 14 June
1881 Elected to American Association for the Advancement of Science in Aug.

1883 *Studies in Logic* published in spring
Divorced from Melusina, 24 Apr.
Married to Juliette Froissy (Pourtalès), 30 Apr.
Fifth and final Survey assignment in Europe: May—Sept.
1884 In charge of Office of Weights and Measures, Oct.—22 Feb. '85
1888 Purchased "Arisbe," outside Milford, PA
1889 Contributor to *Century Dictionary*
1891 Resigned from Coast and Geodetic Survey, 31 Dec.
1892 Lowell lectures on "The History of Science," 28 Nov.—5 Jan.
1893 *Petrus Peregrinus* announced; prospectus only published
"Search for a Method" announced by Open Court; not completed
1894 "The Principles of Philosophy" (in 12 vols.) announced by Henry Holt Co.; not completed
"How to Reason" rejected by both Macmillan and Ginn Co.
1895 "New Elements of Mathematics" rejected by Open Court
1896 Consulting chemical engineer (till '02), St. Lawrence Power Co.
1898 Cambridge lectures on "Reasoning and the Logic of Things," 10 Feb.—7 Mar.
"The History of Science" announced by G. P. Putnam's; not completed
1901 Contributor to *Dictionary of Philosophy and Psychology*
1902 Grant application for "Proposed Memoirs on Minute Logic" rejected by Carnegie Institution
1903 Harvard lectures on "Pragmatism," 26 Mar.—17 May
Lowell lectures on "Some Topics of Logic," 23 Nov.—17 Dec.
1907 Harvard Philosophy Club lectures on "Logical Methodeutic," 8–13 Apr.
1909 Last published article, "Some Amazing Mazes"
1914 Died on 19 April

FOREWORD

The purpose of this collection of writings by Charles Sanders Peirce is to provide, in a convenient format, those of his most important papers that will enable readers to form a relatively complete impression of the main doctrines of his system of philosophy and to study its development. The present volume covers a period of about twenty-seven years, roughly one-half of Peirce's immensely productive life; the remaining two decades will be covered in the second volume. Limitations of space have forced us to exclude, almost entirely, his mathematical, logical, and scientific writings, as well as his many contributions to such disciplines as history and psychology. (But readers should be forewarned that Peirce's thought, more than that of any other classic American philosopher, is self-consciously related to mathematical, logical, and scientific conceptions. Many of his most significant scientific writings are available in the annual reports of the U.S. Coast and Geodetic Survey and the first six volumes of the *Writings of Charles S. Peirce;* his logical writings in volumes 2–4 of the *Collected Papers of Charles Sanders Peirce;* and his mathematical writings in the four volumes of Carolyn Eisele's *The New Elements of Mathematics.*) The writings in this volume are arranged chronologically from 1867 to 1893, ending with Peirce's first sustained and systematic presentation of his evolutionary metaphysics in the *Monist.*

The Introduction provides a summary account of Peirce's philosophy, which serves as a general background and provides structure for the twenty-five items in the present volume. These begin with Peirce's highly regarded alternative to Kantian philosophy, his "New List of Categories," from which he sets out to develop a new system of thought that will answer many of the perennial questions of philosophy. In the *Journal of Speculative Philosophy* Cognition Series (items 2–4), he attempts to work out a new account of mind and reality based on the results of his "new list" and to provide the foundation for a truly objective and empirical system of philosophy, in which epistemology would be grounded in the representation of external facts; in brief, to unify philosophy and science. In his review of Fraser's *Berkeley* (item 5), Peirce gives an account of his newly embraced "scholastic realism" and develops a common-sense theory of truth and reality that goes far in the direction of his soon-to-be-born pragmatism. Not surprisingly, his pragmatic turn is also apparent in "A New Class of Observations" (item 6); for, by this time, his pragmatism was already five years old. It is noteworthy that in this paper Peirce includes sensations within the class of 'objects' that should be studied scientifically by controlled

observation, and there is at least the suggestion that, for philosophical and scientific investigations, he is beginning to consider phenomenology as an alternative to logic. The "Illustrations of the Logic of Science" (items 7–12) contain Peirce's first published account of pragmatism—though the name does not occur. This series, sometimes said to be the lesson of Darwin for philosophy, marks an important stage in Peirce's continuing advance toward a more and more realistic system of thought and, according to Max Fisch, it is "the nineteenth-century *Discourse in the Method of Rightly Conducting the Reason and Searching for the Truth in the Sciences.*" Item 13, the first part of an essay on the algebra of logic, deals with certain affinities between logical, epistemological, psychological, and physiological conceptions, which suggests that Peirce had by this time acquired an architectonic purview. Certainly by 1882, in his outline for his Johns Hopkins logic course (item 14), he is emphasizing the underlying unity of the sciences, for he proclaims that it is in the application of the methods of one science to another that the chief advances of thought will be made in the years to come.

If there is a significant turning-point in the twenty-five papers in this volume, it comes in "Design and Chance" (item 15), where Peirce accepts the doctrine that absolute chance is an active agent in the evolution of the universe and even of the laws of nature, a doctrine that marks his turn toward the evolutionary metaphysics of the latter part of this volume. The next two items represent another important step in Peirce's development, namely his recognition of the need for indices both in logic and in thought, for it is only with indices that reference can be made to *individuals* or to *actual* events and states of affairs. In item 16, Peirce reintroduces his best-known semiotic triad (icon, index, symbol), and in item 17 he proclaims the importance of the *Outward Clash,* the compelling sense of an opposing *other* in all experience: and thus takes an important step toward accepting the reality of secondness. After "Design and Chance," many of the strands of thought that run through the first seventeen papers coalesce, and enough fell into place sometime in 1885 to lead Peirce to his great guess at the riddle of the universe. It was the synthesis of his theory of categories with his new evolutionary cosmology that most directly led to his hypothesis that "three elements are active in the world": first, *chance;* second, *law;* and third, *habit-taking.* This guess is first formulated in item 18, and the remaining seven items fill out the details and ramifications of this guess for philosophy and science. "A Guess at the Riddle" (item 19) constitutes Peirce's first general treatment of his new evolutionary philosophy, a broad and systematic theory based on his guess. His "discovery" that the active elements of the universe are coincident with his categories leads him to accept them as the architectonic key to philosophy. It is the key he proceeds to use to reorganize the different branches of

ous mistakes (and have listed most of the emendations in editorial notes following Peirce's text) but have retained inconsistencies in spelling and punctuation when they reflect acceptable nineteenth-century standards and practices. (Only the word "indispensible" has been permitted to appear in Peirce's idiosyncratic form, for that is how he consistently, and consciously, spelled it throughout his life.) Purely cosmetic changes, such as the italicization of book titles or the indentation of opening paragraphs, have been made silently. We have also supplied titles for the three untitled items (5, 15, 20), and missing words are supplied in italic brackets. For the rest, our editing has been guided by restraint and accuracy, and the texts included here represent what Peirce wrote, not what we think he should have written.

The twenty-five items in the present collection are printed with a minimum of editorial intrusion in the text, although we have used a few editorial symbols to reflect certain physical problems in both published and unpublished papers, and have indicated, in standard form (with superscript arabic numerals), where we have contributed editorial notes. The footnotes appearing at the bottom of their respective pages are Peirce's own and are identified by asterisks, daggers, and so on. (In a few of these footnotes, we have provided, in square brackets, additional information—such as names, dates, page numbers, and references to papers in the *Writings*—which seemed more useful and economical here than in additional entries in the Notes section.) The (editorial) Notes, which are numbered consecutively within each of the twenty-five items, provide various kinds of information (including translations) that Peirce himself did not provide. Preceding this Foreword, there is a brief Chronology listing the most significant dates and events in Peirce's life and work, and the volume concludes with a detailed Index.

Two other features in Peirce's text must be mentioned: the editorial symbols and the headnotes appearing between title and text. The editorial symbols, as indicated, reflect physical problems, whether in published papers or unpublished manuscripts and typescripts, and they include the following: words (or parts of words) appearing in italic brackets indicate that they have been supplied (or reconstructed) by the editors; italic brackets enclosing three ellipsis points indicate one or more lost manuscript pages; and sets of double slashes mark the beginning and end of Peirce's undecided alternate readings, with the single slash dividing the original from the alternative inscription. The headnotes, which appear in reduced type between the title of each item and the text proper, serve several purposes. They identify each item as a published paper or an unpublished manuscript; provide information on its composition or publication (and its later use elsewhere in Peirce's work and its republication in one of the two main editions of

his writings); characterize its contents and main arguments; and indicate its place in the overall development of Peirce's system of philosophy. Papers published during Peirce's lifetime are identified by P followed by a number and the bibliographic information provided in the *Comprehensive Bibliography* (2nd rev. ed. [Bowling Green, OH: Philosophy Documentation Center, 1986]). Unpublished papers are identified by MS followed by the number assigned in Richard Robin's *Annotated Catalogue of the Papers of Charles S. Peirce* (Amherst: University of Massachusetts Press, 1967) and his "The Peirce Papers: A Supplementary Catalogue" (*Transactions of the Charles S. Peirce Society* 7 [1971]: 37–57); when the reference is to newly numbered manuscripts in their reassembled and chronologically arranged form as listed in the *Writings*, MS is printed in italic type (and followed by the new Peirce Edition Project number). Republication (or first publication) of each item is indicated by W *(Writings of Charles S. Peirce)*, followed by volume and page numbers; CP *(Collected Papers of Charles Sanders Peirce)*, followed by volume and paragraph numbers; and, in one instance, HPPLS *(Historical Perspectives on Peirce's Logic of Science)*, followed by page numbers. (Some of these identifying letters are used in the Introduction as well, which also includes a reference to NEM, Carolyn Eisele's edition of *The New Elements of Mathematics.*)

Although there are several references, especially in the Introduction, to some of the more important secondary studies on Peirce's philosophy, it might have been helpful, some might say, to have provided a list of "Secondary Studies" or "Further Readings." We decided against such a list for three reasons: (1) the number of secondary studies on Peirce has grown to enormous proportions, especially during the last two decades, and brief articles are sometimes more helpful than whole monographs; (2) whatever selection we might make (with its concomitant exclusions) would be sure to exhibit our biases and critical dispositions; and (3) there are two useful lists of secondary studies, through 1982, in the *Comprehensive Bibliography* and in *The Relevance of Charles Peirce* (La Salle, IL: The Hegeler Institute, 1983), and the improvement in library indexing services and the growing use of bibliographic databases have almost obviated the need for printed bibliographies. If there are two studies with which everyone should be familiar, whether novice or seasoned scholar, they are Christopher Hookway's *Peirce* (London: Routledge & Kegan Paul, 1985), which will shortly be available in paperback, and Max Fisch's *Peirce, Semeiotic, and Pragmatism* (Bloomington: Indiana University Press, 1986), which represents many years of searching scholarship. And we should not neglect to mention that the *Transactions*, the journal of the Peirce Society, is already in its twenty-seventh year.

Nor should we neglect to mention, finally, that we have had some help in the preparation of this first of our two volumes of Peirce's

selected philosophical writings. We are grateful, for her invaluable assistance, to Beth Sakaguchi; to our colleagues at the Indiana University Press, for their encouragement and cooperation; to the Indiana University School of Liberal Arts for its continuing support; and to André De Tienne, for his scholarly advice and careful reading of a large part of the whole manuscript.

Indianapolis
July 1991

Nathan Houser
Christian Kloesel

INTRODUCTION

Charles Sanders Peirce was born on 10 September 1839 in Cambridge, Massachusetts—when Darwin was only 30 years old—and he lived until 1914, the year World War I began. His father, Benjamin Peirce, was a distinguished professor at Harvard College and the most respected mathematician in America. The Peirce family was well connected in academic and scientific circles, and Charles grew up on intimate terms with the leading figures. He was regarded as a prodigy in both science and philosophy, and more brilliant in mathematics than even his father. Unfortunately for Peirce, his independence of mind, which was at first so much admired, turned out to be a severe impediment to his success. In part this was due to the times. For as James Feibleman has pointed out, with the expansion of the United States and the rise of the great western cities, New England, and especially Boston and Cambridge, became more and more insular and conservative and grew fearful of genius and originality.[1] As great a thinker as any that America has ever produced, Peirce was thwarted at almost every turn, and only by great effort of will was he able to fulfill some of the promise he exhibited as a young man.

Peirce's importance as a thinker was not entirely lost on his own age. Among his friends and admirers were such respected philosophers as William James, Josiah Royce, and John Dewey, and the renowned mathematician and logician Ernst Schröder. Yet after a short tenure at the Johns Hopkins University as a part-time lecturer in logic (1879–1884), and a premature—and forced—retirement (1891) from the U.S. Coast and Geodetic Survey, where he was in charge of gravity experiments and pendulum research, Peirce was unable to obtain regular employment again. He spent much of the latter third of his life struggling to make ends meet, and many of his writings of those years were done for pay. These include book reviews for newspapers and popular journals, contributions to dictionaries and encyclopedias, and translations (mainly from French and German). There were also a number of philosophical articles composed to satisfy the expectations and instructions of paying editors. For a period, beginning about 1890, Peirce's life was often dominated by one unsuccessful "get rich scheme" after another.[2] By the turn of the century, he began to worry

1. James Feibleman, "The Relation of Peirce to New England Culture," *American Journal of Economics and Sociology* 4 (1944): 99–107.

2. For an account of some of these "get rich schemes," see Christian J. W. Kloesel, "Charles Peirce and Honoré de Clairefont," *Versus* 49 (1988): 5–18.

university had not and never had had anything to do with instruction and that until we got over this idea we should not have any university in this country.[9]

In his day, Peirce was a more international figure than is generally known. He visited Europe five times between 1870 and 1883, and although he usually traveled as a scientist—to swing pendulums and to compare American weights and measures with European standards—he met prominent mathematicians and logicians as well as scientists, including De Morgan, McColl, Jevons, Clifford, and Herbert Spencer. Peirce corresponded with most of these scholars, and also with Schröder, Cantor, Kempe, Jourdain, Victoria Lady Welby, and others. Through Lady Welby, Peirce's letters on semiotic were occasionally passed on to C. K. Ogden who, with I. A. Richards, published some of them in the classic *The Meaning of Meaning.* Wittgenstein's good friend F. P. Ramsey was much impressed with these letters and, in his review of the *Tractatus,* remarked that Wittgenstein would have profited from Peirce's type-token distinction.[10]

Peirce's systematic philosophy, which is the focus of the present collection of writings, is difficult to characterize in a few words. For one thing, it consists of a number of distinct but interrelated theories and doctrines, any one of which could easily be the subject of whole books—as some, in fact, have been. Among the most characteristic of Peirce's theories are his *pragmatism* (or "pragmaticism," as he later called it), a method of sorting out conceptual confusions by relating meaning to consequences; *semiotic,* his theory of information, representation, communication, and the growth of knowledge; *objective idealism,* his monistic thesis that matter is effete mind (with the corollary that mind is inexplicable in terms of mechanics); *fallibilism,* the thesis that no inquirer can ever claim with full assurance to have reached the truth, for new evidence or information may arise that will reverberate throughout one's system of beliefs affecting even those most entrenched; *tychism,* the thesis that chance is really operative in the universe; *synechism,* the theory that continuity prevails and that the presumption of continuity is of enormous methodological importance for philosophy; and, finally, *agapism,* the thesis that love, or sympathy, has real influence in the world and, in fact, is "the great evolutionary agency of the universe." The last three doctrines are part of Peirce's comprehensive *evolutionary cosmology.*

9. Max H. Fisch, "Peirce at the Johns Hopkins University," in *Peirce, Semeiotic, and Pragmatism* (Bloomington: Indiana University Press, 1986), p. 36.

10. See Charles S. Hardwick, "Peirce's Influence on Some British Philosophers: A Guess at the Riddle," in *Studies in Peirce's Semiotic* (Peirce Studies 1, Lubbock: Institute for Studies in Pragmaticism, 1979), p. 27. Ramsey's review of Wittgenstein appeared in *Mind* 32:128 (1923): 465–78.

Besides this imposing assemblage of theories, there is still another barrier to an easy characterization of Peirce's philosophy, signaled by the reference to Darwin in the opening paragraph. Peirce's philosophy does not consist of a set of static doctrines, thought up and written down once and for all; its development over his more than fifty years of scholarship appropriately represents his Darwinian motivation. Not only did he think of himself as working out an evolutionary philosophy, one that includes humankind as part of the evolving natural world, but his writings illustrate his personal commitment to the principle of evolutionary growth. Peirce was always open to the revelations of experience and was prepared to change his theories accordingly. Some of these changed dramatically over the course of his life; nearly all changed in one way or another. We cannot draw one consistent philosophy from Peirce's writings without ignoring conflicting passages. A tendency by some of Peirce's commentators to overlook this characteristic of his thought has led to much confusion. This point was made rather dramatically by the late Indiana philosopher Arthur F. Bentley:

> What one says 20 years from what one says another time, must be studied as Event-in-process. . . . Peirce did not have a modernized post-Jamesian vocabulary for behaviors. He floundered and turned. . . . You can show Peirce as all sorts of things. But take the full flow of Peirce's development, his 1869 essays for actuality; his relations logic—his statement about concepts in 187/8/ Sci Monthly; his late effort at a functional logic nobody ever mentions, etc. You have an event in progress. It is, for me, one of the greatest event/s/ among all events.[11]

It is impossible, in a short introduction, to present fully Peirce's most characteristic philosophical doctrines and theories, let alone give serious attention to the development of his thought. It is difficult to give even a satisfactory outline of his philosophical development. Over the years, scholars have described the key steps in his intellectual life in different ways. To give some chronological structure to such studies, Max Fisch has divided Peirce's philosophical activity into three periods: (1) the Cambridge period (1851–1870), from his reading of Whately's *Logic* to his memoir on the logic of relatives; (2) the cosmopolitan period (1870–1887), the time of his most important scientific work, when he traveled extensively in Europe, as well as in the United States and Canada; and (3) the Arisbe period (1887–1914), from his move to Milford, Pennsylvania, until his death—the longest and philosophically most productive period.[12]

11. Arthur F. Bentley to Joseph Ratner, 1 July 1948. This letter is deposited with the Bentley Papers in the Lilly Library, Indiana University.

12. Max H. Fisch, "Peirce's Arisbe: The Greek Influence in His Later Philosophy," in *Peirce, Semeiotic, and Pragmatism*, p. 227.

Gérard Deledalle has associated these periods more directly with Peirce's philosophical activity and has given them more figurative names: (1) "Leaving the Cave" (1851–1870), the period of the evolution of Peirce's thought beginning with his critique of Kantian logic and Cartesianism; (2) "The Eclipse of the Sun" (1870–1887), the period dominated by his discovery of modern logic and pragmatism; and (3) "The Sun Set Free" (1887–1914), the period of his founding of semiotic on a phenomenology based on his logic of relations and of his working out his scientific metaphysics, the crowning-point of his philosophical achievement.[13]

A somewhat different account of the principal stages of Peirce's development is given by Murray Murphey, who associates each of Peirce's key shifts of thought with important discoveries in logic. He identifies four main phases: (1) Peirce's Kantian phase (1857–1865/66); (2) the phase beginning with the discovery of the irreducibility of the three syllogistic figures (1866–1869/70); (3) the phase beginning with the discovery of the logic of relations (1869/70–1884); and (4) the phase beginning with the discovery of quantification and of set theory (1884–1914).[14]

Probably the most significant development in Peirce's intellectual life was the evolution of his thought from its quasi-nominalist and idealist beginnings to its broadly and strongly realist conclusion. Because there are so many variants of these doctrines, a few selections from Peirce's *Century Dictionary* definitions will help reveal his conceptions of these terms:

Nominalism: 1. The doctrine that nothing is general but names; more specifically, the doctrine that common nouns, as *man, horse,* represent in their generality nothing in the real things, but are mere conveniences for speaking of many things at once, or at most necessities of human thought; individualism.

Idealism: 1. The metaphysical doctrine that the real is of the nature of thought; the doctrine that all reality is in its nature psychical.

Realist: 1. A logician who holds that the essences of natural classes have some mode of being in the real things; in this sense distinguished as a scholastic realist; opposed to nominalist. 2. A philosopher who believes in the real existence of the external world as independent of all thought about it, or, at least, of the thought of any individual or any number of individuals.

Peirce also defined "ideal-realism" as "a metaphysical doctrine which combines the principles of idealism and realism." As a variant of this

13. Gérard Deledalle, *Charles S. Peirce: An Intellectual Biography* (Amsterdam: John Benjamins, 1990), p. xxxi.

14. Murray G. Murphey, *The Development of Peirce's Philosophy* (Cambridge: Harvard University Press, 1961), p. 3.

term, he defined the ideal-realism of his father as "the opinion that nature and the mind have such a community as to impart to our guesses a tendency toward the truth, while at the same time they require the confirmation of empirical science."

The lifelong tension between nominalism and realism in Peirce's own intellectual life is testament to the general importance he attached to it; in fact, if any single question can be said to have been viewed by Peirce as the most important philosophical question of his time, it is that of deciding between the two doctrines. Peirce concurred in this with his old schoolmate Francis Ellingwood Abbot, who in 1885 wrote that "so far was the old battle of Nominalism and Realism from being fought out by the end of the fifteenth century that it is to-day the deep, underlying problem of problems, on the right solution of which depends the life of philosophy itself in the ages to come."[15] For Peirce, as for Abbot, the significance of the outcome of this "battle" was not limited to technical philosophy:

> Though the question of realism and nominalism has its roots in the technicalities of logic, its branches reach about our life. The question whether the *genus homo* has any existence except as individuals, is the question whether there is anything of any more dignity, worth, and importance than individual happiness, individual aspirations, and individual life. Whether men really have anything in common, so that the *community* is to be considered as an end in itself, and if so, what the relative value of the two factors is, is the most fundamental practical question in regard to every institution the constitution of which we have it in our power to influence. (item 5)

According to Fisch, Peirce's progress toward realism began early and was gradual, but there were key steps that divide it into stages.[16] Peirce took his first deliberate step in 1868 when, in the second paper of his cognition series (item 3), he "declares unobtrusively for realism." Although this step marks only a small shift in Peirce's thought—the introduction of "the long run" into his theory of reality—it is an important one, for it brings to an end his period of avowed nominalism.[17]

Peirce's second deliberate step was taken in 1871, when in his Berkeley review (item 5) he again declared for "the realism of Scotus" and

15. Francis Ellingwood Abbot, *Scientific Theism* (London: Macmillan, 1885), pp. 11–12.

16. The account of Peirce's progress toward realism contained in this and the following eight paragraphs is based on Max Fisch, "Peirce's Progress from Nominalism toward Realism," in *Peirce, Semeiotic, and Pragmatism,* pp. 184–200; unless otherwise noted, quotations are from that essay.

17. Whether Peirce was ever really a thoroughgoing nominalist or only a more nominalistic realist than he would be later is discussed by Don D. Roberts in "On Peirce's Realism" and Fred Michael in "Two Forms of Scholastic Realism in Peirce's Philosophy," *Transactions of the Charles S. Peirce Society* 6 (1970): 67–83 and 24 (1988): 317–48.

recognized that realism is temporally oriented toward the future while nominalism is oriented toward the past. Fisch points out that this second declaration came when, after a period of intensive study of the schoolmen, Peirce had become well acquainted with the writings of Duns Scotus.

Peirce took his third step in mid-1872 when, in the Cambridge Metaphysical Club, he first presented his pragmatism in which the meaning of conceptions is referred to future experience: "So we say that the inkstand upon the table is heavy. And what do we mean by that? We only mean that if its support be removed it will fall to the ground. . . . So that . . . knowledge of the thing which exists all the time, exists only by virtue of the fact that when a certain occasion arises a certain idea will come into the mind" (W3:30–31). A few months later, Peirce wrote that "no cognition . . . has an intellectual significance for what it is in itself, but only for what it is in its effects upon other thoughts. And the existence of a cognition is not something actual, but consists in the fact that under certain circumstances some other cognition will arise" (W3:77). But the best-known statement of the doctrine came in 1878, in the second of his "Illustrations of the Logic of Science," in the now famous version of his pragmatic maxim: "consider what effects, which might conceivably have practical bearings, we conceive the object of our conception to have. Then, our conception of these effects is the whole of our conception of the object."

Fisch stops enumerating the steps toward realism in 1872, and divides the rest of Peirce's development into two periods, the pre-*Monist* period (1872–1890) and the *Monist* period (1891–1914). He summarizes the key factors of the former period as follows:

> The chief developments in the pre-*Monist* period whose effects on Peirce's realism will appear in the *Monist* period are his pragmatism; his work on the logic of relations and on truth-tables, indices, and quantification; the resulting reformulation of his categories; his work and that of Cantor and Dedekind on transfinite numbers; the appearance in 1885 of provocative books by Royce and Abbot; and, at the end of the period, a fresh review of the history of philosophy for purposes of defining philosophical terms for the *Century Dictionary*.

In the pre-*Monist* period, a step that had special importance for Peirce's philosophical development was his recognition, with the help of his Johns Hopkins student O. H. Mitchell, of the need for indices in his algebra of logic. Peirce recognized the need for indices in notations adequate for the full representation of reasoning because he had come to understand the importance of pinning down thought to *actual* situations. "The actual world," he said, "cannot be distinguished from a world of imagination by any description. Hence the need of pronouns and indices" (item 16). Fisch points out that Peirce's incorpora-

tended to intuitionism. Goudge finds that Peirce's naturalism was the stronger tendency, which guided him in his researches in formal logic, semiotic, scientific method, phenomenology, and critical metaphysics, while the weaker transcendentalism "is most apparent in his views on cosmology, ethics, and theology."[20]

Goudge has indeed uncovered what may *appear* to be two Peirces, but the finding of most recent scholarship is that the tension is not as great as he thought. Peirce's philosophy is broad and subtle and appears to be able to accommodate results that would be incompatible in narrower systems of thought. It is not possible here to argue for the coherence of the various claims and doctrines that Goudge and others have found to be in conflict. The best that can be done is to outline the basic architecture of Peirce's philosophy and to give a glimpse of its overall unity.

For Peirce, as for Kant, logic was the key to philosophy. He claimed that from the age of twelve, after reading his brother's copy of Whately's *Elements of Logic*, he could no longer think of anything except as an exercise in logic.[21] Peirce's study of logic was not limited to the formal theory of deductive reasoning or to the foundations of mathematics, although he made important contributions to both. When he sought the professorship of physics at the Johns Hopkins (before being appointed part-time lecturer in logic), he wrote to President Daniel C. Gilman that it was as a logician that he sought to head that department and that he had learned physics in his study of logic. "The data for the generalizations of logic are the special methods of the different sciences," he pointed out, and "to penetrate these methods the logician has to study various sciences rather profoundly."

But it was not just as a theory of reasoning or as a critique of methods that logic was important for philosophy. "Philosophy," Peirce said, "seeks to explain the universe at large, and to show what there is intelligible or reasonable in it. It is therefore committed to the notion (a postulate, which however may not be completely true) that the process of nature and the process of thought are alike" (NEM 4:375). Whether completely true or not, if philosophy seeks to *explain* the universe at large, and if our *explanations* presuppose a rational organization of the universe—which, otherwise, would hardly be explicable at all—then we are, in effect, committed to the thesis that the process of nature is (or is like) a rational process. Logic, therefore, has more than heuristic value for philosophy.

It is important to bear in mind that when Peirce called himself a logician—the first and perhaps only person to have his occupation

20. Ibid., pp. 5–7.

21. Max H. Fisch, Introduction to *Writings of Charles S. Peirce* (Bloomington: Indiana University Press, 1982), 1:xviii.

listed as "logician" in *Who's Who*—he was not thinking of himself as a logical technician or as a logicist who viewed logic as the deductive foundation for mathematics. Although his many contributions to technical logic—including his 1881 axiomatization of the natural numbers, his 1885 quantification theory and introduction of truth-functional analysis, and his lifelong development of the logic of relations—have considerable importance for the foundations of mathematics, his main concern was to build an adequate theory of science and an objective theory of rationality. His general conception of logic was closer to modern-day philosophy of science, together with epistemology and philosophical logic, than to today's mathematical logic. In his later years, Peirce gave a great deal of attention to the classification and relations of the sciences, and he came to associate much of what we would today call mathematical logic with mathematics; logic, on the other hand, he came to regard as a normative science concerned with intellectual goodness, and, in his most developed view, it is coextensive with semiotic, which constitutes the very heart of philosophy.

Peirce's philosophy is thoroughly systematic—some might say it is systematic to a fault. Central to his system is the idea that certain conceptions are fundamental to others, those to still others, and so on; so that it is possible to analyze our various theoretical systems (our sciences) into a dependency hierarchy. At the top of this hierarchy (or at the *base* if we envision a ladder of conceptions) we find a set of universal categories, an idea Peirce shared with many of the greatest systematic thinkers including Aristotle, Kant, and Hegel. Peirce's universal categories are three: firstness, secondness, and thirdness. Firstness is that which is as it is independently of anything else. Secondness is that which is as it is relative to something else. Thirdness is that which is as it is as mediate between two others. In Peirce's opinion, all conceptions at the most fundamental level can be reduced to these three.

This theory of categories, in its most abstracted form, belongs to mathematics, which stands at the pinnacle of the sciences. Peirce followed his father in defining mathematics as the science which deduces consequences from hypotheses—from what is given—but there is more to it than that. Mathematics is a science of discovery that investigates the realm of abstract forms, the realm of ideal objects *(entia rationis)*. It is the mathematician who first discovers the fundamentality of triadicity by finding that monadic, dyadic, and triadic relations are irreducible, while relations of any degree (or adicity) greater than triadic can be expressed in combinations of triadic relations. This is known as Peirce's reduction thesis.

Mathematics presupposes no other science but is presupposed by all other sciences. After mathematics comes philosophy, which has three main branches: phenomenology, normative science, and meta-

physics—dependent on each other in reverse order. Not surprisingly, Peirce's categories make their appearance in each of these parts of philosophy (as they must if they are universal categories). He explained this in the fifth of a series of lectures on pragmatism given at Harvard in 1903:

> Philosophy has three grand divisions. The first is Phenomenology, which simply contemplates the Universal Phenomenon and discerns its ubiquitous elements, Firstness, Secondness, and Thirdness, together perhaps with other series of categories. The second grand division is Normative Science, which investigates the universal and necessary laws of the relation of Phenomena to *Ends*, that is, perhaps, to Truth, Right, and Beauty. The third grand division is Metaphysics, which endeavors to comprehend the Reality of the Phenomena. (CP 5.121)

Before giving this division, Peirce had warned his audience: "Now I am going to make a series of assertions which will sound wild" (CP 5.120), but he stressed that it was essential to his case for pragmatism.

The three divisions of philosophy are directly related to the categories. In attending to the universal elements of phenomena in their immediate phenomenal character, phenomenology treats of phenomena as firsts. Here the categories appear as fundamental categories of experience (or consciousness): firstness is the monadic element of experience usually identified with feeling, secondness is the dyadic element identified with the sense of action and reaction, and thirdness is the triadic element identified with the sense of learning or mediation as in thought or semiosis.

In attending to the laws of the relation of phenomena to ends, normative science treats of phenomena as seconds. The three normative sciences—esthetics, ethics, logic—were associated with three kinds of goodness: esthetical goodness (esthetics considers "those things whose ends are to embody qualities of feeling"), ethical goodness (ethics considers "those things whose ends lie in action"), and logical goodness (logic considers "those things whose end is to represent something"). The normative sciences correspond to the three categories and are dependent on each other, again in reverse order. Logic (or semiotic), in turn, has three branches: speculative grammar, critic, and speculative rhetoric. (Sometimes Peirce used different names.) Speculative grammar studies what is requisite for representation of any kind; it is the study of the "general conditions of signs being signs" (CP 1.444). Critic is the formal science of the *truth* of representations; it is the study of the reference of signs to their objects. Speculative rhetoric studies how knowledge is transmitted; it might be called the science of interpretation. (These three branches correspond more or less to Carnap's syntactics-semantics-pragmatics triad, which he

learned from Charles Morris, who had probably derived it from Peirce.)

The three normative sciences are followed by metaphysics, the third and last branch of philosophy. The general task of metaphysics is "to study the most general features of reality and real objects" (item 21). In attempting to comprehend the reality of phenomena, that is, in treating of phenomena as representing something that is inherently mind-independent, metaphysics treats of phenomena as thirds. Logic (semiotic), the normative science immediately preceding metaphysics, gives structure to metaphysical investigations which are, not surprisingly, replete with triadic divisions. Among these we find possibility, actuality, destiny; chance, law, habit; and mind, matter, evolution.

Most typical of Peirce's metaphysical theories are his objective idealism and his evolutionary cosmology. In "The Architecture of Theories" (item 21), Peirce characterized objective idealism as holding that "matter is effete mind," mind that has become hide-bound with habit. According to this doctrine, matter is mind that has lost so much of the element of spontaneity through the acquisition of habits that it has taken on the dependable law-governed nature we attribute to material substance. It is the one intelligible theory of the universe, according to Peirce, a monism that regards psychical law as primordial, and physical law as derived and special.

Peirce's wide-ranging evolutionary cosmology is more difficult to characterize briefly. Some regard it as the weakest part of his work; W. B. Gallie called it the "white elephant" of Peirce's philosophy.[22] But others hail Peirce's cosmology as the prelude to contemporary cosmological physics.[23] It should be remembered that, according to Peirce, part of the purpose of philosophy is to explain the universe at large. In this he was a follower of the earliest Greek philosophers. In any case, Peirce's cosmological story goes roughly as follows.[24]

In the beginning there was *nothing.* But this primordial nothing was not the nothingness of a void or empty space, it was a *no-thing-ness,* the nothingness characteristic of the absence of any determination. Peirce described this state as "completely undetermined and dimen-

22. W. B. Gallie, *Peirce and Pragmatism* (Harmondsworth: Penguin, 1952), p. 215.

23. For example, see Ilya Prigogine and Isabelle Stengers, *Order Out of Chaos* (New York: Bantam, 1984), pp. 302–03.

24. My account of Peirce's cosmological theory is based, in part, on Peter T. Turley, *Peirce's Cosmology* (New York: Philosophical Library, 1977). Randall R. Dipert, in a review of Turley (*Nature and System* 1 [1979]: 134–41), warned that "by shunning key logical and mathematical issues in Peirce's writing, certain important aspects of his writing, such as his synechism, his theory of relations, and his theory of 'evolving dimensionality' of continua can hardly be discussed at all. . . . Every volume of Peirce's writing should perhaps contain the warning: 'Let no one enter here who is ignorant of logic, mathematics, and the history of science.' " Dipert is no doubt correct; for without such knowledge, it is not possible to penetrate fully the depths of Peirce's metaphysics.

sionless potentiality," which may be characterized by freedom, chance, and spontaneity (CP 6.193, 200).

The first step in the evolution of the world is the transition from undetermined and dimensionless potentiality to *determined* potentiality. The agency in this transition is chance or pure spontaneity. This new state is a Platonic world, a world of pure firsts, a world of qualities that are mere eternal possibilities. We have moved, Peirce says, from a state of absolute nothingness to a state of *chaos.*

Up to this point in the evolution of the world, all we have is real possibility, firstness; nothing is actual yet—there is no secondness. Somehow, the possibility or potentiality of the chaos is self-actualizing, and the second great step in the evolution of the world is that in which the world of actuality emerges from the Platonic world of qualities. The world of secondness is a world of events, or facts, whose being consists in the mutual interaction of actualized qualities. But this world does not yet involve thirdness, or law.

The transition to a world of thirdness, the third great step in cosmic evolution, is the result of a habit-taking tendency inherent in the world of events. Peirce liked to illustrate with dice or playing cards how single random events, if their mere occurrence established a tendency, however slight, for the recurrence of events of that type, could lead to large-scale uniformities. A habit-taking tendency is a generalizing tendency, and the emergence of all uniformities, from time and space to physical matter and even the laws of nature, can be explained as the result of the universe's tendency to take habits. Peirce regarded this surrender of chance and freedom to habit and law as a growth toward concrete reasonableness. Although he at times envisioned an end of history marked by the crystallization of mind that has become completely law-governed and without any residual spontaneity (truly *concrete* reasonableness), he sometimes held that an element of freedom and originality will persist in a universe that has reached a state of equilibrium between chance and law.

This is only a partial sketch of *some* of the characteristic theories and doctrines of Peirce's metaphysics, the third and final division of philosophy. It does not account for the role of semiosis or the power of love in the evolution of the cosmos, nor does it distinguish between the different modes of evolution that characterize Peirce's more developed thought (as in item 25). (In his classification of the sciences, philosophy is followed by the special sciences, such as physics and psychology, then by sciences of review, and, finally, by practical sciences such as pedagogics.)

The preceding summary provides a mere skeletal account of Peirce's system of philosophy, but it should suffice to convey a sense of both its breadth and its unity. When viewed as a whole, Peirce's philosophy may be characterized in different ways but, however char-

Peirce's theory of signs has, more than any of his other theories, attracted widespread attention in recent years. It was an outgrowth of many factors and influences including, perhaps primarily, his study of and reaction to Schiller but especially Kant; his study of logic, most importantly the logics of De Morgan and Boole (and also those of Aristotle and the medieval logicians); his reaction to Darwin and the idea of evolution; and, finally, the growing abstraction in mathematics, perhaps especially the development of topology and non-Euclidean geometry. Under all these influences Peirce acquired new insights and directions, and was led along paths never before traveled. But, more than anything else, it was his discovery that his sign conception could clear up many theretofore intractable philosophical problems that convinced him of the importance of signs. After rejecting certain Kantian restrictions on what could or could not be represented, he undertook an investigation of the entire range of representability and studied, among other things, conceptions of God, mathematical infinity, totality, immediacy, and necessity. As a result of these investigations Peirce developed and sharpened his semiotic ideas, and with the addition of certain phenomenological conceptions, he arrived at the view that "all consciousness is sign consciousness" and that in studying signs one addresses "whatever could be a subject of philosophic concern and insight."[28] Believing that in semiotic he had a better ground for philosophy than in traditional epistemology, Peirce worked at expanding his findings into a general theory of signs, and later, in considering what the universe must be like for signs (or semiosis) to be possible, he built a semiotic framework for most of his major philosophical work.

In its most abbreviated form, Peirce's theory of signs goes something like this. A sign is anything which stands *for* something *to* something. What the sign stands *for* is its object, what it stands *to* is the interpretant. The sign relation is *fundamentally* triadic: eliminate either the object or the interpretant and you annihilate the sign. This was the key insight of Peirce's semiotic, and one that distinguishes it from most theories of representation that attempt to make sense of signs (representations) that are related only to objects.

As his theory evolved, Peirce came to distinguish between different kinds of objects and interpretants. Every sign has two objects, a dynamic object, "the really efficient but not immediately present object," and an immediate object, "the object as the sign represents it." And every sign has three interpretants, a final (or logical) interpretant, which is the "effect that would be produced on the mind by the sign

28. Joseph L. Esposito, "On the Origins and Foundations of Peirce's Semiotic," in *Studies in Peirce's Semiotic* (Peirce Studies 1, Lubbock: Institute for Studies in Pragmaticism, 1979), p. 20. Much of this paragraph is derived from Esposito's paper, which gives a good historical introduction to Peirce's semiotic.

after sufficient development of thought," a dynamic interpretant, which is the "effect actually produced on the mind," and an immediate interpretant, which is the "interpretant represented or signified in the sign" (CP 8.343). Any given sign only partially reveals its dynamic object, and that partial revelation constitutes its immediate object. Similarly, the final interpretant of a sign is the result of (or is what would result from) a history of semiotic interaction with the given dynamic object, while the dynamic interpretant is the effect the sign actually produces (at a given time), and the immediate interpretant is the immediate significance of the sign independent of any previous history involving its object.

Peirce explained that signs can be divided in different ways according to this analysis of the structure of signs. If we consider the nature of any given sign (the ground of the sign), it will be found to be intrinsically either a quality (a qualisign), an existent thing or event (a sinsign), or a law or habit (a legisign). If we consider a sign's relation to its dynamic object, we will find that it is like its object (an icon), that it has an actual, existential connection with its object (an index), or that it is related to its object by convention or habit (a symbol). If we consider the relation of the sign to its final interpretant—how the sign is interpreted—it will appear to be a sign of possibility (a rheme), a sign of actual existence (a dicent), or a sign of law (an argument). Since every sign is something in itself, has a relation to its object, and represents its object in some way or other, the above divisions can be used to yield a classification of signs that makes more distinctions than most rival theories.

Using only these three triadic divisions of signs, as Peirce often did, we derive a ten-fold classification of signs sufficient for most analytical purposes. For example, we can identify a paint chip (as a sign of color) as a rhematic-iconic-qualisign, a weathervane as a dicent-indexical-sinsign, and a proper name as a rhematic-indexical-legisign. But, unfortunately, as anyone knows who has tried to work out examples of Peirce's classes, it is not as easy as we might think—which means either that we do not quite understand Peirce or that his theory is a bit ambiguous.

The fact is, Peirce did not settle exclusively on his ten-fold classification of signs, but developed a more complex classification based on ten rather than three triadic divisions. In this fuller analysis Peirce considered such three-fold divisions as the nature of immediate objects (descriptives, or indefinites; designatives, or singulars; and copulatives, or generals) and the nature of the assurance afforded the interpreter (abducents, or assurance by instinct; inducents, or assurance by experience; and deducents, or assurance by form or habit). With these ten divisions, Peirce was able to isolate sixty-six distinct classes of signs and, thus, to eliminate most of the ambiguity of his more abbreviated

classification. But Peirce never completed this part of his general theory, and the precise nature and order of the ten trichotomies remains an important problem for semiotic theorists to work out more fully. Perhaps in our present state of understanding of language and semiosis we have no need for such complexity—just as we once had no need for relativity physics—but where principled distinctions can be made, they should be made, and, in any case, they will probably someday be needed.

So far, this sketch of Peirce's theory of signs has focused on speculative grammar, which considers "in what sense and how there can be any true proposition and false proposition, and what are the general conditions to which thought or signs of any kind must conform in order to assert anything" (CP 2.206). The philosopher who concentrates on this branch of semiotic investigates representation relations (signs), seeks to work out the necessary and sufficient conditions for representing, and classifies the different possible kinds of representation. Speculative grammar is often presented as if it were the whole of Peirce's semiotic, perhaps because that is where we encounter some of his best-known trichotomies.

The second branch of semiotic, critic, is "the science of the necessary conditions of the attainment of truth" (CP 1.445). It is "that part of logic . . . which, setting out with such assumptions as that every assertion is either true or false, and not both, and that some propositions may be recognized to be true, studies the constituent parts of arguments and produces a classification of arguments" (CP 2.205). By means of this classification, arguments "that are bad are thrown into one division, and those which are good into another, these divisions being defined by marks recognizable even if it be not known whether the arguments are good or bad." To complete its task, critic "has to divide good arguments by recognizable marks into those which have different orders of validity, and has to afford means for measuring the strength of arguments" (CP 2.203). Thus, in addition to investigating truth conditions in general, the philosopher who concentrates on critic will investigate Peirce's well-known division of reasoning into abduction, induction, and deduction (and the corresponding theories of abductive, inductive, and deductive logic). Much of what made up the traditional logic curriculum belongs in critic, as does much that is dealt with in philosophical logic, especially topics that concern truth and reference.

The third branch of semiotic, speculative rhetoric, is "the study of the necessary conditions of the transmission of meaning by signs from mind to mind, and from one state of mind to another" (CP 1.445). More succinctly, it studies the conditions for the development and growth of thought. The focus for the philosopher who studies this branch is

the relation between representations and interpreting thoughts (or interpretations). Whereas critic is the science of the *necessary* conditions for the attainment of truth, speculative rhetoric is the science of the *general* conditions for the attainment of truth. Peirce often emphasized the study of *methods* of reasoning as a main concern of speculative rhetoric, and he sometimes suggested that this branch of logic might be better named "methodeutic." Questions of meaning and interpretation dominate this branch, and it may be that pragmatism, as a theory of meaning or inquiry, belongs here. So may the contemporary study of hermeneutics, something Peirce himself once suggested, although with reference to Aristotle's hermeneutic. Be that as it may, it would appear that Peirce's theory of signs encompasses much of what lies at the heart of modern philosophy, and it has relevance for many other disciplines.

Peirce's analysis of the sign relation as fundamentally triadic motivated much that is unique in his philosophy. His insistence that every interpretant is related to its object through the mediation of a sign constitutes a denial of intuition; for intuition requires a direct dyadic relation between an interpretant and its object—somehow we just know something about an object (a person, a state of affairs, whatever) *without* the intervention of a sign. There is no good reason to suppose that we have such a faculty, as Peirce argued in the first paper of his cognition series (item 2). (And yet, in a different sense, Peirce gives us a compelling theory of intuition. With an appeal to abduction and to his belief that we are attuned to nature through centuries of evolutionary development—so that we are actual embodiments of natural principles—Peirce argues, following his father, that we have a natural inclination to the truth, a tendency to guess correctly. But this is a semiotic kind of intuition that bears the Peircean sign of the three.)

But how does an object determine its interpretant through the mediation of a sign? According to Peirce, the dynamic object, the really efficient but not immediately present object, is the object that somehow determines the sign and through the sign mediately determines an interpretant. How can an object that is *external* to the sign (the immediate object is the *internal* object) be a determining force in shaping the interpretant? Notice that this amounts to asking how objects (or the external world) can determine mind.

Every sign *represents* an object (in some way or other) to the interpretant. The interpretant is, or helps make up, a habit that "guides" our future (and present) actions or thought with respect to the object in question, or objects *like* the one in question. If the interpretant is untrue to the object, our behavior will not be (or *may* not be) successful—reality will have its way with us. Not until our interpretants (our ideas or intellectual habits) are fully attuned to their objects will we

avoid unexpected confrontations with a resistant reality. In this way, the real object determines or shapes our mind, our reservoir of intellectual habits.

Does this make Peirce a semiotic realist? It would seem so. Not only does the mind represent the world, it represents it in a certain way: namely, *the way it is forced to represent the world by the resistance of the world to error.* Surely this is a kind of realism. And it is also a semiotic account of pragmatism which, as Christopher Hookway points out, "is supposed to explain how an independent reality can constrain our opinions through perception."[29]

But this is not the whole story. Our perceptions themselves are, to some extent, constrained by previous opinions, and our thoughts by past thoughts, so that it cannot be said that the only *determining* factor in our lives is a resistant external reality. There are many ways to live in the world, and intellect does not constrain us to a single path. There is far more to an intellect than the mere representation of external objects: there are plans and purposes and ideals, all of which can be infixed in intellectual habits that *predetermine future behavior.* And, of course, future behavior will shape the world that is to come. What is so interesting about Peirce's views is that we as individuals, we as humanity, have some measure of control over our intellectual habits. We have a *choice.* We can deliberately, though with effort, change our intellectual habits—which means that we can *change our minds:* and that means that we have some measure of control over which of the many possible futures will be ours. Perhaps this is semiotic idealism but, if so, it is an idealism compatible with semiotic realism.

Peirce's inclusion of the interpretant as fundamental in the sign relation shows that all thought is *to some degree* a matter of interpretation. All advanced thought uses symbols of one kind or another, and thus rests on convention. On Peirce's view, then, all advanced thinking depends on one's participation in a linguistic or semiotic *community.* Peirce's stress on the importance of community was a common theme throughout his work, and it increased as he came to understand more fully the importance of convention for semiosis. Peirce appealed to a community of inquirers for his theory of truth, and he regarded the *identification with community* as fundamental for the advancement of knowledge (the end of the highest semiosis) and, also, for the advancement of human relations. Peirce's semiotic theory of inquiry is sometimes regarded as a "logical socialism," a view supported by the following provocative remark (in item 25):

Here, then, is the issue. The gospel of Christ says that progress comes from every individual merging his individuality in sympathy with his neighbors.

29. Christopher Hookway, *Peirce* (London: Routledge & Kegan Paul, 1985), p. 246.

THE ESSENTIAL PEIRCE

1

On a New List of Categories

P 32: Proceedings of the American Academy of Arts and Sciences *7 (1868):287–98. [Also published in W2:49–59 (with the four other papers in the so-called PAAAS Series and with references to related manuscripts published in W1) and in CP1.545–59. Peirce completely rewrote the paper to serve as the opening chapter of his 1894 "How to Reason" (MS 403).] Presented to the Academy on 14 May 1867, this paper is, according to Peirce, "perhaps the least unsatisfactory, from a logical point of view, that I ever succeeded in producing" and, with item 3 below, one of his two "strongest philosophical works." The culmination of a ten-year effort and the keystone of Peirce's system of philosophy, it argues for a new post-Kantian set of categories (or univeral conceptions) by demonstrating that they are required for the unification of experience. Peirce's argument is essentially a logical derivation, though it depends on a type of mental separation he called 'prescision', which is also required for his later phenomenological derivation of the categories.*

§1. This paper is based upon the theory already established,[1] that the function of conceptions is to reduce the manifold of sensuous impressions to unity, and that the validity of a conception consists in the impossibility of reducing the content of consciousness to unity without the introduction of it.

§2. This theory gives rise to a conception of gradation among those conceptions which are universal. For one such conception may unite the manifold of sense and yet another may be required to unite the conception and the manifold to which it is applied; and so on.

§3. That universal conception which is nearest to sense is that of *the present, in general.* This is a conception, because it is universal. But as the act of *attention* has no connotation at all, but is the pure denotative power of the mind, that is to say, the power which directs the mind to an object, in contradistinction to the power of thinking any predicate of that object,—so the conception of *what is present in general,* which is nothing but the general recognition of what is contained in

attention, has no connotation, and therefore no proper unity. This conception of the present in general, or IT in general, is rendered in philosophical language by the word "substance" in one of its meanings. Before any comparison or discrimination can be made between what is present, what is present must have been recognized as such, as *it*, and subsequently the metaphysical parts which are recognized by abstraction are attributed to this *it*, but the *it* cannot itself be made a predicate. This *it* is thus neither predicated of a subject, nor in a subject, and accordingly is identical with the conception of substance.

§4. The unity to which the understanding reduces impressions is the unity of a proposition. This unity consists in the connection of the predicate with the subject; and, therefore, that which is implied in the copula, or the conception of *being*, is that which completes the work of conceptions of reducing the manifold to unity. The copula (or rather the verb which is copula in one of its senses) means either *actually is* or *would be*, as in the two propositions, "There *is* no griffin," and "A griffin *is* a winged quadruped." The conception of *being* contains only that junction of predicate to subject wherein these two verbs agree. The conception of being, therefore, plainly has no content.

If we say "The stove is black," the stove is the *substance*, from which its blackness has not been differentiated, and the *is*, while it leaves the substance just as it was seen, explains its confusedness, by the application to it of *blackness* as a predicate.

Though *being* does not affect the subject, it implies an indefinite determinability of the predicate. For if one could know the copula and predicate of any proposition, as " . . . is a tailed-man," he would know the predicate to be applicable to something supposable, at least. Accordingly, we have propositions whose subjects are entirely indefinite, as "There is a beautiful ellipse," where the subject is merely *something actual or potential;* but we have no propositions whose predicate is entirely indeterminate, for it would be quite senseless to say, "*A* has the common characters of all things," inasmuch as there are no such common characters.

Thus substance and being are the beginning and end of all conception. Substance is inapplicable to a predicate, and being is equally so to a subject.

§5. The terms "prescision" and "abstraction," which were formerly applied to every kind of separation, are now limited, not merely to mental separation, but to that which arises from *attention to* one element and *neglect of* the other. Exclusive attention consists in a definite conception or *supposition* of one part of an object, without any supposition of the other. Abstraction or prescision ought to be carefully distinguished from two other modes of mental separation, which may be termed *discrimination* and *dissociation.* Discrimination has to do merely with the essences of terms, and only draws a distinction in meaning.

Dissociation is that separation which, in the absence of a constant association, is permitted by the law of association of images. It is the consciousness of one thing, without the necessary simultaneous consciousness of the other. Abstraction or prescision, therefore, supposes a greater separation than discrimination, but a less separation than dissociation. Thus I can discriminate red from blue, space from color, and color from space, but not red from color. I can prescind red from blue, and space from color (as is manifest from the fact that I actually believe there is an uncolored space between my face and the wall); but I cannot prescind color from space, nor red from color. I can dissociate red from blue, but not space from color, color from space, nor red from color.

Prescision is not a reciprocal process. It is frequently the case, that, while *A* cannot be prescinded from *B*, *B* can be prescinded from *A*. This circumstance is accounted for as follows. Elementary conceptions only arise upon the occasion of experience; that is, they are produced for the first time according to a general law, the condition of which is the existence of certain impressions. Now if a conception does not reduce the impressions upon which it follows to unity, it is a mere arbitrary addition to these latter; and elementary conceptions do not arise thus arbitrarily. But if the impressions could be definitely comprehended without the conception, this latter would not reduce them to unity. Hence, the impressions (or more immediate conceptions) cannot be definitely conceived or attended to, to the neglect of an elementary conception which reduces them to unity. On the other hand, when such a conception has once been obtained, there is, in general, no reason why the premises which have occasioned it should not be neglected, and therefore the explaining conception may frequently be prescinded from the more immediate ones and from the impressions.

§6. The facts now collected afford the basis for a systematic method of searching out whatever universal elementary conceptions there may be intermediate between the manifold of substance and the unity of being. It has been shown that the occasion of the introduction of a universal elementary conception is either the reduction of the manifold of substance to unity, or else the conjunction to substance of another conception. And it has further been shown that the elements conjoined cannot be supposed without the conception, whereas the conception can generally be supposed without these elements. Now, empirical psychology discovers the occasion of the introduction of a conception, and we have only to ascertain what conception already lies in the data which is united to that of substance by the first conception, but which cannot be supposed without this first conception, to have the next conception in order in passing from being to substance.

It may be noticed that, throughout this process, *introspection* is not

Reference to an interpretant cannot be prescinded from reference to a correlate; but the latter can be prescinded from the former.

§10. Reference to an interpretant is rendered possible and justified by that which renders possible and justifies comparison. But that is clearly the diversity of impressions. If we had but one impression, it would not require to be reduced to unity, and would therefore not need to be thought of as referred to an interpretant, and the conception of reference to an interpretant would not arise. But since there is a manifold of impressions, we have a feeling of complication or confusion, which leads us to differentiate this impression from that, and then, having been differentiated, they require to be brought to unity. Now they are not brought to unity until we conceive them together as being *ours,* that is, until we refer them to a conception as their interpretant. Thus, the reference to an interpretant arises upon the holding together of diverse impressions, and therefore it does not join a conception to the substance, as the other two references do, but unites directly the manifold of the substance itself. It is, therefore, the last conception in order in passing from being to substance.

§11. The five conceptions thus obtained, for reasons which will be sufficiently obvious, may be termed *categories.* That is,

BEING,
Quality (Reference to a Ground),
Relation (Reference to a Correlate),
Representation (Reference to an Interpretant),
SUBSTANCE.

The three intermediate conceptions may be termed accidents.

§12. This passage from the many to the one is numerical. The conception of a *third* is that of an object which is so related to two others, that one of these must be related to the other in the same way in which the third is related to that other. Now this coincides with the conception of an interpretant. An *other* is plainly equivalent to a *correlate.* The conception of second differs from that of other, in implying the possibility of a third. In the same way, the conception of *self* implies the possibility of an *other.* The *Ground* is the self abstracted from the concreteness which implies the possibility of an other.

§13. Since no one of the categories can be prescinded from those above it, the list of supposable objects which they afford is,

What is.
Quale—that which refers to a ground,
Relate—that which refers to ground and correlate,
Representamen—that which refers to ground, correlate, and interpretant.
It.

§14. A quality may have a special determination which prevents its being prescinded from reference to a correlate. Hence there are two kinds of relation.

1st. That of relates whose reference to a ground is a prescindible or internal quality.

2d. That of relates whose reference to a ground is an unprescindible or relative quality.

In the former case, the relation is a mere *concurrence* of the correlates in one character, and the relate and correlate are not distinguished. In the latter case the correlate is set over against the relate, and there is in some sense an *opposition.*

Relates of the first kind are brought into relation simply by their agreement. But mere disagreement (unrecognized) does not constitute relation, and therefore relates of the second kind are only brought into relation by correspondence in fact.

A reference to a ground may also be such that it cannot be prescinded from a reference to an interpretant. In this case it may be termed an *imputed* quality. If the reference of a relate to its ground can be prescinded from reference to an interpretant, its relation to its correlate is a mere concurrence or community in the possession of a quality, and therefore the reference to a correlate can be prescinded from reference to an interpretant. It follows that there are three kinds of representations.

1st. Those whose relation to their objects is a mere community in some quality, and these representations may be termed *Likenesses.*

2d. Those whose relation to their objects consists in a correspondence in fact, and these may be termed *Indices* or *Signs.*

3d. Those the ground of whose relation to their objects is an imputed character, which are the same as *general signs,* and these may be termed *Symbols.*

§15. I shall now show how the three conceptions of reference to a ground, reference to an object, and reference to an interpretant are the fundamental ones of at least one universal science, that of logic. Logic is said to treat of second intentions as applied to first. It would lead me too far away from the matter in hand to discuss the truth of this statement; I shall simply adopt it as one which seems to me to afford a good definition of the subject-genus of this science. Now, second intentions are the objects of the understanding considered as representations, and the first intentions to which they apply are the objects of those representations. The objects of the understanding, considered as representations, are symbols, that is, signs which are at least potentially general. But the rules of logic hold good of any symbols, of those which are written or spoken as well as of those which are thought. They have no immediate application to likenesses or indices, because no arguments can be constructed of these alone, but do apply to all

symbols. All symbols, indeed, are in one sense relative to the understanding, but only in the sense in which also all things are relative to the understanding. On this account, therefore, the relation to the understanding need not be expressed in the definition of the sphere of logic, since it determines no limitation of that sphere. But a distinction can be made between concepts which are supposed to have no existence except so far as they are actually present to the understanding, and external symbols which still retain their character of symbols so long as they are only *capable* of being understood. And as the rules of logic apply to these latter as much as to the former (and though only through the former, yet this character, since it belongs to all things, is no limitation), it follows that logic has for its subject-genus all symbols and not merely concepts.* We come, therefore, to this, that logic treats of the reference of symbols in general to their objects. In this view it is one of a trivium of conceivable sciences. The first would treat of the formal conditions of symbols having meaning, that is of the reference of symbols in general to their grounds or imputed characters, and this might be called formal grammar; the second, logic, would treat of the formal conditions of the truth of symbols; and the third would treat of the formal conditions of the force of symbols, or their power of appealing to a mind, that is, of their reference in general to interpretants, and this might be called formal rhetoric.

There would be a general division of symbols, common to all these sciences; namely, into,

1°: Symbols which directly determine only their *grounds* or imputed qualities, and are thus but sums of marks or *terms;*

2°: Symbols which also independently determine their *objects* by means of other term or terms, and thus, expressing their own objective validity, become capable of truth or falsehood, that is, are *propositions;* and,

3°: Symbols which also independently determine their *interpretants,* and thus the minds to which they appeal, by premising a proposition or propositions which such a mind is to admit. These are *arguments.*

And it is remarkable that, among all the definitions of the proposition, for example, as the *oratio indicativa,* as the subsumption of an object under a concept, as the expression of the relation of two concepts, and as the indication of the mutable ground of appearance, there is, perhaps, not one in which the conception of reference to an object

*Herbart says: "Unsre sämmtlichen Gedanken lassen sich von zwei Seiten betrachten; theils als Thätigkeiten unseres Geistes, theils in Hinsicht dessen, *was* durch sie gedacht wird. In letzterer Beziehung heissen sie *Begriffe,* welches Wort, indem es das *Begriffene* bezeichnet, zu abstrahiren gebietet von der Art und Weise, wie wir den Gedanken empfangen, produciren, oder reproduciren mögen." But the whole difference between a concept and an external sign lies in these respects which logic ought, according to Herbart, to abstract from.[3]

or correlate is not the important one. In the same way, the conception of reference to an interpretant or third, is always prominent in the definitions of argument.

In a proposition, the term which separately indicates the object of the symbol is termed the subject, and that which indicates the ground is termed the predicate. The objects indicated by the subject (which are always potentially a plurality,—at least, of phases or appearances) are therefore stated by the proposition to be related to one another on the ground of the character indicated by the predicate. Now this relation may be either a concurrence or an opposition. Propositions of concurrence are those which are usually considered in logic; but I have shown in a paper upon the classification of arguments that it is also necessary to consider separately propositions of opposition, if we are to take account of such arguments as the following:—

Whatever is the half of anything is less than that of which it is the half;

$$A \text{ is half of } B:$$
$$\therefore A \text{ is less than } B.$$

The subject of such a proposition is separated into two terms, a "subject nominative" and an "object accusative."

In an argument, the premises form a representation of the conclusion, because they indicate the interpretant of the argument, or representation representing it to represent its object. The premises may afford a likeness, index, or symbol of the conclusion. In deductive argument, the conclusion is represented by the premises as by a general sign under which it is contained. In hypotheses, something *like* the conclusion is proved, that is, the premises form a likeness of the conclusion. Take, for example, the following argument:—

$$M \text{ is, for instance, } P', P'', P''', \text{ and } P^{\text{iv}};$$
$$S \text{ is } P', P'', P''', \text{ and } P^{\text{iv}}:$$
$$\therefore S \text{ is } M.$$

Here the first premise amounts to this, that "P', P'', P''', and P^{iv}" is a likeness of M, and thus the premises are or represent a likeness of the conclusion. That it is different with induction another example will show.

$$S', S'', S''', \text{ and } S^{\text{iv}} \text{ are taken as samples of the collection } M;$$
$$S', S'', S''', \text{ and } S^{\text{iv}} \text{ are } P:$$
$$\therefore \text{All } M \text{ is } P.$$

Hence the first premise amounts to saying that "S', S'', S''', and S^{iv}" is an index of M. Hence the premises are an index of the conclusion.

The other divisions of terms, propositions, and arguments arise from the distinction of extension and comprehension. I propose to

treat this subject in a subsequent paper.[4] But I will so far anticipate that, as to say that there is, first, the direct reference of a symbol to its objects, or its denotation; second, the reference of the symbol to its ground, through its object, that is, its reference to the common characters of its objects, or its connotation; and third, its reference to its interpretants through its object, that is, its reference to all the synthetical propositions in which its objects in common are subject or predicate, and this I term the information it embodies. And as every addition to what it denotes, or to what it connotes, is effected by means of a distinct proposition of this kind, it follows that the extension and comprehension of a term are in an inverse relation, as long as the information remains the same, and that every increase of information is accompanied by an increase of one or other of these two quantities. It may be observed that extension and comprehension are very often taken in other senses in which this last proposition is not true.

This is an imperfect view of the application which the conceptions which, according to our analysis, are the most fundamental ones find in the sphere of logic. It is believed, however, that it is sufficient to show that at least something may be usefully suggested by considering this science in this light.

of intuitively distinguishing intuitions from other cognitions has not prevented men from disputing very warmly as to which cognitions are intuitive. In the middle ages, reason and external authority were regarded as two coördinate sources of knowledge, just as reason and the authority of intuition are now; only the happy device of considering the enunciations of authority to be essentially indemonstrable had not yet been hit upon. All authorities were not considered as infallible, any more than all reasons; but when Berengarius said that the authoritativeness of any particular authority must rest upon reason, the proposition was scouted as opinionated, impious, and absurd. Thus, the credibility of authority was regarded by men of that time simply as an ultimate premise, as a cognition not determined by a previous cognition of the same object, or, in our terms, as an intuition. It is strange that they should have thought so, if, as the theory now under discussion supposes, by merely contemplating the credibility of the authority, as a Fakir does his God, they could have seen that it was not an ultimate premise! Now, what if our *internal* authority should meet the same fate, in the history of opinions, as that external authority has met? Can that be said to be absolutely certain which many sane, well-informed, and thoughtful men already doubt?*

Every lawyer knows how difficult it is for witnesses to distinguish between what they have seen and what they have inferred. This is

*The proposition of Berengarius is contained in the following quotation from his *De Sacra Cœna: "Maximi plane cordis est, per omnia ad dialecticam confugere, quia confugere ad eam ad rationem est confugere, quo qui non confugit, cum secundum rationem sit factus ad imaginem dei, suum honorem reliquit, nec potest renovari de die in diem ad imaginem dei."*[2] The most striking characteristic of medieval reasoning, in general, is the perpetual resort to authority. When Fredegisus[3] and others wish to prove that darkness is a thing, although they have evidently derived the opinion from nominalistic-Platonistic meditations, they argue the matter thus: "God called the darkness, night"; then, certainly, it is a thing, for otherwise before it had a name, there would have been nothing, not even a fiction to name. Abelard thinks it worth while to cite Boëthius, when he says that space has three dimensions, and when he says that an individual cannot be in two places at once.[4] The author of *De Generibus et Speciebus,* a work of a superior order, in arguing against a Platonic doctrine, says that if whatever is universal is eternal, the *form* and matter of Socrates, being severally universal, are both eternal, and that, therefore, Socrates was not created by God, but only put together, *"quod quantum a vero deviet, palam est."* The authority is the final court of appeal. The same author, where in one place he doubts a statement of Boëthius, finds it necessary to assign a special reason why in this case it is not absurd to do so. *Exceptio probat regulam in casibus non exceptis.*[5] Recognized authorities were certainly sometimes disputed in the twelfth century; their mutual contradictions insured that; and the authority of philosophers was regarded as inferior to that of theologians. Still, it would be impossible to find a passage where the authority of Aristotle is directly denied upon any logical question. *"Sunt et multi errores eius,"* says John of Salisbury, *"qui in scripturis tam Ethnicis, quam fidelibus poterunt inveniri: verum in logica parem habuisse non legitur."*[6] *"Sed nihil adversus Aristotelem,"* says Abelard, and in another place, *"Sed si Aristotelem Peripateticorum principem culpare possumus, quam amplius in hac arte recepimus?"*[7] The idea of going without an authority, or of subordinating authority to reason, does not occur to him.

particularly noticeable in the case of a person who is describing the performances of a spiritual medium or of a professed juggler. The difficulty is so great that the juggler himself is often astonished at the discrepancy between the actual facts and the statement of an intelligent witness who has not understood the trick. A part of the very complicated trick of the Chinese rings consists in taking two solid rings linked together, talking about them as though they were separate—taking it for granted, as it were—then pretending to put them together, and handing them immediately to the spectator that he may see that they are solid. The art of this consists in raising, at first, the strong suspicion that one is broken. I have seen McAlister[8] do this with such success, that a person sitting close to him, with all his faculties straining to detect the illusion, would have been ready to swear that he saw the rings put together, and, perhaps, if the juggler had not professedly practised deception, would have considered a doubt of it as a doubt of his own veracity. This certainly seems to show that it is not always very easy to distinguish between a premise and a conclusion, that we have no infallible power of doing so, and that in fact our only security in difficult cases is in some signs from which we can infer that a given fact must have been seen or must have been inferred. In trying to give an account of a dream, every accurate person must often have felt that it was a hopeless undertaking to attempt to disentangle waking interpretations and fillings out from the fragmentary images of the dream itself.

The mention of dreams suggests another argument. A dream, as far as its own content goes, is exactly like an actual experience. It is mistaken for one. And yet all the world believes that dreams are determined, according to the laws of the association of ideas, &c., by previous cognitions. If it be said that the faculty of intuitively recognizing intuitions is asleep, I reply that this is a mere supposition, without other support. Besides, even when we wake up, we do not find that the dream differed from reality, except by certain *marks,* darkness and fragmentariness. Not unfrequently a dream is so vivid that the memory of it is mistaken for the memory of an actual occurrence.

A child has, as far as we know, all the perceptive powers of a man. Yet question him a little as to *how* he knows what he does. In many cases, he will tell you that he never learned his mother-tongue; he always knew it, or he knew it as soon as he came to have sense. It appears, then, that *he* does not possess the faculty of distinguishing, by simple contemplation, between an intuition and a cognition determined by others.

There can be no doubt that before the publication of Berkeley's book on Vision,[9] it had generally been believed that the third dimension of space was immediately intuited, although, at present, nearly all admit that it is known by inference. We had been *contemplating* the

object since the very creation of man, but this discovery was not made until we began to *reason* about it.

Does the reader know of the blind spot on the retina? Take a number of this journal, turn over the cover so as to expose the white paper, lay it sideways upon the table before which you must sit, and put two cents upon it, one near the left-hand edge, and the other to the right. Put your left hand over your left eye, and with the right eye look *steadily* at the left-hand cent. Then, with your right hand, move the right-hand cent (which is now plainly seen) *towards* the left hand. When it comes to a place near the middle of the page it will disappear—you cannot see it without turning your eye. Bring it nearer to the other cent, or carry it further away, and it will reappear; but at that particular spot it cannot be seen. Thus it appears that there is a blind spot nearly in the middle of the retina; and this is confirmed by anatomy. It follows that the space we immediately see (when one eye is closed) is not, as we had imagined, a continuous oval, but is a ring, the filling up of which must be the work of the intellect. What more striking example could be desired of the impossibility of distinguishing intellectual results from intuitional data, by mere contemplation?

A man can distinguish different textures of cloth by feeling; but not immediately, for he requires to move his fingers over the cloth, which shows that he is obliged to compare the sensations of one instant with those of another.

The pitch of a tone depends upon the rapidity of the succession of the vibrations which reach the ear. Each of those vibrations produces an impulse upon the ear. Let a single such impulse be made upon the ear, and we know, experimentally, that it is perceived. There is, therefore, good reason to believe that each of the impulses forming a tone is perceived. Nor is there any reason to the contrary. So that this is the only admissible supposition. Therefore, the pitch of a tone depends upon the rapidity with which certain impressions are successively conveyed to the mind. These impressions must exist previously to any tone; hence, the sensation of pitch is determined by previous cognitions. Nevertheless, this would never have been discovered by the mere contemplation of that feeling.

A similar argument may be urged in reference to the perception of two dimensions of space. This appears to be an immediate intuition. But if we were to *see* immediately an extended surface, our retinas must be spread out in an extended surface. Instead of that, the retina consists of innumerable needles pointing towards the light, and whose distances from one another are decidedly greater than the *minimum visibile.*[10] Suppose each of those nerve-points conveys the sensation of a little colored surface. Still, what we immediately see must even then be, not a continuous surface, but a collection of spots. Who could discover this by mere intuition? But all the analogies of the nervous

system are against the supposition that the excitation of a single nerve can produce an idea as complicated as that of a space, however small. If the excitation of no one of these nerve-points can immediately convey the impression of space, the excitation of all cannot do so. For, the excitation of each produces some impression (according to the analogies of the nervous system), hence, the sum of these impressions is a necessary condition of any perception produced by the excitation of all; or, in other terms, a perception produced by the excitation of all is determined by the mental impressions produced by the excitation of every one. This argument is confirmed by the fact that the existence of the perception of space can be fully accounted for by the action of faculties known to exist, without supposing it to be an immediate impression. For this purpose, we must bear in mind the following facts of physio-psychology: 1. The excitation of a nerve does not of itself inform us where the extremity of it is situated. If, by a surgical operation, certain nerves are displaced, our sensations from those nerves do not inform us of the displacement. 2. A single sensation does not inform us how many nerves or nerve-points are excited. 3. We can distinguish between the impressions produced by the excitations of different nerve-points. 4. The differences of impressions produced by different excitations of similar nerve-points are similar. Let a momentary image be made upon the retina. By No. 2, the impression thereby produced will be indistinguishable from what might be produced by the excitation of some conceivable single nerve. It is not conceivable that the momentary excitation of a single nerve should give the sensation of space. Therefore, the momentary excitation of all the nerve-points of the retina cannot, immediately or mediately, produce the sensation of space. The same argument would apply to any unchanging image on the retina. Suppose, however, that the image moves over the retina. Then the peculiar excitation which at one instant affects one nerve-point, at a later instant will affect another. These will convey impressions which are very similar by 4, and yet which are distinguishable by 3. Hence, the conditions for the recognition of a relation between these impressions are present. There being, however, a very great number of nerve-points affected by a very great number of successive excitations, the relations of the resulting impressions will be almost inconceivably complicated. Now, it is a known law of mind, that when phenomena of an extreme complexity are presented, which yet would be reduced to *order* or mediate simplicity by the application of a certain conception, that conception sooner or later arises in application to those phenomena. In the case under consideration, the conception of extension would reduce the phenomena to unity, and, therefore, its genesis is fully accounted for. It remains only to explain why the previous cognitions which determine it are not more clearly apprehended. For this explanation, I shall refer to a paper upon a new list

of categories, §5,* merely adding that just as we are able to recognize our friends by certain appearances, although we cannot possibly say what those appearances are and are quite unconscious of any process of reasoning, so in any case when the reasoning is easy and natural to us, however complex may be the premises, they sink into insignificance and oblivion proportionately to the satisfactoriness of the theory based upon them. This theory of space is confirmed by the circumstance that an exactly similar theory is imperatively demanded by the facts in reference to time. That the course of time should be immediately felt is obviously impossible. For, in that case, there must be an element of this feeling at each instant. But in an instant there is no duration and hence no immediate feeling of duration. Hence, no one of these elementary feelings is an immediate feeling of duration; and, hence the sum of all is not. On the other hand, the impressions of any moment are very complicated,—containing all the images (or the elements of the images) of sense and memory, which complexity is reducible to mediate simplicity by means of the conception of time.†

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†The above theory of space and time does not conflict with that of Kant so much as it appears to do. They are in fact the solutions of different questions. Kant, it is true, makes space and time intuitions, or rather forms of intuition, but it is not essential to his theory that intuition should mean more than "individual representation." The apprehension of space and time results, according to him, from a mental *process,*—the "Synthesis der Apprehension in der Anschauung." (See *Critik d. reinen Vernunft.* Ed. 1781, pp. 98 *et seq.*) My theory is merely an account of this synthesis.

The gist of Kant's "Transcendental Æsthetic" is contained in two principles. First, that universal and necessary propositions are not given in experience. Second, that universal and necessary facts are determined by the conditions of experience in general. By a universal proposition is meant merely, one which asserts something of *all* of a sphere,—not necessarily one which all men believe. By a necessary proposition, is meant one which asserts what it does, not merely of the actual condition of things, but of every possible state of things; it is not meant that the proposition is one which we cannot help believing. Experience, in Kant's first principle, cannot be used for a product of the objective understanding, but must be taken for the first impressions of sense with consciousness conjoined and worked up by the imagination into images, together with all which is logically deducible therefrom. In this sense, it may be admitted that universal and necessary propositions are not given in experience. But, in that case, neither are any inductive conclusions which might be drawn from experience, given in it. In fact, it is the peculiar function of induction to produce universal and necessary propositions. Kant points out, indeed, that the universality and necessity of scientific inductions are but the analogues of philosophic universality and necessity; and this is true, in so far as it is never allowable to accept a scientific conclusion without a certain indefinite drawback. But this is owing to the insufficiency in the number of the instances; and whenever instances may be had in as large numbers as we please, *ad infinitum,* a truly universal and necessary proposition is inferable. As for Kant's second principle, that the truth of universal and necessary propositions is dependent upon the conditions of the general experience, it is no more nor less than the principle of Induction. I go to a fair and draw from the "grab-bag" twelve packages. Upon opening them, I find that every one contains a red ball. Here is a universal fact. It depends, then, on the condition of the experience. What is the condition of the experience? It is solely that the balls are the contents of packages drawn from that bag, that is, the only thing which determined the experience, was the drawing from the bag. I infer, then, according to the principle

(I may remark, by the way, that this remains so through life; testimony will convince a man that he himself is mad.) A child hears it said that the stove is hot. But it is not, he says; and, indeed, that central body is not touching it, and only what that touches is hot or cold. But he touches it, and finds the testimony confirmed in a striking way. Thus, he becomes aware of ignorance, and it is necessary to suppose a *self* in which this ignorance can inhere. So testimony gives the first dawning of self-consciousness.

But, further, although usually appearances are either only confirmed or merely supplemented by testimony, yet there is a certain remarkable class of appearances which are continually contradicted by testimony. These are those predicates which *we* know to be emotional, but which *he* distinguishes by their connection with the movements of that central person, himself (that the table wants moving, etc.). These judgments are generally denied by others. Moreover, he has reason to think that others, also, have such judgments which are quite denied by all the rest. Thus, he adds to the conception of appearance as the actualization of fact, the conception of it as something *private* and valid only for one body. In short, *error* appears, and it can be explained only by supposing a *self* which is fallible.

Ignorance and error are all that distinguish our private selves from the absolute *ego* of pure apperception.

Now, the theory which, for the sake of perspicuity, has thus been stated in a specific form, may be summed up as follows: At the age at which we know children to be self-conscious, we know that they have been made aware of ignorance and error; and we know them to possess at that age powers of understanding sufficient to enable them then to infer from ignorance and error their own existence. Thus we find that known faculties, acting under conditions known to exist, would rise to self-consciousness. The only essential defect in this account of the matter is, that while we know that children exercise *as much* understanding as is here supposed, we do not know that they exercise it in precisely this way. Still the supposition that they do so is infinitely more supported by facts, than the supposition of a wholly peculiar faculty of the mind.

The only argument worth noticing for the existence of an intuitive self-consciousness is this. We are more certain of our own existence than of any other fact; a premise cannot determine a conclusion to be more certain than it is itself; hence, our own existence cannot have been inferred from any other fact. The first premise must be admitted, but the second premise is founded on an exploded theory of logic. A conclusion cannot be more certain than that some one of the facts which support it is true, but it may easily be more certain than any one of those facts. Let us suppose, for example, that a dozen witnesses testify to an occurrence. Then my belief in that occurrence rests on

the belief that each of those men is generally to be believed upon oath. Yet the fact testified to is made more certain than that any one of those men is generally to be believed. In the same way, to the developed mind of man, his own existence is supported by *every other fact,* and is, therefore, incomparably more certain than any one of these facts. But it cannot be said to be more certain than that there is another fact, since there is no doubt perceptible in either case.

It is to be concluded, then, that there is no necessity of supposing an intuitive self-consciousness, since self-consciousness may easily be the result of inference.

QUESTION 3. *Whether we have an intuitive power of distinguishing between the subjective elements of different kinds of cognitions.*

Every cognition involves something represented, or that of which we are conscious, and some action or passion of the self whereby it becomes represented. The former shall be termed the objective, the latter the subjective, element of the cognition. The cognition itself is an intuition of its objective element, which may therefore be called, also, the immediate object. The subjective element is not necessarily immediately known, but it is possible that such an intuition of the subjective element of a cognition of its character, whether that of dreaming, imagining, conceiving, believing, etc., should accompany every cognition. The question is whether this is so.

It would appear, at first sight, that there is an overwhelming array of evidence in favor of the existence of such a power. The difference between seeing a color and imagining it is immense. There is a vast difference between the most vivid dream and reality. And if we had no intuitive power of distinguishing between what we believe and what we merely conceive, we never, it would seem, could in any way distinguish them; since if we did so by reasoning, the question would arise whether the argument itself was believed or conceived, and this must be answered before the conclusion could have any force. And thus there would be a *regressus ad infinitum.* Besides, if we do not know that we believe, then, from the nature of the case, we do not believe.

But be it noted that we do not intuitively know the existence of this faculty. For it is an intuitive one, and we cannot intuitively know that a cognition is intuitive. The question is, therefore, whether it is necessary to suppose the existence of this faculty, or whether then the facts can be explained without this supposition.

In the first place, then, the difference between what is imagined or dreamed and what is actually experienced, is no argument in favor of the existence of such a faculty. For it is not questioned that there are distinctions in what is present to the mind, but the question is, whether independently of any such distinctions in the immediate *objects* of consciousness, we have any immediate power of distinguishing different modes of consciousness. Now, the very fact of the immense

difference in the immediate objects of sense and imagination, sufficiently accounts for our distinguishing those faculties; and instead of being an argument in favor of the existence of an intuitive power of distinguishing the subjective elements of consciousness, it is a powerful reply to any such argument, so far as the distinction of sense and imagination is concerned.

Passing to the distinction of belief and conception, we meet the statement that the knowledge of belief is essential to its existence. Now, we can unquestionably distinguish a belief from a conception, in most cases, by means of a peculiar feeling of conviction; and it is a mere question of words whether we define belief as that judgment which is accompanied by this feeling, or as that judgment from which a man will act. We may conveniently call the former *sensational*, the latter *active* belief. That neither of these necessarily involves the other, will surely be admitted without any recital of facts. Taking belief in the sensational sense, the intuitive power of reorganizing it will amount simply to the capacity for the sensation which accompanies the judgment. This sensation, like any other, is an object of consciousness; and therefore the capacity for it implies no intuitive recognition of subjective elements of consciousness. If belief is taken in the active sense, it may be discovered by the observation of external facts and by inference from the sensation of conviction which usually accompanies it.

Thus, the arguments in favor of this peculiar power of consciousness disappear, and the presumption is again against such a hypothesis. Moreover, as the immediate objects of any two faculties must be admitted to be different, the facts do not render such a supposition in any degree necessary.

QUESTION 4. *Whether we have any power of introspection, or whether our whole knowledge of the internal world is derived from the observation of external facts.*

It is not intended here to assume the reality of the external world. Only, there is a certain set of facts which are ordinarily regarded as external, while others are regarded as internal. The question is whether the latter are known otherwise than by inference from the former. By introspection, I mean a direct perception of the internal world, but not necessarily a perception of it *as* internal. Nor do I mean to limit the signification of the word to intuition, but would extend it to any knowledge of the internal world not derived from external observation.

There is one sense in which any perception has an internal object, namely, that every sensation is partly determined by internal conditions. Thus, the sensation of redness is as it is, owing to the constitution of the mind; and in this sense it is a sensation of something internal. Hence, we may derive a knowledge of the mind from a

consideration of this sensation, but that knowledge would, in fact, be an inference from redness as a predicate of something external. On the other hand, there are certain other feelings—the emotions, for example—which appear to arise in the first place, not as predicates at all, and to be referable to the mind alone. It would seem, then, that by means of these, a knowledge of the mind may be obtained, which is not inferred from any character of outward things. The question is whether this is really so.

Although introspection is not necessarily intuitive, it is not self-evident that we possess this capacity; for we have no intuitive faculty of distinguishing different subjective modes of consciousness. The power, if it exists, must be known by the circumstance that the facts cannot be explained without it.

In reference to the above argument from the emotions, it must be admitted that if a man is angry, his anger implies, in general, no determinate and constant character in its object. But, on the other hand, it can hardly be questioned that there is some relative character in the outward thing which makes him angry, and a little reflection will serve to show that his anger consists in his saying to himself, "this thing is vile, abominable, etc.," and that it is rather a mark of returning reason to say, "I am angry." In the same way any emotion is a predication concerning some object, and the chief difference between this and an objective intellectual judgment is that while the latter is relative to human nature or to mind in general, the former is relative to the particular circumstances and disposition of a particular man at a particular time. What is here said of emotions in general, is true in particular of the sense of beauty and of the moral sense. Good and bad are feelings which first arise as predicates, and therefore are either predicates of the not-I, or are determined by previous cognitions (there being no intuitive power of distinguishing subjective elements of consciousness).

It remains, then, only to inquire whether it is necessary to suppose a particular power of introspection for the sake of accounting for the sense of willing. Now, volition, as distinguished from desire, is nothing but the power of concentrating the attention, of abstracting. Hence, the knowledge of the power of abstracting may be inferred from abstract objects, just as the knowledge of the power of seeing is inferred from colored objects.

It appears, therefore, that there is no reason for supposing a power of introspection; and, consequently, the only way of investigating a psychological question is by inference from external facts.

QUESTION 5. *Whether we can think without signs.*

This is a familiar question, but there is, to this day, no better argument in the affirmative than that thought must precede every sign. This assumes the impossibility of an infinite series. But Achilles,

as a fact, will overtake the tortoise. *How* this happens, is a question not necessary to be answered at present, as long as it certainly does happen.

If we seek the light of external facts, the only cases of thought which we can find are of thought in signs. Plainly, no other thought can be evidenced by external facts. But we have seen that only by external facts can thought be known at all. The only thought, then, which can possibly be cognized is thought in signs. But thought which cannot be cognized does not exist. All thought, therefore, must necessarily be in signs.

A man says to himself, "Aristotle is a man; *therefore,* he is fallible." Has he not, then, thought what he has not said to himself, that all men are fallible? The answer is, that he has done so, so far as this is said in his *therefore.* According to this, our question does not relate to *fact,* but is a mere asking for distinctness of thought.

From the proposition that every thought is a sign, it follows that every thought must address itself to some other, must determine some other, since that is the essence of a sign. This, after all, is but another form of the familiar axiom, that in intuition, i.e. in the immediate present, there is no thought, or, that all which is reflected upon has past. *Hinc loquor inde est.* That, since any thought, there must have been a thought, has its analogue in the fact that, since any past time, there must have been an infinite series of times. To say, therefore, that thought cannot happen in an instant, but requires a time, is but another way of saying that every thought must be interpreted in another, or that all thought is in signs.

QUESTION 6. *Whether a sign can have any meaning, if by its definition it is the sign of something absolutely incognizable.*

It would seem that it can, and that universal and hypothetical propositions are instances of it. Thus, the universal proposition, "all ruminants are cloven-hoofed," speaks of a possible infinity of animals, and no matter how many ruminants may have been examined, the possibility must remain that there are others which have not been examined. In the case of a hypothetical proposition, the same thing is still more manifest; for such a proposition speaks not merely of the actual state of things, but of every possible state of things, all of which are not knowable, inasmuch as only one can so much as exist.

On the other hand, all our conceptions are obtained by abstractions and combinations of cognitions first occurring in judgments of experience. Accordingly, there can be no conception of the absolutely incognizable, since nothing of that sort occurs in experience. But the meaning of a term is the conception which it conveys. Hence, a term can have no such meaning.

If it be said that the incognizable is a concept compounded of the