RANSDELL, Joseph Morton, 1931–
CHARLES PEIRCE: THE IDEA OF REPRESENTATION.

Columbia University, Ph.D., 1966
Philosophy

University Microfilms, Inc., Ann Arbor, Michigan
© Copyright by

JOSEPH MORTON RANSDELL

1967
CHARLES PEIRCE: THE IDEA OF REPRESENTATION

By

Joseph Morton Ransdell

Submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, in the Faculty of Philosophy, Columbia University

1966
ABSTRACT

CHARLES PEIRCE: THE IDEA OF REPRESENTATION

JOSEPH MORTON RANSDELL

This study is concerned with a central conception in the philosophy of Charles Peirce, the conception of a sign. It is suggested that a sign is best understood simply as a term of the triadic relation of representation, and the emphasis in the study falls upon the explication of that relation in its generic character, as Peirce understood it. The study is primarily interpretive rather than evaluative, and two complementary approaches are utilized conjointly throughout. First, some significant connections between Peirce's conception and a number of more familiar and traditional philosophical conceptions are suggested. For this purpose, the leading assumption is that the concept of a sign is a generalization of the traditional concept of appearance (provided this latter term is understood primarily in the sense of a manifestation of reality rather than in the sense of an illusion or deception). Second, the conception of representation is approached in a structural or formal way, with the intent of showing the relation between this generic conception and the formal categorial analysis which Peirce initiated in 1867. For this purpose, the leading assumption is that the representation relation is thought of by Peirce as being identical with the fundamental inference relation, and that the categorial
analysis is in turn an analysis of this latter relation.

The study is divided into eight chapters. The first five chapters are directed primarily toward explicating the formal or structural features of the generic relation. The last three chapters consider, respectively, iconic, symbolic, and indexical representations, and are primarily concerned with connections with traditional philosophical issues. Chapter I is introductory. Chapter II is concerned with establishing an initial orientation towards Peirce's logical point of view, for which purpose the distinction between "first intentions" and "second intentions" is utilized. Chapter III is concerned with the sense in which the logical or semiotical point of view is concerned with the reasoning process. Chapter IV is an analysis of the major line of argument in Peirce's 1867 essay on the categories. Chapter V is a continuation of the analysis of Chapter IV, and it concludes with an attempt to clarify the meaning of some of Peirce's definitions of "sign" in the light of foregoing considerations. In Chapter VI the iconic sign is discussed in connection with Peirce's problem of reconciling the doctrines of representative perception and immediate perception. In Chapter VII the symbolic sign is discussed in connection with the traditional problem of accounting for the generality of ideas or words. In Chapter VIII the indexical sign is discussed in connection with the import of the Kantian dictum that "existence is not a real predicate."
NOTE ON CITATIONS

In accordance with standard practice, all references to, and quotations from, The Collected Papers of Charles Sanders Peirce, Vols. I-VI, ed. Charles Hartshorne and Paul Weiss, Vols. VII-VIII, ed. Arthur Burks (Cambridge: Harvard University Press, 1931-35 and 1958), are cited as follows: the number to the left of the decimal point designates the volume number; the number to the right of the decimal point designates the paragraph number.

Since there is also frequent reference to Charles S. Peirce's Letters to Lady Welby, ed. Irwin C. Lieb (New Haven: Whitlock's, Inc., 1953), I have used a suitable convention here as well: the letters "LW" refer to this volume and the number immediately following refers to the page number.

Citations to these volumes are usually embodied parenthetically in appropriate places in the text itself, except where they are relegated to footnotes for some special reason. All other citations in this study are made in the usual way. It should also be noted that I have not corrected irregularities of spelling, punctuation or grammar, in quotations from Peirce, except where explicitly indicated by brackets.
TABLE OF CONTENTS

NOTE ON CITATIONS ........................................... 11

PART I. THE REPRESENTATION RELATION

Chapter
 I. INTRODUCTION ............................................. 1
 II. THE LOGICAL POINT OF VIEW .............................. 7
 III. LOGIC AND REASONING .................................... 41
 IV. THE GENERIC RELATION:
  (1) THE CATEGORIES ....................................... 70
 V. THE GENERIC RELATION:
  (2) THE ROLE OF THE INTERPRETANT ....................... 104
    A. Ampliative Inference .................................. 104
    B. The Interpretant and the "I think" .................... 117
    C. The Definition of a Sign .............................. 127

PART II. THREE KINDS OF REPRESENTATION

Chapter
 VI. THE ICONIC SIGN ........................................ 139
 VII. THE SYMBOLIC SIGN ..................................... 157
 VIII. THE INDEXICAL SIGN .................................... 190
 APPENDIX: THE SEMIOTIC TRIVIUM .......................... 214
 BIBLIOGRAPHY ................................................ 221
CHAPTER VI

THE ICONIC SIGN

In this and the following two chapters I shall discuss Peirce's major trichotomy of signs into icons, indices, and symbols. This particular division of signs has a special relevance to the central point of view taken in this study, viz. that the idea of a sign is the idea of manifestation, inasmuch as these three kinds of signs are the three most general modes of manifestation. My object will not be to try to give a definitive account of this distinction, but rather to try to elicit some of the philosophical motivations underlying it. Needless to say, Peirce did not arrive at this distinction -- or any other -- simply by considering all manner of signs and noting that they happen to fall into three such classes. Points of fundamental logical (i.e. epistemological) importance lie behind it, and require to be brought out before any real sense can be made of it. There has so far been little attempt on the part of Peirce scholars to elicit any philosophical sense from it, the usual interpretive strategy being to collate a number of prima facie incompatible statements and conclude that, as usual, Peirce was hopelessly confused.¹ This fact may justify the somewhat speculative

¹A happy exception to this is John Joseph Fitzgerald's
approach which I take to the topic here. I have not attempted a close integration of the material in this part of the study with the discussion in the first part. My interpretation of the generic relation and my interpretation of the icon-index-symbol distinction were developed somewhat independently, and the links between the two are not yet sufficiently clear to me to warrant attempting to bring them tightly together here. I suppose them to be compatible, of course; otherwise there would be no question of including them as parts of the same work. I should also add that I presuppose, as in the first part, a certain minimal acquaintance with Peirce in order to avoid repeating points long since grown trite in the secondary literature.

Within the scholastic logical tradition, from which Peirce derived so many of the elements of his thought, a distinction is sometimes made between two sorts of signs: **instrumental signs** and **formal signs**. The latter sort,

discussion of the trichotomy in his dissertation "Peirce's Theory of Signs as the Foundation for his Pragmatism," Tulane University, 1962. Fitzgerald does not approach the problem of interpretation as I do here, but he does approach it on the assumption that Peirce may have had a modicum of self-critical ability, after all. Fitzgerald's discussion renders all previous one obsolete, in my judgment. (It may be heresy to suggest it, but perhaps if more students of Peirce could be persuaded that a critical study doesn't have to be a refutation more headway might be made in understanding Peirce.)

2 This distinction is apparently due, under these labels, to John of St. Thomas (to whom reference was made in Chapter II, footnote 33). The distinction is made in his *Outlines of Formal Logic*, pp. 31-32, and is discussed in Question 22, articles 1-4, of Part II of the *Ars Logica*. 
the formal sign, exhibits what I believe to be a significant analogy, at least in regard to underlying philosophical motives, with Peirce's notion of the iconic sign. Perhaps by considering these philosophical motives, with awareness of the historical origin of the notion itself, we can get an insight into the real philosophical import of the notion of the iconic sign. I should stress, though, that what is said here of the formal sign is not to be taken as ipso facto true of Peirce's notion. The comparison is primarily for purposes of suggestion. Now, the motivation for the notion of the formal sign is to be found in the standing problem for representative theories of knowledge generally (of which a semiotic theory like Peirce's may be considered a peculiar species,) viz. solipsism or scepticism arising out of the fact that the posited representation ("idea," "sign") tends -- to put the matter somewhat crudely -- to get in the way of knowing that thing which it is supposed to be the very means to knowing. (A

This part of the Ars Logica has been partially translated in The Material Logic of John of St. Thomas, but Question 22 is not included in this. However, there is some discussion of the nature of signs in the part of Question 21 which was translated (see pp. 388-404 of The Material Logic). For an interesting contemporary discussion of this issue see Jacques Maritain's "Sign and Symbol," in his Redeeming the Time (London: The Centenary Press, 1943), and see also his The Degrees of Knowledge (New York: Charles Scribner's Sons, 1959), esp. pp. 119ff and pp. 387-417. Maritain argues, with the help of a battery of quotations from Thomas Aquinas, that the distinction in question is definitely in the writings of the latter, though it was apparently John of St. Thomas who articulated it in a systematic way. In any case, it is closely connected with the notion of the "mental sign," as will be discussed shortly above, and the latter is unquestionably present in the writings of the medieval logicians.
mention of the name "John Locke" should be sufficient to indicate what is meant here.) Let us see how this problem develops.

The fact of possible deception and error, especially in the case of perception, seems to require the abandonment of "naive realism" in regard to the direct object of cognition: what appears to be the object cannot in general be identified with the object itself since these appearance sometimes fail to be veridical. Hence, the appearance is called an "idea" ("representation," "sign") and it is supposed that our knowledge of an object is always by means of or via an appearance or idea of it. A three-element distinction is thereby set up consisting of knowing mind, (putatively) known object, and intervening or intermediating idea through or by means of which the knowing mind is connected with the known object. The problem then arises as to how the knowing mind manages to get "past" the intervening idea, or can know that there is anything "past" it. The intervening idea may then come to assume the status which the object itself had on the level of "naive realism," and the supposition that there is some further object beyond the idea becomes quite gratuitous. The transcendant object becomes a je ne sais quoi or Ding an sich playing no real cognitive role. Note, however, the assumption -- or rather one of the assumptions -- that produces this, viz. that the idea or representation must be itself an object of knowledge cognized independently of and prior to the
cognition of the object. Given the other assumptions — that all cognition is through ideas or representations and that the object is always other than the idea of it — this assumption invariably yields the familiar sceptical or solipsistic result.

In the light of this, consider the following characterization of the distinction between the formal and the instrumental sign:

An instrumental sign cannot signify, i.e. lead to the knowledge of something distinct from itself without first being, in its own right, an object of knowledge. A formal, or intentional, sign is one that leads to the signified without first playing the role of known object.\(^3\)

The notion of the formal sign is obviously introduced precisely to replace the trouble-making assumption noted above and to make it possible both to retain a general representational approach to cognition and to make it possible to assume direct accessibility of the object in spite of that. Of course, one may well wonder whether the notion of a formal sign as "one that leads to the signified without first playing the role of known object" makes any sense to begin with. **Prima facie** it seems not only to be ad hoc -- which it is -- but also contradictory of the very notion of a sign. For surely (one might say) the signifying or representative capacity of a sign or idea would be a function of some character which it has, and therefore it must surely be known first as having that character in order to

\(^3\)This is from an editor's footnote in *The Material Logic of John of St. Thomas*, pp. 612f.
be taken in that character as significant or representative of something else. That is, it would seem that a sign must, by the very notion of a sign, be instrumental in the sense that this is defined in the above quote.

But there is more to the notion of the formal sign than this. For the formal sign is also what the scholastics sometimes called the "mental sign" (or "concept"), a notion which can be traced back to the following important passage in Aristotle's *De Interpretatione* (generally taken as canonical in scholastic semiotic):

Words spoken are symbols or signs of affections or impressions of the soul; written words are the signs of words spoken. As writing, so also is speech not the same for all races of men. But the mental affections themselves, of which these words are primarily signs, are the same for the whole of mankind, as are also the objects of which those affections are representations or likenesses, images, copies.\(^4\)

It may seem rather a naive doctrine to say that written signs are signs of spoken signs, and spoken signs are signs of mental signs. In respect to written signs being signs of spoken signs this is possibly so, though it is not so much a matter of naivete as it is of logical irrelevancy. In Aristotle's time the written word usually was translated directly into the spoken word by being read aloud, and this is presumably the fact which this notion obliquely records. But this historical linguistic fact would seem

to have no essential bearing on logical considerations. However, this particular notion does not, so far as I know, have any real logical importance in the later tradition, anyway, and it may be ignored here. But the notion that the spoken (or written) word is a sign of the mental sign, rather than directly of the object itself, is not at all naive if one recalls what the nature of mind is, on Aristotle's view. According to the doctrine of De Anima, mind is that which is capable of becoming all things: mind as actualized in cognition is identical with its object. The identity here is a formal one, however: that with which the mind or soul becomes identical in cognition is the form of the object. Now, complications would arise here for any adequate historical account of what this involves (e.g. because of the necessity of distinguishing between sense and intellect), but I think it is fairly clear what the general connection of this notion of mind is with the doctrine of mental signs as in the above quote, viz, the notion of the spoken sign as signifying directly the "impression of the soul" is to be construed as the signification of the very form of the object itself. This is what would seem to be implied by the conjunction of the doctrine of De Anima with that of

---

5 See Aristotle, De Anima, Book III, Chapters 4-8.

6 This is, of course, where the "problem of universals" arises, the various solutions to this being in part a matter of how the formal identity between mind and object is treated at this juncture.
De Interpretatione. And, if this is correct, then of course it is not accidental that these mental signs or affections are, as Aristotle says, "representations or likenesses, images, copies," of natural objects, since they are indeed formally identical with them. However, it is also essential to bear in mind that the mental sign is nevertheless not existentially identical with its objects, for the objects as existents are singular composites of form and matter.

It can be seen, then, that the motivation (as discussed above) for recognizing the existence of non-instrumental signs, when conjoined with the notion of a sign which can be identified with the very form of the object itself without being materially identical with it, is capable of yielding a doctrine of formal signs which is, at any rate, not obviously self-contradictory and which could have considerable potential for development, provided an Aristotelian view of mind is consistently retained. With the later development of the doctrine of the formal sign we are not concerned, but I believe that we get here a very suggestive glimpse of the philosophical motives for Peirce's notion of the icon or iconic sign -- though, to repeat, the formal or mental sign and the iconic sign are not simply to be identified. However, the notion of the iconic sign involves a generalization in Peirce which does not, so far as I know, have any historical precedent, and which alters its import radically. For the iconic sign is simply anything whatsoever which is like anything else
and which functions as a sign on that basis. Thus Peirce says:

Anything whatever, be it quality, existent individual, or law, is an Icon of anything, in so far as it is like that thing and used as a sign of it. (2.247)

In general, an icon is defined as a sign which is related to its object in virtue of a similarity, likeness, resemblance, or analogy with it. And, in fact, Peirce's original term for this sort of sign was "likeness" (1.558); though of course "icon" is derived from a Greek word for "likeness," in any case.

Now Peirce makes a distinction which I think clarifies the import of this notion greatly, viz. the distinction between a sign which is an icon and a sign which is iconic. Thus he says that "a sign by Firstness [i.e. an icon] is an image of its object and, more strictly speaking, can only be an idea." Omitting the reason he gives here, which would take us afield, he then goes on to say:

But most strictly speaking, even an idea, except in the sense of a possibility, or Firstness, cannot be an Icon. A possibility alone is an Icon purely by virtue of its quality; and its object can only be a Firstness. But a sign may be iconic, that is, may represent its object mainly by its similarity, no matter what its mode of being. If a substantive be wanted, an iconic representamen may be termed a hypoicon. Any material image, as a painting, is largely conventional in its mode of representation; but in itself, without legend or label it may be called a hypoicon. (2.276)

And in another place, Peirce says:

An icon is a representamen of what it represents and

---

7See 1.369, 1.558, 2.276, 2.255, 3.362, 3.641, 4.368, 4.531, 5.74, 6.471, 8.119.
for the mind that interprets it as such, by virtue of its being an immediate image, that is to say by virtue of characters which belong to it in itself as a sensible object, and which it would possess just the same were there no object in nature that it resembled, and though it were never interpreted as a sign. It is of the nature of an appearance, and as such, strictly speaking, exists only in consciousness, although for convenience in ordinary parlance and when extreme precision is not called for, we extend the term icon to the outward objects which excite in consciousness the image itself. (4.447)

Dispensing with the term "hypoicon" in favor of "iconic sign," I suggest that the import of this distinction is as follows. Strictly speaking, an icon is any pure qualitative form (firstness) insofar as it figures in cognition as form of a cognized object. Since the object of a pure icon "can only be a Firstness," it would seem to follow that there is in fact no distinction between a pure icon and its proper object except insofar as the latter may contain formally more than the former; for insofar as the icon is iconic with that object it in no way differs from it in that respect in which it is iconic with it: sign and object here become merged, just as in the case of mind and object (in its formal aspect) in the Aristotelian epistemology. However, any given entity functioning as a sign may do so in virtue of its formal character and may be called an iconic sign for that reason. But in every case of an iconic sign relation there will be a point of formal identity -- i.e. there will be a pure icon in common to the terms of the sign relation -- which constitutes the similarity or "iconicity" which grounds that relation.
A further distinction which may and I think should be made here is that between a potential sign and an actual sign. "Potential" can profitably be thought of here in terms of the older meaning of "virtue," i.e. that expressed by the Greek word "arete." An actual sign is one which is actually functioning as a sign; but a potential sign is one which has whatever character or "virtue" it is which enables it to perform that function, regardless of whether it does or ever will actually perform it. This distinction is implicit in many places in the Collected Papers and is substantially explicit in the following passage:

... while no Representamen actually functions as such until it actually determines an Interpretant, yet it becomes a Representamen as soon as it is fully capable of doing this; and its Representative Quality is not necessarily dependent upon its ever actually determining an Interpretant, nor even upon its actually having an Object. (2.275)

Applying this especially to the case of the iconic sign, it will be noted that this implies that everything whatsoever, insofar as it is like anything else, is a potential iconic sign. And this means that everything is a potential iconic sign, since everything is always at least like itself. This is, I think perfectly consistent with Peirce's intent and is not to be taken as a reductio ad absurdum of it. On the other hand, everything is not an actual

---

8 Fitzgerald (see footnote 1, this chapter) notes this distinction, using the terms "potential" and "actual" for this purpose (see p. 52 of his study). I was inclined to use the word "virtual" instead of "potential," but Peirce's discussion of the term "virtual" (6.372) made this seem inadvisable.
iconic sign since, in order to be such, it must be so interpreted.

In the light of the foregoing, I would suggest that so long as one has mainly in mind, as instances of icons or iconic signs, such things as maps, portraits, diagrams, and the like, one may be missing what is the most important point to the notion of the icon or iconic sign, viz. that it enables Peirce to combine a doctrine of representative cognition with a doctrine of immediate perception of the cognized object. Perception can be regarded as representative because of the fact that the object appears under a form which (qua form) cannot be materially identical with the object perceived, and which may in fact be representative of any number of different individual objects; but it can be regarded as immediate because -- if the perception is veridical -- the form under which the object appears is its very own form, i.e. is precisely the form which it does in fact embody. Thus the immediate sensory perception of an object would be a special case of an entity, A, being an iconic sign of an entity, B, viz. that case where A and B are in point of fact not only formally but materially identical,

---

9In the "New List" Peirce says that, in the case of the icon ("likeness"), "the relate and correlate are not distinguished." (1.558) That is, the term identifying the subject of predication (i.e. the object term) and the predicated term would here be formally, though not functionally, identical. This is the point that would have to be followed up in integrating the discussion in this chapter with the account of the generic sign relation.
i.e. the case where the perceived object, B, is an iconic sign, A, of itself. The notion of the iconic sign thus serves the same epistemological function as the scholastic formal sign, but it does not require the dubious assumption that it somehow functions as a sign without being known. Maritain remarks that the formal sign is "known not by 'appearing' as an object but by 'disappearing' before the object." No such miraculous property need be ascribed to the iconic sign since it is capable of appearing as the object.

On the other hand, the logical character of such things as maps, diagrams, portraits, etc., can be thought of in a new light from this point of view. Peirce remarks of a pure icon that it

... does not draw any distinction between itself and its object. It represents whatever it may represent, and whatever it is like, it in so far is.
(5.74, italics mine)

And, in another place, he says:

Icons are so completely substituted for their objects as hardly to be distinguished from them. Such are the diagrams of geometry. A diagram, indeed, so far as it has a general signification, is not a pure icon; but in the middle part of our reasonings we forget that abstractness in great measure, and the diagram is for us the very thing. So in contemplating a painting, there is a moment when we lose the consciousness that it is not the thing, the distinction of the real and the copy disappears, and it is for the moment a pure dream -- not any particular existence, and yet not general. At that moment we are contemplating an icon. (3.362)

I would understand the import of this to be that the

10 Redeeming the Time, p. 196.
distinction between a schematic or iconic representation of an object and actual and immediate sensory perception of it is not a distinction which can be made from a purely formal point of view. That is to say, if I am studying a schematic or iconic representation of an object then, to the extent that I abstract from all characters of that sign in which it differs from the object itself, I am perceiving the very object itself (in its formal aspect) quite as immediately and directly as I would be if I were in direct sensory contact with it and abstracted in that perception from every feature of it in which it differed from the iconic sign in question. This is a tautology, but it is an interesting and enlightening one, since it leads us to recall that perception is always schematic in character, in any case. We never perceive, at any given time, more than an extremely limited selection of the formal aspects of the object perceived: the individual object is always something the formal aspects of which are far greater than is manifest in any given perception or even in any finite number of perceptions. Hence, the difference between an actual perception of the object itself and the perception of it via an iconic representation is at best merely one of degree of completeness of formal representation, so long as we keep to the purely formal point of view.\textsuperscript{11}

\textsuperscript{11}Consider the case of television (or the movies) where the iconic sign on the screen is at least theoretically capable of being fully as rich and complete in formal content as would be the perception of the same event by the unaided eye. Indeed, there is no logical reason for not
Or, to put it another way, the difference between an iconic sign which is other than the object of which it is a sign and an iconic sign which is not other, i.e. which is that very object itself, is not a distinction which can even be drawn in any general way insofar as one regards the sign strictly in its iconic character.

Let us go a step further and consider the difference between actual perception and imagination. Much the same points would hold here as above. There is no way, on the purely formal level, in which one can make the distinction between the imagined event and the directly experienced one (though it may in fact be the case that the imagination of the event is normally -- though not necessarily -- somewhat thinner in formal content than any corresponding perception of the same event would be). This is of paramount importance for Peirce in connection with his doctrine of diagrammatic or schematic reasoning such as is typified par excellence by mathematical reasoning, but which he extends to cover cases of reasoning treating the complex system composed of the nervous system, optical apparatus, and the television apparatus as one single physical system, and saying that we perceive the object via the television quite as directly as we would if it were via only the optical and nervous apparatus. What warrant is there, from a logical point of view, for distinguishing between one physical means and the other? One can even imagine future technological developments which would be such that the eyeballs were replaced by small television receivers so connected with the optical nerves as to produce precisely the visual effects that one would otherwise get by means of the eyeballs. Why not say, in such a case, that the person directly perceives the objects which are transmitted televisually?
not usually thought of as mathematical. For example, in the following quotation Peirce is explaining why he says that semiotic is the "quasi-necessary or formal" doctrine of signs, but the example he uses is drawn from the sphere of moral deliberation:

By describing the doctrine as "quasi-necessary," or formal, I mean that we observe the characters of such signs as we know, and from such an observation, by a process which I will not object to naming Abstraction, we are led to statements, eminently fallible, and therefore in one sense by no means necessary, as to what must be the characters of all signs used by a "scientific" intelligence, that is to say, by an intelligence capable of learning by experience. As to that process of abstraction, it is itself a sort of observation. The faculty which I call abstractive observation is one which ordinary people perfectly recognise, but for which the theories of philosophers sometimes hardly leave room. It is a familiar experience to every human being to wish for something quite beyond his present means, and to follow that wish by the question, "Should I wish for that thing just the same, if I had ample means to gratify it?" To answer that question, he searches his heart, and in doing so makes what I term an abstractive observation. He makes in his imagination a sort of skeleton diagram, or outline sketch, of himself, considers what modifications the hypothetical state of things would require to be made in that picture, and then examines it, that is, observes what he has imagined, to see whether the same ardent desire is there to be discerned. By such a process, which is at bottom very much like mathematical reasoning, we can reach conclusions as to what would be true of signs in all cases, so long as the intelligence using them was scientific. (2.227)

I quote that particular passage, and at some length, in order to indicate how broadly Peirce construes the nature and function of imaginative or diagrammatic reasoning. What is of special importance here for our present purpose is that it is precisely the fact that the "skeleton diagram or outline sketch" (the iconic sign) is formally identical
with the actual state of affairs which it represents which gives validity to the use of the imagination in all scientific theorizing, in practical deliberation, and, of course, in mathematical reasoning. To be sure, it is also essential that the imagined schema can in fact be correctly identified as in iconic relation to some given state of affairs. But the point is that, to the extent that it can be so identified, precisely to that extent the results of the observation of the icon which it embodies necessarily holds of that given state of affairs, and the direct perception of that actual state of affairs would not as such further in the least the conclusions drawn from observation of the icon.\footnote{It would verify the conclusions, of course, but that is not the point here.} Thus, to use Peirce's example, if I go out and actually acquire the means to gratify the wish in question I am not therefore in any better position to determine whether the desire is still present, provided my imagination of having the means was sufficiently like the state of affairs in which I actually have the means. Of course, in practical matters the imagination may often or usually be inadequate; but in respect to scientific and mathematical reasoning it will often in fact be more effective precisely through the elimination of the irrelevant.

In general, the point here is that, insofar as one is concerned with those characteristics of a thing...
which are independent of time and place and thus capable of being manifest or apparent in many different material embodiments (which is what is meant here by "formal" characteristics), the distinction between sign and object falls away except insofar as the sign does in fact fail to stand in a relation of formal identity to the object in some way relevant to the concern in question: insofar as the iconic sign is iconic with the object it is the object. The case of immediate perception of the object by way of direct sensory contact is thus, in fact, simply a special case of immediate perception, requiring a special account of what is meant by "sensory contact," but not requiring any special account of the "immediacy." For one perception of the object through an iconic representation of it is as immediate as any other insofar as it is a matter of perception of formal character. This implies a radical shift in the center of gravity of the problem of perception from "How do we get direct access to the object?" to "How do we distinguish direct sensory access from other modes of access (e.g. through imagination, memory, copies, pictures, maps, diagrams, etc.)?" In any case, this is what appears to me to be the central epistemological significance of the notion of the iconic sign: its function is to present the very object itself in its formal respects, and its enabling virtue consists in its formal or iconic identity with it.
CHAPTER VII

THE SYMBOLIC SIGN

The symbolic sign is, as Peirce says, the only general sign,\(^1\) and I should like to discuss this type of sign primarily in terms of the traditional problem of accounting for generality. As with the discussion of the iconic sign, the intent here is not to give a comprehensive account of Peirce's notion of a symbol, but rather to probe for a connection with familiar philosophical issues.

Peirce makes an important distinction between objective and subjective generality. Objective generality is referential generality, i.e. the capacity of a thing to represent a plurality of objects. Subjective generality might conveniently be called entititative generality in order to indicate that it qualifies the mode of being of a thing. A thing is entitatively general if its mode of being is not that of an individual. (5.429, cf. 1.420) The latter may in turn be divided into what I shall call qualitative and nomic generality. Qualitative generality is "of that negative sort which belongs to the merely

\(^1\)That the symbol is general: 1.369, 1.558, 2.292, 2.341, 3.360, 4.56, 4.395, 4.447f, 4.544, LW 24. That it is the only general sign: 3.363, cf. 1.372
potential, as such, and this is peculiar to the category of quality." Nomic generality is "of that positive kind which belongs to conditional necessity, and this is peculiar to the category of law." (1.427) I know of no further way to characterize these two types of entitative generality, other than to note that they correspond to Peirce's "firstness" and "thirdness," but the distinction might be illustrated as follows. On the one hand, it makes no sense to ask "Where and when is redness?", and redness (the form, quality, firstness) is general for precisely that reason. On the other hand, it does make sense to ask where and when something is red; but to such a question two answers might be forthcoming. One might say "This, here and now, is red," and that which is denoted would be individual and thus non-general. Or one might say "Something (i.e. anything) is red whenever and wherever such-and-such conditions obtain," and this answer would make no reference to any individual thing, but would denote rather a regularity or class of cases of which it would be true to say of any given one "This, here and now, is red," that class being defined by the specified conditions. In this case, what is denoted would be nomically general. We have, then, the following modes of generality:

1. objective or referential

2. subjective or entitative
   (a) qualitative
   (b) nomic
The symbolic sign is both referentially and entitatively general, and its entitative generality is of the nomic sort.

With these distinctions in mind, I should like to begin with a discussion of the problem of referential generality in the historical context of a certain familiar, post-medieval sequence of development of this problem. The sequence in question begins with John Locke's attempt to explain the generality of words by saying that words become general when, by a "voluntary imposition," they are made to stand for, mark, or signify a general idea. The generality of ideas is, in turn, accounted for by the notion of abstraction; that is, an idea -- always entitatively particular or individual -- becomes referentially general when it is shorn of or abstracted from "the circumstances of time and place, and any other ideas that may determine [it] to this or that particular existence." Locke conceives of this abstracting process as a "leaving out" of individual peculiarities, so that what remains of the idea is that which is common to many particular ones. The generality of the abstract idea is then apparently

---

2 The relation between Peirce's theory of generality and medieval discussions of this topic has been covered, with special reference to John Duns Scotus, in John Boler's Charles Peirce and Scholastic Realism (referred to in Chapter II, Footnote 17, of this study).


5 Ibid., Vol. II, p. 18.
supposed to be a function of the fact that a number of more particular or less abstract ideas conform to it or agree with it in the abstracted feature which constitutes it, and also in virtue of the fact that it is given a name. Of course, there are a great many difficulties in Locke's account, and it is perhaps impossible to state it in an altogether coherent way once the distinction between entitative and referential generality is made; but the historically most important difficulty is that which is revealed in his famous admission that it does indeed "require some pains and skill to form [for example] the general idea of a triangle, ... for it must be neither oblique nor rectangle, neither equilateral, equicrural, nor scalenon; but all or none of these at once." 6

As will be recalled, this difficulty was emphatically granted by George Berkeley, who reported that he in fact found the performance impossible and opined that everyone else would find it equally so as well. 7 But then how can an idea attain generality if not through abstraction, and how can a word acquire generality if not through reference to an abstract idea? Berkeley is not altogether clear on this. The official formula is that words and ideas both acquire their generality by

6 Ibid., Vol. II, p. 274.

7 George Berkeley, A Treatise Concerning the Principles of Human Knowledge, Introduction, Sec. 10. See also Alciphron, or The Minute Philosopher, Dialogue VII, Sec. 6 of the first and second editions.
being made signs. However, this in itself is no more than the point with which Locke began. The question is, how do they acquire their significative or representative character? In the case of words, the answer is that "... a word becomes general by being made the sign, not of an abstract general idea, but of several particular ideas, any one of which it indifferently suggests to the mind." It would thus seem to be the suggestive power of the word which grounds its referential generality. Now while some of Berkeley's remarks indicate that he supposes that words and ideas are representative in the same way, it seems clear from his illustrations that some other factor is actually assumed to be operative in the functioning of the latter. Thus, in the case of the triangle:

... though the idea I have in view whilst I make the demonstration be, for instance, that of an isosceles rectangular triangle whose sides are of a determinate length, I may nevertheless be certain it extends to all other rectilinear triangles, of what sort or bigness soever. And that because neither the right angle nor the equality nor determinate length of the sides are at all concerned in the demonstration. It is true the diagram I have in view includes all these particulars, but then there is not the least mention made of them in the proof of the proposition.

Regarded in one way, it looks suspiciously as if Berkeley has simply reintroduced the abstract general idea, his protestations to the contrary notwithstanding:

---

8Principles, Introduction, Sec. 12. See also Alciphron, Dialogue VII, Sec. 7 of the first and second editions.

9Principles, Introduction, Sec. 11.

10Ibid., Introduction, Sec. 16.
And here it must be acknowledged that a man may consider a figure merely as triangular, without attending to the particular qualities of the angles, or relations of the sides. So far he may abstract; but this will never prove that he can frame an abstract, general, inconsistent idea of a triangle. In like manner we may consider Peter so far forth as man, or so far forth as animal, without framing the forementioned abstract idea, either of man or of animal, insasmuch as all that is perceived is not considered.

It is not difficult to imagine what Locke would have retorted to this. But there is another way of looking at the matter which contains the germ of a quite different doctrine. For when Berkeley says that "there is not the least mention made of [the irrelevant characters] in the proof of the proposition," he is implicitly shifting the generality function back to the word again. I find no indication that Berkeley himself followed this up, but if we turn to David Hume we get an idea of where this might lead.

In his chapter on abstract ideas in the Treatise, Hume states that he regards as "one of the greatest and most valuable discoveries that has been made of late years in the republic of letters" the view that:

... all general ideas are nothing but particular ones, annexed to a certain term, which gives them a more extensive signification, and makes them recall upon occasion other individuals, which are similar to them.

This "great discovery" he attributes to Berkeley. I believe that Hume is in fact reading something into Berkeley here, though the above remarks will indicate that this way

11 Ibid.

of shifting the generality of ideas back to the suggestive power of words could be said to be implicit in Berkeley's account. But, however this may be, Hume's account of the matter is as follows. After seeing a resemblance among several objects (i.e. ideas) we apply the same name to all of them. In doing this we acquire a "custom" or habit, which is an association between word and particular ideas named by it. The name or general term is said by Hume to "express" the "compass of that collection" of ideas, which is to say that the meaning of the term is the class of all ideas (objects) which we in fact call by that name. Then, upon hearing the name, or perhaps just in thinking it, the habit is activated in such a way as to produce in the imagination an idea which is part of the extension of the word. Now it is not made clear why one idea should be produced rather than another at any given time, but in order to understand why Hume gives the sort of account he does it is necessary to

---

13 In what follows I condense the account which is to be found on pages 20-22 of the Treatise.

14 "Object" and "idea" have to be used interchangeably in characterizing Hume's position.

15 "Particular" and "individual" apparently are not distinguished in Hume's account.

16 The "in fact" is important here, for it is clear that Hume does not want to posit any specifiable mutual resemblance among the members of that class, for that would send him right back to Locke's abstract idea. However, it would seem that Hume supposes an unspecified mutual resemblance. So far as I can determine, this matter was never clarified.
understand the special problem which is in the back of his mind. The problem seems to be this: How is it that we can have before our minds one idea, determinate in its characteristics, and can pronounce upon its character in such a way as to be entitled to suppose that our pronouncement holds true of all others of its sort? Thus, for example, in determining the properties of a triangle we consider some particular and determinate specimen, yet we suppose that what we discover about it applies truly to all triangles, even though there will be a great variety of differences among the various specimens falling within the "compass" or extension of the word "triangle." Hume's account is thus developed as a solution to this problem: once we pronounce generally upon the particular idea, the use of the general word activates the habit in such a way that, if there is any idea within its extension to which what we say does not truly apply, then that idea comes before our attention and we see that what we said of the first does not in fact apply to the present one; hence, that what we said is not true of triangles in general. The habit is not absolutely dependable of course. And this is how we account for the possibility of error in our general deliverances: we determine something about a particular idea, suppose it to be general, and the habit may fail to raise up the exceptional case to apprise us of our error.

Much more would have to be said if a criticism of
Hume's theory were in order here, but our purpose is not to evaluate the virtues and faults of Hume's account but rather to get clear on the different elements discriminated in his analysis. These are: (1) the various particular and differing but yet somehow resembling ideas; (2) the word, which has these differing but resembling ideas as its extension or compass; and (3) the habit of producing these ideas singly (and perhaps successively) whenever the word is heard or thought. Now I think it is clear that, whatever Hume's official pronouncements may be, the ideas are not general either in existence or function (i.e. neither entitatively or referentially general). It is rather the word which would properly be called (referentially) general, and it is such in virtue of the habit, i.e. the referential generality of the word consists in the fact that there is a habit of producing the ideas upon hearing the word. It should be noted further that there are, implicitly, two distinct senses of "meaning" which might be applicable here. On the one hand, the habit itself would be the meaning of the word or term. But, on the other hand, the particular ideas, taken distributively, could also each be regarded as a partial meaning of the word. The second could never be reducible to the first because the habit can never be equivalent to any finite or definite sum of individual ideas, for, as Hume himself says, "We seldom or never can exhaust these individuals."17 (This is no doubt quite

17Hume says: "... 'tis certain that we form
inconsistent with the notion that we first collect the ideas and then apply a name, as Hume supposes at one point, for any such collection would be finite. But the inconsistency is not important for our purposes.) Note, then, that there is a definite implication that the referential generality of the word depends upon the entitative nomic generality of the habit; for the inexhaustibility of the individual ideas producible by the habit implies that the habit itself is not capable of being reduced to any finite determinate set of its own actualizations (i.e. productions of ideas). In brief, the habit must be an entitative general of the nomic sort, and this generality underlies the referential generality of the word.

Now in Kant's mooted and puzzling chapter on the schematism in the *Critique of Pure Reason*,18 an analysis is put forth which bears a striking formal similarity to that of Hume, and which was written as if with Hume's chapter on abstract ideas in mind. I am referring here not to the doctrine of the transcendental schematism, but rather to paragraphs 6 and 7 of that chapter, where Kant discusses briefly the schemata for pure sensible concepts (e.g. that of a triangle in general) and empirical

the idea of individuals, whenever we use any general term; that we seldom or never can exhaust these individuals; and that those, which remain, are only represented by means of that habit, by which we recall them, whenever any present occasion requires it," p. 22.

18 A137-47, B176-87.
sensible concepts (e.g. that of a dog in general). For our purposes we may conflate these two sorts of sensible concepts since we are concerned with points that apply to both. Kant there distinguishes between the image, the schema, the concept, and the schematism. The schematism is, I believe, simply the general schematic faculty, i.e. a schema is to the schematism as e.g. a concept is to the understanding. Therefore, we are concerned essentially with three factors: (1) the concept, which has a status in Kant's account similar to the status of the word in Hume's account, (2) the schema for that concept, which has a status similar to the habit in Hume's account; and (3) the image(s), which has a status similar to Hume's particular ideas. When I say "similar" I do not mean in all respects; I mean rather that Kant seems to be making the same three-way distinction for much the same reason that Hume did. I think this is clear from the following passage, which indicates that Kant is concerned with the Lockean problem in just the way we have been discussing it:

Indeed it is schemata, not images of objects, which underlie our pure sensible concepts. No image could ever be adequate to the concept of a triangle in general. It would never attain that universality of the concept which renders it valid of all triangles, whether right-angled, obtuse-angled, or acute-angled; it would always be limited to a part only of this sphere. The schema of the triangle can exist nowhere but in thought. It is a rule of synthesis of the imagination, in respect to pure figures in space. Still less is an object of experience or its image ever adequate to the empirical concept; for this latter always stands in immediate relation to the schema of imagination, as a rule for the determination
of our intuition, in accordance with some specific universal concept. The concept 'dog' signifies a rule according to which my imagination can delineate the figure of a four-footed animal in a general manner, without limitation to any single determinate figure such as experience, or any possible image that I can represent in concreto, actually presents.\textsuperscript{19}

It is not altogether clear whether Kant is saying that the rule or schema enables us to delineate ('verzeichnen') an indeterminate figure ('Gestalt'), or whether he means rather that we are not determined to any particular determinate figure. This creates something of a problem; for, on the one hand, the notion of an indeterminate figure sounds suspiciously like Locke's abstract idea, but, on the other hand, if it is a matter of an indeterminate range of determinate figures then the question arises as to the identity of that range, i.e. the identity of the schema or rule. Now it has been noted by several commentators -- including Peirce (5.531) -- that the distinction between concept and schema does not seem to be well made, and that it would in fact seem that they might as well be identified; for the schema, being a rule, seems to be precisely what Kant means by a concept, anyway. Note, however, that if concept and schema are conflated then there is no way of identifying the schema -- unless some further factor is introduced, such as Hume's word. In other words, if the range of determinate images is identified as a range by citing the single schema to which they conform, then the schema cannot in its turn be

\textsuperscript{19}A141, B180.
identified by citing the range. Moreover, it cannot be identified by enumerating or listing out a sequence of determinate figures, for the whole point to the notion of the schema is to account for this sequence as manifestations of a single type. This is perhaps why Kant did not identify concept and schema, even though their logical character would seem to be much the same. 20

One further point which should be made here is that when Kant talks about the production of an image of, say, a dog, in accordance with a rule or schema, this is not supposed to be merely a product of the imagination as opposed to an actual perception of a dog. That is, the production of the image in accordance with the rule is supposed to apply equally to cases of imagination in the ordinary sense and cases of sensible perception of dogs. It is an essential part of Kant's position that it is not the character of the image or presentation itself which bespeaks the fact that its object is real or fictitious, as the case may be. In both cases, the elements here are the same: (1) the image (whether of an actual or imagined object), (2) the rule or schema in accordance with which it is "constructed" or produced,

20 Thus it would seem that he should have introduced the notion of the word as third element in some way, as Hume did. But I suspect that he didn't do so because he thought this would relativize his account to particular languages and thus rob it of its universality. Also, Kant may have thought of language as merely recording some more fundamental process (judgment), rather than as entering into it in some essential way.
and (3) the concept.

Now what Kant’s account adds to the general problem, so far as we are concerned with it, is this: (1) The notion of habit is now thought of in terms of rule, procedure, or method; (2) there is suggested a possible identification of concept, on the one hand, and habit, rule, method, or procedure, on the other; (3) it is seen that the notion of the word may be indispensable if the foregoing identification is to be made; and (4) the whole problem is put into the general context of Kant’s theory of mind and experience.

Let us note at this point that the problem of generality, as we have been considering it, is not the problem of how denotative reference is made to an existent individual. The problem is rather the Lockean — or, better, the post-Lockean — problem of how there can be a sameness of type or similarity among the cases falling under a general term when no common feature can be abstracted in a Lockean way. Thus, for example, even a simple concept or word like "blue" comprehends a great variety — indeed a potentially infinite variety — of shades and hues, and there is little plausibility in the supposition that this comprehension is due to a blueness which is common to them all in the sense that it can be discriminated or separated out from the variations in shade and hue. 21 The generality in question is not

---

21 Peirce remarks: "The quality of redness and
therefore a matter of the concept ranging over a variety of individuals having the character of being blue, but rather of its ranging over a variety of at least potentially continuous character variations within the type it represents. 22

Let us now go back to the problem of resemblance. Hume assumed -- though no doubt illicitly within the context of his own theory -- that there was a similarity or resemblance between the ideas falling within the compass or extension of a word, and he assumed that this resemblance was prior to the application of the general word to them. Peirce was keenly aware of the difficulty in such an assumption and he took the bold -- and what at first glance appears to be the extremely nominalistic -- step of saying that two ideas are similar because they are associated, rather than being associated because they are similar. The association constitutes the resemblance. (7.498)23 The following passage is important enough in this connection to require quotation despite its length:

Suggestion by resemblance is easily enough understood,

the quality of blueness differ without differing in any essential character which one has but the other lacks." (4.344)

This has to be borne in mind in order to understand why Peirce lays so much stress on the importance of continuity, speaks of ideas "spreading," and relates continuity so intimately with generality.

23See also 1.313, 1.365, 1.383, 6.106, 8.87.
as soon as the conception is once grasped that the similarity of two ideas consists in the fact that the mind naturally joins them in thought in a certain way. For instance, yesterday I saw a blue color; and here is a blue color. I recall that sensation of yesterday, and I observe that of today. I find myself disposed to say the two are closely allied; in that disposition their similarity consists. For they are two different ideas. One was in my mind yesterday, and consequently that identical idea is not present now. However, I accept the impression it has left on my memory as probably about right. I look again at the color before me. The idea of yesterday and that of today are two ideas; they have nothing in common, unless it be that the mind naturally throws them together. Some beginner may object that they have both a blueness in them; but I reply that blueness is nothing but the idea of these sensations and of others I have had thrown together and indistinctly thought at once. Blueness is the idea of the class. It is absurd to say that different things which cannot be compared are alike, except in the sense that they act alike. Now, two ideas are compared only in the idea of the class, lot, or set to which they belong; and they act alike only in so far as they have one and the same relation to that connecting idea. Resemblance, then, is a mode of association by the inward nature of ideas and of mind. (7.392)

And just as Hume speaks of the habit as "a kind of magical faculty in the soul," and Kant says that "this schematism of our understanding, in its application to appearances and their mere form, is an art concealed in the depths of the human soul, whose real modes of activity nature is hardly likely ever to allow us to discover, and to have open to our gaze," so also, in a similar vein, Peirce says that "resemblance consists in an association due to the occult substratum of thought." (7.394)

When Peirce speaks of the "occult" he is not, of

---

25A141, B181.
course, invoking a mystery or an unknowable:

An 'occult property' is a property which is only brought to light by experiment. "Occult Science" means, therefore, precisely experimental science. The reason these properties were called occult was that they could not be deduced after the manner of Aristotle from the prime qualities hot and cold, moist and dry. (7.392n7)

In general it will be found that he always uses this term in connection with the notions of power, habit, disposition, etc., to indicate that (a) there is a power or habit, and that (b) we could always inquire further as to the explanation of why it is that there is the power or habit in question. Thus, for example, the virtus dormitiva of opium is a real power or habit of opium -- it really is true that opium puts us to sleep -- but what it is about opium that causes this, what laws lie behind that law, is at present hidden from us or "occult" (i.e. was so at Moliere's time). In other words, Peirce was trying to make this maligned term respectable again. 26 What is important about this appeal to the "occult" disposition, however, is that what at first looks to be a radically nominalistic move on Peirce's part turns out to be an important step towards logical realism. For if to regard things as similar is simply to classify them (i.e. if the classification is logically prior to the similarity), and if a class is itself constituted by a disposition or habit of association, then the notion of a class as such is not

26 See 2.333 where Peirce comments on his own penchant for adopting terms usually used in a deprecatory way.
reducible to the notion of the sum of its members and is logically ineliminable -- which is an essential condition for Peirce's logical realism. The fact that the disposition is "occult" means nothing from the logical point of view except that, whatever its explanation might be, it is a fact that there is a disposition to be explained. The explanation itself would presumably be of primarily psychological interest.

In a chapter planned for his Grand Logic on the nature of association, Peirce gives the following more or less psychological account of generalization:

We have seen that Bain . . . . holds that generalization is the direct effect of "an effort at similarity." Why not say, at once, it is the first half of a suggestion by similarity? I am trying to recall the precise hue of a certain emerald that my mother used to wear. A sequence of shades runs through my mind. Perhaps they run into a continuum; but that makes no difference. They are a multitude of colors suggested by that one color. Conceived under what Kant imperfectly describes as a rule or schema, they constitute a general conception of a green something like that emerald. The old-fashioned nominalists would say nothing was in my mind but a word, or other symbol. For my part, I am not quite prepared to say what precisely is in my consciousness; but of this I am sure, that every memory of a sensation is more or less vague, that is, general. Every memory! Why, the sensation itself, when present for a few moments, is so; as every person who has made careful photometric measures is aware. . . . How is it possible to reconcile our notions of the origin of errors of observation with the doctrine that the sensation is absolutely free from all vagueness, all generality? . . . The vague memory of a sensation is just an aggregate, whether continuous or not makes no difference, of ideas, which are called up together by a suggesting idea. (7.408)

In considering this let us prescind both from the special case of memory and from any problem raised by Peirce's
identification here of generality and vagueness. Now we have here (a) the sequence of shades, (b) the shades in the sequence, (c) the rule or schema, and (d) the conception. The question concerns how these are related. My suggestion is this, that Peirce means that we do not merely perceive first this shade and then that in the sequence, but that there is a sense in which we actually perceive the range or sequence itself; that is, we do not have one determinate image followed and replaced by a second determinate image, followed and replaced by a third, and so on, but rather have present to us at once -- i.e. in the specious present -- a range of imagery somehow thought in a unity. This unity is not a numerical unity of the images (for they are a plurality) or in the images (for there is no common feature), but is rather an awareness of these images as being produced for some unitary purpose or intention. Our awareness of the unity is therefore something over and above our awareness of the images taken singly, and is an awareness of a unity imposed upon the images. Now in a brief exposition of Duns Scotus' views, in his review of Fraser's edition of the works of Berkeley, Peirce says that, according to Scotus:

There are two ways in which a thing may be in the mind, -- habitualiter and actualiter. A notion is in the mind actualiter when it is actually conceived; it is in the mind habitualiter when it can directly produce a conception. It is by virtue of a mental association (we moderns should say), that things are in the mind habitualiter. (8.18)

The distinction between being "in the mind" habitualiter
and actualiter is what is important here. In this particular case Peirce would seem to be identifying the concept proper with the concept as actual; but it is more consistent with most of his statements either to identify the concept with the habitual mode or to speak of it in both ways. I suggest that the usage in the following quote be taken as canonical for our purposes:

"[In certain cases] an idea which may be roughly compared to a composite photograph surges up into vividness, and this composite idea may be called a general idea. It is not properly a conception; because a conception is not an idea at all, but a habit. But the repeated occurrence of a general idea and the experience of its utility, results in the formation or strengthening of that habit which is the conception; or if the conception is already a habit thoroughly compacted, the general idea is the mark of the habit. (7.498)"

Let us therefore make the following identifications. The habit in accordance with which, say, the sequence of shades is produced is the concept proper. Kant's rule or schema may be identified with the concept in this sense. The perceived unity of the sequence will then be the general idea. 27

Now let us get clearer on the general idea -- which,

27 In "The Law of Mind" (1892) Peirce says: "A finite interval of time generally contains an innumerable series of feelings; and when these become welded together in association, the result is a general idea. For we have just seen how by continuous spreading an idea becomes generalized." (6.137) Later in the same article, after characterizing general ideas as "continua of feeling," he says that "these general ideas are not mere words, nor do they consist in this, that certain concrete facts will every time happen under certain descriptions of conditions; but they are just as much, or rather far more, living realities than the feelings themselves out of which they are concreted." (6.151f)
remember, is directly perceived as the unity of some range or spread of imagery. Peirce speaks in the last quote above of the general idea as a "composite photograph," and he uses this metaphor many times in this connection. The notion is perhaps infelicitous and unduly metaphorical, but what he intends to convey, no doubt, is that our general idea of, say, a dog would not be a Lockean abstract idea but rather a resultant fusion of imagery resulting from the repeated experiences of many different and more determinate sensory experiences of particular dogs. However, I think a much better way of seeing what is at stake here would be to consider what Peirce has to say about the nature of sets in perception.

Thus he draws a picture as follows:

And then he says:

What does this figure show? The answer will be a broken star. That answer shows how the mind naturally looks at those lines from the point of view of a set, or regular figure, to which they do not even conform. As experience clusters certain ideas into sets, so does the mind too, by its occult nature, cluster certain ideas into sets. These sets have various form of connection. The simplest are sets of things all on one footing and agreeing in each belonging to the set. Such a set is called a class. The clustering of ideas into classes is the simplest form which the

---

28 2.317, 2.354, 2.435, 2.436, 3.621, 4.157, 4.447, 5.542, 6.232f, 7.498. See also 2.146 for an especially interesting passage which bears on this.
association of ideas by the occult nature of ideas, or of the mind, can take. (7.392)

I think it can be seen that what Peirce is trying to express here is what is now familiar under the notion of the perceptual Gestalt. In the above diagram the image is, in one sense, simply an arrangement of five lines; but we actually see not just five lines but a broken star, i.e. we see it as a broken star. Everyone is familiar with the drawings of various types which psychologists use to illustrate the operation of Gestalten in perception, and this point need not be labored. But I take it that the essential thing here is that the perceptual Gestalt is perceived quite as immediately as is the actual image itself, though there is nevertheless a difference between the perceived Gestalt and that which is perceived under the aspect of that Gestalt. There are, of course, a variety of types of Gestalten; and I take it that Peirce wants to say that, even in the case of a simple class like that of the blues, there is a perception of a qualitative range under a single form or Gestalt which cannot be identified with any of the range of shades or hues, or with the sum of them, but which is nevertheless quite immediately and directly perceived. Now this Gestalt-perception is presumably a feature of every perception. Thus, for example, I perceive the top of my typewriter as blue, though in point of fact there is a great range of discriminable shades and hues which I can make out in it if I attend to what I perceive with great care. Moreover, there is no
definite limit to the discriminations which might be made within those discriminations; so that it seems reasonable to suppose that the "matter" for the form or Gestalt at one level is itself a Gestalt vis-a-vis the matter at some further level, and so on indefinitely -- though there is no doubt a de facto limit to the discrimination process. To take another case: I perceive this rectangular, brown, horizontal thing before me as a desk-top. But the rectangularity, the brownness, the horizontalness, etc., are themselves potential Gestalten vis-a-vis further discrimination, and so on. So that, for any given perception, there will be what might be called a primary form-matter distinction; but through a succession of more analytic perceptions of the same thing the form-matter distinction becomes a relative one.29

29 The emphasis which Peirce puts on imagery in some of his writings seems in direct conflict with his famous argument against imagery in perception in "Some Consequences of Four Incapacities." (5.299-306) But he makes it clear in that argument that by an image he means something "absolutely determinate in all respects," something of which "every possible character, or the negative thereof, must be true..." (5.299) And his point there, as I understand it, is to make the distinction between the object which we perceive (or imagine) and our idea of it. For example, I perceive my typewriter at this moment. Now that typewriter, as an existent individual, is "absolutely determinate in all respects"; but the qualitative or formal content of my perception (my "idea" of the typewriter) is not determinate. In other words, whereas the typewriter is a logical individual, my idea is not a logical individual but is rather entitatively general. I think it will be found that, in contexts where Peirce does stress the role of imagery, he has in mind the element of "firstness" (form, quality) in cognition and is not contradicting this other point.
Let me suggest without further ado that what we are here calling the general idea -- the Gestalt, form, or immediately perceived unity -- is the icon. Now the icon is an *entitative* general of the *qualitative* sort. And it will be seen why the word "entitative" is preferable to the word "subjective" here; for as the very form of the object there is nothing subjective about the icon except in the sense that it is the form or aspect ("species") under which the object is known. The question then arises as to whether the icon or general idea is not also *referentially* general. The answer to this is, I believe, that it is *not* referentially general, on Peirce's view.30 A given *iconic* sign -- as distinct from an icon -- might well be referentially general in its function; but it would be so not in virtue of its being iconic but in virtue of the fact that it happened also to be symbolic. For Peirce says that the symbol is the only general sign (3.363), and I take it that he means by this that it is the only referentially general sign.

We have yet to identify the symbol, however. Is it to be identified with the concept or with the word? In order to answer this we have to raise the problem of Peirce's use of the term "meaning." Now I believe that anyone who attempts to track down Peirce's use of this

---

30 Some relevant passages here would be: 1.304, 1.372, 1.425, and 1.447.
term, as well as similar such terms as "signification" and "reference," will agree that the safest thing to say is that Peirce tends to use any one of these terms, in one context and the next, as roughly equivalent to "semiotic function." Since there are, of course, different semiotic functions -- in fact, the distinction between icon, symbol, and index is precisely a distinction of this sort -- these terms themselves take on different specific meaning as they are used in one context and the next. This is why it is so essential in understanding Peirce that we try to get some grasp of the functions themselves, as Peirce understood them; for it simply is not possible to grasp his thought at all by clamping down, bulldog-style, on this and that terminology. Nevertheless, for present purposes it is desirable to stick to a fixed terminology, so far as that is possible, and I shall try to do so in what follows.

I suggest that we speak in general of the semiotic properties of signs, and reserve the other terms for specific semiotic properties. Now, even though there are

---

31 Some of Peirce's most flagrant sins against his own "ethics of terminology" are committed in his many discussions of symbols, concepts, words, meaning, and signification. But the sins are surely venial. It should be remembered, first, that the bulk of the Collected Papers is material originally unpublished, and, second, that even in respect to the material that was published, Peirce had no followers whose terminological habituations had to be respected. It is understandable that, over a forty year period, he should have experimented with different modes of expression in hope of arriving at formulations which would be both theoretically adequate and rhetorically effective.
places in which Peirce speaks as though symbols have only two semiotic properties, which he labels variously as "breadth" and "depth," "signification" and "denotation," and "signification" and "application," his real doctrine is that there are not two but three fundamental semiotic properties which are possessed by symbolic signs.32 For these three I propose to use the terms "meaning," "signification," and "application." And I would identify these as follows: (1) the meaning of a symbol is a concept; (2) the signification of a symbol is a general idea or icon; and (3) the application of a symbol is the object(s) of which it is predicated. We cannot discuss application at present since that brings in the function of the indexical sign, which is to be discussed shortly; but the import of (1) and (2) should be somewhat clear from the foregoing discussion of the nature of the concept, general idea, and icon. Now I believe that the reason why Peirce sometimes speaks only of two rather than three properties of symbols is to be found in the fact that the concept and the general idea have a very special relation to one another consisting in the fact that the latter is the actualization of the

32 In "Upon Logical Comprehension and Extension" (2.391-426), he urges that a third "quantity," in addition to the traditional notions of comprehension (intension, depth) and extension (denotation, breadth), is required in logic. This third semiotic property is there called "information," and it is identified with reference to an interpretant. (2.418) I shall not attempt here to follow out the issue along the lines this suggests, however. See also paragraph 8.119 on this.
The general idea (icon, Gestalt) is, so to speak, the concretion of the concept. Thus Peirce says that:

... general ideas are not mere words, nor do they consist in this, that certain concrete facts will every time happen under certain descriptions of conditions; but they are just as much, or rather far more, living realities than the feelings themselves out of which they are concreted. And to say that mental phenomena are governed by law does not mean merely that they are describable by a general formula; but that there is a living idea, a conscious continuum of feeling, which pervades them, and to which they are docile. (6.152, italics mine)

The term "general idea" is used in this passage precisely as we are using it here, and a distinction is clearly made between it and the nomic generality which would be characteristic of the concept. But, since the actualized meaning (i.e. actualized habit) is the signification, it is understandable why Peirce should sometimes have talked only in terms of signification and application. Nevertheless, the term "meaning" itself shall be reserved here for the unactualized habit or concept proper, and "signification" for the actualized habit or general idea.

The next problem is to get clear on the status of the word in respect to the concept. The passage which seems to me to give the clearest indication of Peirce's intent here is the following:

All words, sentences, books, and other conventional signs are Symbols. We speak of writing or pronouncing the word "man"; but it is only a replica, or embodiment of the word, that is pronounced or written. The word itself has no existence although it has a real being, consisting in the fact that existents will conform to it. It is a general mode of succession of three sounds or representamens of sounds, which becomes a sign only in the fact that a habit, or acquired law, will cause replicas of it to be interpreted as meaning a man or
men. The word and its meaning are both general rules; but the word alone of the two prescribes the qualities of its replicas in themselves. Otherwise the "word" and its "meaning" do not differ unless some special sense be attached to "meaning." (2.292)

In the sentence in which Peirce speaks of "sounds or representamens of sounds" we can detect an echo of Aristotle's doctrine that written signs are signs of spoken ones, but I do not believe that this notion plays any real part in Peirce's theory and it will be ignored here. Now when Peirce says that the being of the word consists in the fact that existents will conform to it he is presumably referring at least in part to the replicas; yet it is obviously not his meaning that symbols are simply regularities governing the production of sounds (or written marks). The existents in question are not, I believe, the replicas but rather individual occurrences of interpretation of the replicas. That is, the existent in question is the actualization of the concept by the replicas, which actualization takes the form of the manifestation of a general idea. Now this is not to be construed in this way: that upon hearing the word "man" an image of a man "pops into my head." The point here is rather that, upon hearing the word "man," something like what the psychologists call an anticipatory set occurs, such that if my attention is directed to some object I am set to see it as a man and will in fact see it as a man if it provides suitable sensory material for that set or Gestalt. 33 In the absence of the occurrence of the

33 Note the interesting relation between the psychological notion of a set as an anticipation and the logical
word -- whether spoken to me or spoken to myself -- I might very well see the same object but not see it as a man. Now suppose the word "man" occurs in a story, a piece of fiction. No doubt different people read fiction in different ways: some probably with a great deal of concurrent concrete imagery and others with relatively little. But if I actually understand the word "man" in that narrative then minimally there must be something like an anticipatory set which takes place, which set will in some cases perhaps be completely actualized in a concrete imagined man, but which will perhaps in other cases only be manifest as a slight and inhibited tendency in that direction. 34

In the first case one furnishes, as it were, one's own image-materials; in the second case there is perhaps only a rudimentary tendency to do so. Moreover, I take it to be a matter generally recognized and amply verified that the line between perception and imagination cannot be sharply drawn, i.e. that even in actual perception we usually add substantive imaginative elements to that which is actually perceived. (For example, there is the well-known drawing of the people on the subway-train, which racially prejudiced people will often perceive in such a way as to see a razor in the negro's hand, though there is in fact no razor in his hand at all.) In brief, then, I understand Peirce notion of a set as a class.

34 The following passages contain characteristic discussions of this by Peirce: 2.317, 2.341, 2.354, 2.360, 2.369.
to be saying that the symbol is a regularity of interpretation of replicas of the word, somewhat along the foregoing lines, and not a regularity of occurrences of the replicas.

Problems still remain, however, for Peirce says that the word and its meaning are both general rules, which implies that there are actually two rules here. And, moreover, he speaks of the word as prescribing the qualities of its replicas. I would suggest that the regularity or rule which is the word, i.e. which governs the replicas of the word, is the purely intra-linguistic regularity of the sort which logical formalists have in mind in the notion of "logical syntax" (i.e. rules concerning permissible combinations and permutations of word-replicas). Whereas, on the other hand, the rule or regularity which is the meaning is not a linguistic regularity but is rather a regularity of the sort here called a concept (the Humean habit or Kantian schema). This raises the problem of how the two sorts of rules are related. Now it is not difficult to see how they become conjoined in the case of a given word. The occurrence of a word-replica either does or does not in fact have the power to actualize a meaning (produce a general idea) for any given individual. If it does then that is the conjunction of word and meaning, and there is nothing more in it than that. For example, in learning a foreign language from a textbook the language is first learned in a syntactic way by coming into syntactic connection with words already known: one reads the word
"homme," syntactically translates it into "man," and understands what is meant. Eventually, perhaps, "homme" will in fact become capable of actualizing the meaning directly instead of waiting upon syntactic translation. There would seem to be no special problem here. But this still leaves the problem of a general account of the relation of syntactic and meaning rules. There is, of course, a standard logical model available at present which could be introduced here. But I believe that it would be premature to adopt this until the generic relation discussed in the first part of this study has been further investigated, and the considerations discussed in this chapter integrated with it. It seems best, therefore, simply to leave this question open here.

In any case, I would suggest that the term "symbol" is generally intended by Peirce to apply to the meaning or concept itself as de facto associated with one or more words qua syntactic rules governing word replicas. Thus e.g. the symbol "man" is not the word "man" but is rather the concept of a man in its de facto association with the word "man," "homme," "hombre," and so on. Or, in brief, it is the concept of a man in its associations with whatever words it is in fact associated with. The word, on the other hand, is probably best understood as any given

---

35 A recent and clear account of the standard way of relating syntax and meaning is R. M. Martin's "On Carnap's Conception of Semantics," in The Philosophy of Rudolf Carnap. (See Chapter II, footnote 22, of this study.)
syntactic rule governing isomorphic entities, called "replicas," which are de facto associated with a concept in such a way that a replica is capable of actualizing that concept. Thus e.g. the word "man" is the syntactic rule governing anything isomorphic with that three-lettered form in its (i.e. the rule's) connection with the concept of a man. Or, in brief, it is a linguistic entity in connection with its meaning. This frees the notion of the symbol from relativization to given languages, though it relativizes the notion of the word to a given language. I believe that this is, on the whole, consistent with Peirce's intent, but it must be stressed that I am by no means reporting a standard usage on Peirce's part. (So far as I can determine, there is no standard usage on Peirce's part here.)

The foregoing considerations give no more than a hint of the philosophical issues involved in the notion of the symbolic sign. However, they may indicate the way in which even the symbolic sign serves as a means to the manifestation of objects, viz. through their essential connection with iconic signs. As actualization of the concept which constitutes the meaning of a symbol, the iconic sign appears here as the "general idea" which the symbol conveys. All learning through symbols clearly presupposes an antecedent understanding of the meaning of the individual symbols involved, but the conjunction of many symbols in connected discourse results in the formation
of new complexes of general ideas. Thus, for example, a
description of a foreign country means nothing to me
except insofar as the individual symbols utilized in the
description are already meaningful (i.e. associated with
familiar ideas), but the result of the description may be
an altogether new complex of ideas (or complex idea)
which -- to the extent that it is a true and faithful
description -- constitutes an appearance to me of that
very country itself. Although the medium of manifestation
was here another person producing symbols, that which was
made manifest was the object itself via the symbol and
symbol producer.
CHAPTER VIII

THE INDEXICAL SIGN

Consonant with Kant's dictum that existence is not a predicate, Peirce states that "the real world cannot be distinguished from a fictitious world by any description." For such a purpose nothing but a "dynamic" or indexical sign will do. (2.337, cf. 3.363) It is from the point of view of the issues this raises that I should like to discuss this type of sign. The discussion will not encompass the full range of generality which the notion of the indexical sign bears in Peirce's writings, but it will, I believe, touch upon matters central to his conception.

It will be useful to begin by making a distinction between an index and an indexical sign, paralleling the distinction made in Chapter VI between an icon and an iconic sign. Peirce remarks, in his definition of the index for Baldwin's Dictionary, that "it would be difficult if not impossible, to instance an absolutely pure index, or to find any sign absolutely devoid of the indexical quality." (2.306) It is the indexical quality or indexical function which will be to the fore here, and

\footnote{1}{Critique of Pure Reason, A598, B626.}
\footnote{2}{A justification for making this distinction can be found in 2.283f.}
the term "indexical sign" will be used to denote anything whatsoever insofar as it is functioning indexically. And, paralleling another distinction made in Chapter VI, a distinction should also be made here between an actual and a potential indexical sign. Peirce himself implicitly does this by characterizing the index in one or both of two different ways. On the one hand, he says explicitly that it is the real connection in which the indexical sign stands to its object which gives it its sign value (2.286), and over and again the real or actual connection of sign and object is cited as the distinctive character of this sort of sign. The meaning of this will be discussed later, but the important point at the moment is that this constitutes the peculiar virtue of the indexical sign, i.e. constitutes its capability of functioning indexically. On the other hand, the characteristic function of the indexical sign, which Peirce repeatedly cites, is that of drawing the attention to the intended object of the assertion. Signs of this type are said to be required in order to establish an understanding of what is being referred to (3.372), to show us what is being talked about (3.419, 4.56), or to "connect one's apprehension" with the object meant (2.287). The relation between virtue and function will also have to be clarified later, but let us begin by

3.284, 2.286, 3.361, 4.531, 4.544, 5.75, 6.471, 8.119, 8.335.
concentrating primarily on the latter -- and, in particular, on the question of why an entity having such a function is logically required.

Kant's dictum marks one main philosophical crossroad and leads directly to a second. The crossroad it marks is sufficiently indicated by Kant himself in his explanation of the dictum, viz. whether or not it is possible to ascertain, by the mere consideration of the content of any idea of an object, whether that supposed object does or does not exist. The test case is, of course, the ontological argument for God's existence, and the denial of the possibility in that case will apply a fortiori to all other possible cases. A principle of the most profound philosophical importance is thus proposed. The crossroad to which it leads is also discussed by Kant, though in another section of the Critique, viz. in his discussion of the question whether a purely formal criterion of truth is sufficient. This Kant explicitly denies, for he says that:

... as regards knowledge in respect of its mere form (leaving aside all content), it is evident that logic, in so far as it expounds the universal and necessary rules of the understanding, must in these rules furnish criteria of truth. Whatever contradicts these rules is false. For the understanding would thereby be made to contradict its own general rules of thought, and so to contradict itself. These criteria, however, concern only the form of truth, that is, of thought in general; and in so far they are quite correct, but are not by themselves sufficient. For although our knowledge may be in complete accordance with logical demands, that is, may not contradict itself, it is still possible that it may be in contradiction with its object. The purely logical criterion of truth, namely the agreement of knowledge with the general and formal laws of the
understanding and reason, is a *conditio sine qua non*, and is therefore the negative condition of all truth. But further than this logic cannot go. It has no touchstone for the discovery of such error as concerns not the form but the content.\(^5\)

It is for this reason that there can be no general (*allgemeines*) and sufficient criterion of truth, for such a criterion would have to be "such as would be valid in each and every instance of knowledge, however their objects may vary." But it is obvious that:

\[
\ldots \text{such a criterion [being general] cannot take account of the [varying] content of knowledge (relation to its [specific] object). But since truth concerns just this very content, it is quite impossible, and indeed absurd, to ask for a general test of the truth of such content. A sufficient and at the same time general criterion of truth cannot possibly be given. Since we have already entitled the content of knowledge its matter, we must be prepared to recognise that of the truth of knowledge, so far as its matter is concerned, no general criterion can be demanded. Such a criterion would by its very nature be self-contradictory.} \(^6\)
\]

In brief, Kant rejects what is usually called a "coherence" theory of truth, i.e. a theory in accordance with which not the content of individual assertions but rather the nature of their intra-systematic formal relations constitutes a sufficient criterion of their cognitive worth. But since he also regards the so-called "correspondence" theory of truth, according to which truth consists in "the agreement of knowledge with its object," as a mere nominal definition (*Namenerklärung*);\(^7\) and since mere analysis of the content

\(^5\)A59-60, B83-84. See also the parallel discussion in Section VII of the introductory part of Kant's *Logic*.

\(^6\)A58-59, B83, bracketing by the translator.

\(^7\)A58, B82.
of a given assertion cannot possibly reveal whether the object posited in fact exists as asserted (which is essentially the same as to say that there can be no universal material criterion); it seems that all roads are thereby closed to a universal and sufficient criterion.

I think we encounter here a basic element in the rationale underlying Peirce's characterization of truth in terms of fixed belief, which agrees with Kant to the extent of denying that either the formal relations or material content of an assertion provides a sufficient criterion of its cognitive adequacy. Further inquiry into Peirce's truth-theory proper will not be undertaken here, but the related issue of whether a formalistic ("coherence") theory of truth is adequate is directly to our point. For it is in connection with the denial of this that the function and at least a part of the epistemological significance of the indexical sign can be seen.

Stated broadly and without attempt at precision, the idea of a formalistic theory of truth, as it will be understood here, is as follows. Since, on the one hand, there is no literal sense in the notion of comparing a judgment with a "corresponding" non-judgmental fact; and since, on the other hand, no non-trivial ("synthetic") judgment is self-evident or incorrigible, the only way in which the truth-value of such a judgment can be ascertained is by determining whether or not it has a place in the system of judgments assumed to comprise our knowledge at
a given time. Since this system is in a continual process of developmental change, there can be no certainty that any given judgment will be able permanently to retain a place in it; hence, even its capacity for inclusion at a given time is no guarantee of its ultimate cognitive worth. However, since the development of the system comes about precisely through the inclusion of new judgmental elements, the proposed inclusion of a given judgment amounts to a claim that it is true, which claim is immediately justified by the extent to which the judgment can be shown to have present intra-systematic connections, but which is ultimately justified only by its inclusion in the final and ideally complete system. (There is no need for our purposes to go into the problem of what constitutes an intra-systematic relation, or into the question of the relation of the immediate to the ultimate justification.) Now I would suppose that anyone who held to such a view would in some way make a distinction between judgments (or propositions) which do and judgments (or propositions) which do not have some *prima facie* claim to inclusion. For example, I can formulate the proposition -- or at least construct the sentence -- "Caesar's pet dog was shaggy," but I cannot seriously put this forth for inclusion in the system. It may well be true, for all I know; but since I simply made it up on the spur of the moment it surely lacks any *prima facie* claim. Presumably, no one who holds to such a view would envisage the growth of knowledge as a matter
of making up propositions ad libitum and seeing how they can be fitted together, and some distinction effective in this respect would surely be made or assumed here. Further, I would suppose that no one who holds to such a view assumes that we are or could be in a position to start totally "from scratch" -- i.e. that we are or could be in a position in which we had no given or assumed system as our working basis for evaluating the proposed inclusion of a given judgment or proposition. But, regardless of how such problems are treated, no theory would qualify as a formalistic theory of truth, in the sense I intend here, if it invoked any principle other than systematic intra-connection as its criterion for the truth of a given judgment.

Now a philosopher who adopts such a theory will be constrained to deny that the singular judgment is a genuine logical form of judgment. That is to say, he will not deny that what seem prima facie to be singular judgments are indeed made, but he will deny that they are to be regarded, for logical purposes, as truly having singular reference. The reason why the singular judgment must be denied logical status is that it would otherwise be implied that there is at least one judgment -- and perhaps any number -- having a truth value independently of intra-systematic status. For while the truth-value of any given singular judgment might be established inferentially (and hence intra-systematically) as consequent of
some (putative) truths antecedently incorporated into the system, at least one of the latter truths would itself have to be a singular judgment instantiating the others with the individual denoted in the conclusion. But then precisely the same considerations would apply to that singularly instantiating premiss, and so on. The infinite regression which this would imply would be of the vicious sort since it must be actual; for no given judgment has any status in the system except in virtue of actually being implied by others. But the alternative would be that there is at least one singular judgment whose truth-value is not based upon its intra-systematic status -- and this, of course, denies the general formalist principle. Hence, the singular judgment as such must be denied to have any logical status to begin with.

Merely to cite the undesirable consequences for this theory of the admission to logical status of this sort of judgment does not, of course, constitute an argument for the denial of such status, except on the independent assumption that the theory is correct. But there is a standard mode of argumentation at hand to buttress this, which consists in considering all types of singularly referring expressions and arguing that none of them are in fact logically capable of discriminating the individual which they purport to discriminate. The prototype for such arguments is to be found in Hegel's analysis of "sense-certainty" in the Phenomenology of Mind,\(^8\) the

---

\(^8\)PP. 149-60 of the translation by J. B. Baillee
general strategy being to take all linguistic devices apparently used to designate unique individuals and show that they must logically fail to do so. Thus "this" and "that," "now" and "then," can be argued to be among the most universal rather than the most singular of expressions inasmuch as anything whatsoever can count as a this or a that, or can be here or there or now or then; proper names can be argued to be connotative and hence general in their application; definite descriptions can be argued to be logically indefinite; and so on. And this sort of argumentation is intended to apply equally to cases of sensory perception, where -- one might naively suppose -- there is no question but that an individual is (or at least can be) definitely identified as such. The following passage from Josiah Royce illustrates this:

You have an idea of your friend. You go to meet him; and lo, the idea is verified. Yes; but what is verified? I answer, this, that you have met a certain type of empirical object. "But my friend is unique. There is no other who has his voice, manner, behavior." "Yes; but how should your personal experience verify that? Have you seen all beings in heaven and earth?" Perhaps you reply, "Yes; but human experience in general shows that every man is an individual, unique, and without any absolute likeness." If such is your reply, you are appealing to general inductive methods. I admit their significance. But I deny that they rest solely upon external experience, as such, for their warrant. They presuppose a metaphysic. They do not prove one. Besides, you are now talking of general principles, and not of any one verified individual.9


The issue thus shapes up into the alternative of monism vs. pluralism: Is the truth of a given judgment a function solely of its inclusion within the ideal ultimate and complete system of judgments, or is the truth of any system a function of the truth of its constituent judgmental elements? And the resolution of this issue depends in large measure, if not wholly, on the resolution of the problem of singular reference.

In spite of the well-known and self-acknowledged affinity of Peirce's thought with the idealist tradition generally, it is on this issue that a definitive difference is established between his view and that of the "absolute" or formalistic idealist. For while Peirce agrees that no description, i.e. set of characters, can have the logical function of isolating the individual case, he disagrees with the formalist's assumption that therefore the individual cannot be discriminated through the judgment. What the formalist overlooks, on Peirce's view, is the function of the indexical sign, which, as he says, designates the subject of a proposition without implying any characters at all. (8.41) But Peirce's strategy is not to defend the logical status of the singular judgment as the unique mode of reference to the individual, but rather to take the much more radical position that all judgments involve an indexical sign and thus make reference to the individual: "One such index at least must enter into every proposition.

10See also 1.369, 3.361, 3.434, 4.56, 4.531.
its function being to designate the subject of discourse."

(8.41) His way of handling this is, of course, to treat quantifiers as a type of index. The reduction of all propositions to quantified propositions, in accordance with techniques such as were referred to in Chapter IV, would thus have the effect of shifting all problems of reference to the problem of the nature of quantification. As I noted in the latter part of that chapter, we cannot go into the problem in that form here -- which is one reason why no definitive account of the index can be attempted here. However, I think some points of philosophical interest can be made nonetheless.

Now it is a well-known characteristic of later pragmatism, especially that of John Dewey, to insist upon the logical importance of context. Dewey's own term for this is, of course, "the problematic situation," but it would be a mistake to suppose that the insistence upon the importance of the context or situation of inquiry is a theoretical idiosyncrasy of Dewey's. The notion is quite as central in Peirce's thought as it is in Dewey's, for it is basically the notion of that which is assumed, "given," or taken for granted in every inquiry. That there must be something taken for granted in every inquiry is precisely the point underlying Peirce's rejection of the notion of Cartesian doubt, for example. Cartesian doubt is a doubt which pretends to take nothing for

---

11See Chapter IV, footnote 20, of this study.
granted and supposes that an inquiry could actually be made under such conditions. The reason why Peirce cannot concede this supposition has been indicated in Chapter III of this study, though perhaps not in so many words; namely, because every inquiry takes the logical form of an inference (whether deductive, inductive, or hypothetical), and every argument requires premisses "laid down" or assumed to be true for that argument. I take it that for both Dewey and Peirce the context for any inquiry consists in the set of all propositions thus "laid down."

This implies that, although the real or actual world cannot be distinguished from a fictitious world by any description (i.e. by any inherent marks), it is in fact distinguished as such by its function in inquiry. That is, to accept something as real or actual is to accept it as the contextual basis, in the above sense, for a given inquiry. Now it might be objected that this surely cannot be what constitutes the real or actual, for what is accepted as the basis for inquiry at one time might very well be denied that status at another, and this would imply that the same state-of-affairs could be real and unreal. But such an objection would rest on a misunderstanding of the point here. It is not the logician's job to specify what worlds are real and what worlds unreal, nor even to specify the characteristic marks of a real world (for there are no such marks, on Peirce's view), but rather to give an account of what it means to accept some world as real.
Peirce's answer is that, in the context of inquiry, the acceptance of a world (i.e. state-of-affairs) as real is the acceptance of some set of propositions as investigatory premisses. It is a logical truth that mutually inconsistent sets of premisses cannot be simultaneously affirmed, and it is thus a logical truth that no specified world can be both real and unreal; but it is not the logician's concern to determine what will or will not be affirmed or denied, except insofar as such affirmations or denials fail to conform to logical principles.

Now this in turn suggests a close connection between, on the one hand, the real or actual relation characteristic of the indexical sign-object relation, and, on the other hand, the sign-object relation exemplified in those premissed or "laid down" propositions which are definitive of the context of inquiry. When we note further that an indexical sign is said by Peirce to be related to its object regardless of whether or not it is interpreted as such (2.92, 2.304, 4.447), this suggestion is reinforced; for the premissed propositions in a given inquiry are not in that inquiry regarded as actual inferences depending upon a mediating or interpretant middle term. The sign-object or predicate-subject relations of the premissed propositions are there regarded merely as obtaining as a matter of fact; and paralleling this, the indexical sign is said by Peirce to have the virtue of being connected with its object as a matter of fact. (4.447) And, still further,
the context of an inquiry (in the sense discussed above) is actually just the object as it is assumed to be in that inquiry. That is, the premisses of an inquiry (inference) define what we suppose ourselves to know of the object, the conclusion being what we further suppose about it on that basis. This seems clearly to connect with Peirce's characterizations of the indexical sign as that which brings our thought to a particular experience or shows us what is being talked about (4.56, 3.419), that which establishes an understanding of what is being referred to (3.372), that which connects our apprehension with the object meant (2.287), and so on.

On the basis of this I would like to suggest that the indexically functioning signs in any inquiry consist in everything which is taken to constitute a relevant matter of fact for that inquiry. That is, the context of an inquiry and the indexically functioning signs of that inquiry are identical. From the logical point of view, everything has a sign-status of some sort; and what I am suggesting is, that whatever it is which is taken as definitive or constitutive of the object (subjectmatter) for a given inquiry is thereby an indexical sign. Let me illustrate this thesis by analyzing a few of Peirce's examples of indices:

I see a man with a rolling gait. This is a probable indication that he is a sailor. (2.285)

The inference here would be that the man is a sailor; the index of this inference -- the inferential ground or
premiss "laid down" -- would be the fact that the man has a rolling gait. It might be objected that it is not the fact that the man has a rolling gait, but rather the rolling gait of the man which constitutes the index. I would grant the validity of the objection, provided a real and relevant difference could be made out between the two. Note, however, that it is not being a man with a rolling gait which constitutes the index, for that is a mere formal character having in itself no reference to any individual. It is rather being the man with a rolling gait which constitutes the index, and it is not clear to me that this can be distinguished from the fact that the man has a rolling gait. The following case would be analyzed in a similar way:

A sundial or a clock indicates the time of day. (2.285) The inference here would be that it is a certain time of day; the index of this inference -- the matter of fact which would ground the conclusion that it is a certain time of day -- would be the fact that the shadow on the sundial or the hand on the clock points at such and such a marking. The indexical character of barometers, weathercocks, plumb bobs, old-fashioned hygrometers, spirit levels, thunderclaps and the like would obviously be analyzed in a similar way.

But what about the case of the pointing finger, as when a man thus indicates that he is talking about a certain object? This is a far more complex case than appears at
first glance. When a man points at something and says something of the form "That's an F" (or he could just point and say "F," as a child does), the information which is primarily conveyed is not normally that the thing is an F, but rather that the speaker supposes the thing to be an F -- or perhaps only that the speaker said that the thing is an F (for he might be a liar). The conclusion that he believes what he said would be based on the fact that he said it (plus the assumption that he was sincere); and the conclusion that the thing really is an F is (or might be) based on the fact that he believed it (provided the speaker were regarded as authoritative on the matter). But then, upon closer analysis, we can see that even the information that he said that the thing was an F is itself a conclusion from such facts as that his finger was pointing in a certain direction, that such and such a thing was in line with the pointing finger, that he used such and such words, and so on. Thus, a hand with an extended index finger is not in itself an index. The index is the fact that a finger was so extended at a certain time, that at that time a certain object was more or less in line with the direction of the finger, that suitable noises were made, and so forth. Assumed facts of this sort may warrant the (possibly mistaken) conclusion that such and such a thing was said, which conclusion may in turn constitute an index of the fact that such and such a thing was believed by that person,
which conclusion (also possibly mistaken) may in turn constitute an index of the fact that what was said is true (which conclusion may also be false), and so on.

The following illustration by Peirce is relevant here:

Two men are standing on the seashore looking out to sea. One of them says to the other, "That vessel there carries no freight at all, but only passengers." Now, if the other, himself, sees no vessel, the first information he derives from the remark has for its Object the part of the sea that he does see, and informs him that a person with sharper eyes than his, or more trained in looking for such things, can see a vessel there; and then, that vessel having been thus introduced to his acquaintance, he is prepared to receive the information about it that it carries passengers exclusively. (2.232)

Note how highly mediated is the conclusion that a certain vessel carries passengers exclusively. Before this can be concluded the auditor must first have arrived at the conclusion that there is a vessel out there at a certain approximate place. But this is based upon such assumptions as that the speaker is speaking sincerely, that the speaker is in fact capable of descrying such a vessel, that a certain part of the sea is in line with the vision of the speaker, that the line of vision of the speaker is such-and-such (which may in turn be a conclusion from the way his eyeballs are facing), and so on.  

The following sort of a case involves some different considerations, though the strategy of analysis here is not essentially different:

12 The words "this" and "that," in their demonstrative use, would be analyzed in more or less the same way as the pointing finger. They involve a dependence upon conventions, of course, but then so does the pointing finger.
A yard-stick might seem at first sight, to be an icon of a yard; and so it would be, if it were merely intended to show a yard as near as it can be seen and estimated to be a yard. But the very purpose of a yard-stick is to show a yard nearer than it can be estimated by its appearance. This it does in consequence of an accurate mechanical comparison made with the bar in London called the yard. Thus it is a real connection which gives the yard-stick its value as a representamen; and thus it is an index, not a mere icon. (2.286)

A given stick, called a "yard-stick," is an index because it is supposed that, as a matter of fact, that stick is the same length (or a reasonably close approximation to the same length) as a certain stick in London, which supposed fact can then be utilized as a premiss in concluding to the length of any object measured against that stick. What about that stick in London? Is it an index? This is a complex issue, but it would seem at first glance that we would have to say that it is not an index in so far as it is functioning as a standard. For in order for the standard yard to be an index of the yard-length of a thing the standard would have to be the same length as itself. No doubt it is precisely as long as itself, but this would not appear to be true as a matter of fact but merely by definition or convention. However, this may not be correct. For the statement that the standard stick is as long as itself might be true as a matter of fact if there are two different times involved. That is, it surely makes sense to ask whether the standard stick has shrunk or expanded, and this would be to ask if it is as long as it itself was at some other time. Now it has been claimed by some that
it really makes no sense to ask whether the standard yard is a yard. But if by the standard yard is meant that individual stick in London, then I should think this must be false, since this would imply that the stick has no length at all. For if it has any length at all then it can be measured in some terms -- say in terms of meters -- and that measurement can be transformed into terms of yard-age. But, then, it would seem that the London stick is an index of yardage after all, provided there is an operative assumption that it is the same length as itself at some other time. But is the latter really a matter of fact assumption or is it actually of the nature of a convention?

Leaving this question unanswered, let us consider another point of interest which can be brought out nicely in connection with this particular kind of case. Suppose that I pick up a stick on the street which happens, in point of fact, to be exactly the same length as the London stick. If so, then that stick could be said to be a potential yard-stick, since it has that real connection with the London stick which constitutes the peculiar virtue definitive of a yard-stick. It is, in other words, a potential index of yard-length. Actually, however, any stick -- or any object with a rigid length -- has a real connection, in this sense, with the London stick (i.e. has

For example, Wittgenstein says: "There is one thing of which one can say neither that it is one metre long, nor that it is not one metre long, and that is the standard metre in Paris," Philosophical Investigations, Part I, sec. 50.
some matter of fact length-relation to the London stick), and hence is a potential index of yardage. Hence, the case of a stick fit to be a yard-stick proper, i.e. a stick exactly as long as the London stick, is really only of special importance from the practical point of view, but has no special interest from the strictly logical point of view. However, there is in fact a class of sticks, called "yard-sticks," which are singled out as actual indices of yardage. The sticks sold in stores which are labelled "yard-stick" by the manufacturer are members of this class, but so also is the stick I pick up from the street if I decide to use it for calculating yardage. Now, what if some member of this class is not in fact the same length as the London stick, but I use it as a yard-stick in the belief that it is? Is that stick then an actual index of yardage? (The problem this raises is, in more general terms, that of the relation between indexical virtue and indexical function -- or, otherwise said, the relation between the potential and the actual index.) The answer would be, I believe, that it is a potential index of yardage in virtue of its real connection with the London stick, and that it is an actual index of yardage in virtue of the fact that it is used as such, but that it is not an index of the yardage that I suppose it to be. That it is an actual index of yardage is clear from this, that whatever measurements I obtain with it are capable of being transformed into correct yardage measurements
provided its real connection with the London stick is determined. Hence, the use of the stick really did give me information which, in conjunction with further information (viz. the co-efficient of error), would yield correct information about the yardage length of whatever I measured. Perhaps this point could be generalized as follows. Anything used as an index ipso facto becomes an actual index of whatever it is potentially capable of being an index of. What a thing is actually an index of is not necessarily what it is supposed to be an index of, however. To take a case of a quite different sort (in order to get a sense for the general import of this), suppose that a man assumes falsely that everyone is out to "get him." There is no actual index here because there is no real connection to serve as potential base. However, this belief may be a conclusion from certain other assumptions which are actual indices because they instance real connections. Thus the man may have noticed that e.g. people often stop talking when he comes up. Now they may really do this, so that this really is an index of something; but what it is actually an index of is, perhaps, only that people can't abide the man's bellicose attitude and would prefer not to include him in their conversation. Thus there would be two ways in which error could arise in connection with indices: (a) in the case where an actual index is misconstrued, and (b) in the case where, there being no potential index, there is no actual index
There are other and more difficult types of indices which will not be discussed here since I have not so far been able to develop an adequate analysis of them. Chief among these are, first, the use of indices in geometrical diagrams, algebraic formulas, legal formulas and the like, where the function is roughly analogous to that of the relative pronoun in language; and, second, the case of quantifiers such as "all," "some," "none," "most," and so on. These cases present very special difficulties because of the close inter-relation of indexical with conventional and iconic elements. Needless to say, I suppose the general line of analysis I have illustrated above to be applicable in these cases as well, but I do not believe it can be carried through successfully until the nature of the symbol and the icon are investigated further than I have been able to investigate them here.

To return, then, to the issue of the formalistic criterion of truth: Peirce's rejection of this consists in claiming that every judgment, logically analyzed, has a reference to the individual. And I suggested that this takes the form of saying that there is always some body of assumptions constituting the context or subjectmatter of that judgment, which body of assumptions or premisses is ipso facto identical with the indices for that judgment, thereby constituting the singular reference of the judgment. I say "thereby" because it is true by definition
that indices make singular reference. However, this merely locates the problem of singularity or individuality within Peirce's theory and in no way explains what individuality is. This will have to remain an unsolved problem here. There is one objection which may have occurred to the reader which should be met before bringing this account to an end, however. In the second paragraph above I suggested that one way in which an error can occur in connection with the index is to suppose something to be an index which is a pure fiction, i.e. which is not even an actual though misconstrued index (e.g. the paranoid's belief that everyone is out to get him). And this seems to contradict the statement that the body of assumptions in an inquiry is identical with the indices of that inquiry. Though I do not wish to claim that it exactly represents Peirce's actual line of thought, I would suggest that the contradiction could be resolved along the following lines. Either a judgment is immediately based on at least one index or else it is based on a judgment which is immediately based on at least one index; recursively, therefore, there will always be an index grounding a judgment. Thus, for example, the paranoid may believe that he should kill as many people as possible on the grounds that everybody is out to get him, which may in turn be grounded in the belief that he has seen people plotting against him, which may in turn be based on the belief that people break off their conversation whenever he approaches. Now the
latter belief is true and therefore really is an index, though a misconstrued one. Since the sequence of falla­
cious conclusions is based finally on that index (as well as others, no doubt), there is an indexical reference even in the case of the final conclusion, albeit a highly mediated one. In other words, the final judgment that he should kill as many people as possible would be analyzed, roughly speaking, into the logical form of a sorites. This would save the principle that every judgment must involve at least one index, since no judgment would be regarded as fully analyzed until an index had thus been located. But it may be asked why the principle must be saved. The only answer I could give to this would be to point out that this principle is, after all, only a vari­ation on an ancient and familiar dictum which runs: Nihil est in intellectu quod non fuerit in sensu.
APPENDIX

THE SEMIOTIC TRIVIUM

The term "semiotic," which Peirce uses interchangeably with "logic" when the latter is taken in a very broad sense (1.444), comprehends what he called a "trivium" of sciences. (1.559) It is worth noting that the use of this latter term, suggestive as it is of the medieval liberal arts curriculum, is almost certainly a studied one on his part. The members of Peirce's semiotic trivium are called by him: (1) "speculative grammar," (2) "critical logic" (i.e. logic in a narrow sense), and (3) "speculative rhetoric," in obvious analogy to the grammatica, dialectica, and rhetorica of the medieval trivium. It is likely that Peirce envisioned the development of a theoretical and philosophical analogue to this curriculum, constructed on the basis and findings of modern science and modern logic, as an ideal for a genuinely liberal education. Thus he says, for example, that "a liberal education -- so far as its relation to the understanding goes -- means logic [i.e. in the broad sense]. That is indispensable to it, and no other one thing is." (7.64) And he says further:

In short, if my view is the true one, a young man wants a physical education and an aesthetic education, an education in the ways of the world and a
moral education, and with all these logic has nothing in particular to do; but so far as he wants an intellectual education, it is precisely logic that he wants; and whether he be in one lecture-room or another, his ultimate purpose is to improve his logical power and his knowledge of methods. To this great end a young man's attention ought to be directed when he first comes to the university; he ought to keep it steadily in view during the whole period of his studies; and finally, he will do well to review his whole work in the light which an education in logic throws upon it.

7.68

(1) According to Peirce, speculative grammar is "the general theory of the nature and meaning of signs." (1.191) It treats of "the general conditions of signs being signs" (1.444); or, in other words, it is "the doctrine of the general conditions of symbols and other signs having their significant character." (2.93) The term which in current use probably comes closest to indicating the sort of study which Peirce had in mind would be "theory of meaning," though some other term -- say "theory of significance" -- might be preferable in order to avoid any restrictive or misleading connotations which the former term may have due to its use in other philosophies.¹

Peirce's term "speculative grammar" (grammatica speculativa) is the title of a work formerly attributed to Duns Scotus but now known to be by Thomas of Erfurt.² But it also signified a general type of inquiry which the

¹Peirce himself did not seem to be able to settle on a suitable label for this (or the other) branches of semiotic. In addition to calling it "speculative grammar," he also called it "formal grammar," "pure grammar," "stechiotic," "stechiology," and "stoicheiology,"

medieval historian Etienne Gilson characterizes as follows:

The grammarians of the thirteenth century noticed that each language raised two sorts of problems, some proper to the language in question (Hebrew, Greek or Latin grammar), others common to all languages (what is a noun, a verb, an adverb, etc.). The first sort of problems could not become an object of science; the second sort of problems, on the contrary, could be taught in a scientific way on account of their generality. Hence the progressive constitution of what was to be called later on "speculative grammar" (grammatica speculativa), whose object it was to teach the general rules followed by the human intellect in expressing itself, namely, its various "ways of signifying" what it thinks (modi significandi). 3

Its two characters are: 1) to be an abstract speculation about the classification and function of words in language; 2) to be, in virtue of its very abstraction, independent from the grammars of particular languages. He who knows, in this way, the grammar of a single language, knows the grammar of all languages.

This universality, i.e. independence from the grammars of particular languages, is repeatedly insisted upon by Peirce, 5 and the point might be expressed in contemporary jargon by saying that he was concerned with developing a "general" rather than a "special" semiotic. The fact that semiotic is not to be relativized to a particular language does not mean that Peirce was not concerned with modes of expression or notation at all; it means rather that, insofar as he was concerned with notation, he was concerned primarily with the conditions for a logically adequate mode of expression. Thus, for example, one of

3 Ibid.
4 Ibid., p. 781
the special virtues of the notation which Peirce developed in his existential graphs is that it contains no notational features beyond those minimally required for expressing purely logical functions (e.g. there is no need in it for punctuation marks of any kind).

Peirce also says of this branch of semiotic that "it has for its task to ascertain what must be true of the representamens [i.e. signs] used by every scientific intelligence in order that they may embody any meaning." (2.229) This reference to "every scientific intelligence," by which Peirce means any beings whose cognitional capacities are like those of human beings (as opposed e.g. to infra-human and divine minds), brings up a further point, viz. that Peirce conceives of speculative grammar as being an Erkenntnisstheorie (2.206) or Erkenntnisslehre (2.83), i.e. a theory of cognition. Thus he says, for example, that speculative grammar 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. Kant, who first raised these questions to prominence, called this doctrine transcendental Elementarlehre, and made it a large part of his Critic of the Pure Reason. But the Grammatica Speculativa of Scotus is an earlier and interesting attempt. The common German word is Erkenntnisstheorie, sometimes translated Epistemology. (2.206)

(2) The second branch of semiotic is logic in the narrower and more usual sense, "critical logic," as Peirce sometimes called it. It is "the theory of the general
conditions of the reference of symbols and other signs to their professed object; that is, it is the theory of the conditions of truth." (2.93) Since, on the one hand, Peirce defines the validity of an argument in terms of the truth of its leading principle, and since, on the other hand, all cognition is inferential on his view, an alternative way of expressing the function of critical logic is to say that it "classifies arguments and determines the validity and degrees of force of each kind." (1.191) Since critical logic utilizes such notions as that of being true, being a sign, being asserted, etc., it presupposes the prior doctrines of speculative grammar. In point of fact, though, much of Peirce's development of the latter followed upon extensive explorations in critical logic and it is to a large extent an attempt to hypothesize from it.

(3) The third branch of semiotic has as its task "to ascertain the laws by which in every scientific intelligence one sign gives birth to another, and especially one thought brings forth another." (1.229) Somewhat more prosaically expressed, it is "the theory of the method of discovery." (2.108) It "studies the methods that ought to be pursued in the investigation, in the exposition, equivalent to "semiotic" and sometimes as equivalent to "critical logic" (cf. 1.444), and it is not always contextually clear which sense he intends. However, it usually makes no difference in such cases, anyway, since either meaning would fit. He also calls critical logic "critic" and "logic proper."
and in the application of truth." (1.191) Peirce usually calls this branch either "speculative rhetoric" or "methodeutic," but it might simply be called "theory of methods." Thus whereas critical logic is concerned with the conditions of the validity of (putative) knowledge, speculative rhetoric is concerned with the conditions of acquiring and utilizing knowledge.

It may be thought odd that Peirce should have used the term "rhetoric" in this connection, since this term is usually thought of as signifying something altogether extra-logical. However, it should be remembered that Peirce defines truth in terms of the settlement of belief; hence, if we regard rhetoric as the theory of persuasion, and take "being persuaded" in the perfectly straightforward sense of "being brought to a settled belief," then we can see why a general theory of method might very well be called a "rhetoric." This does not eliminate the distinction between good and bad persuasion, but this distinction depends upon the theory developed in critical logic, which is one reason why speculative rhetoric depends upon critical logic.

In fine, then, semiotic consists of three branches; one concerned with the conditions of meaning of signs, one

---

7 Peirce also called this branch of semiotic "formal rhetoric," "pure rhetoric," "universal rhetoric," "objective logic," "methodology," "methodeutic," and just plain "method." It should also be noted that Peirce regards this as similar or analogous to Kant's transzendentale Methodenlehre and to Hegel's Objective Logic. (1.444)
one concerned with the conditions of truth of signs (including the validity of arguments), and one concerned with the conditions of development of signs (i.e. the methods by which knowledge is augmented). The present study is primarily concerned, of course, with the first of these.

The following table shows in broad outlines Peirce's classification of the sciences, insofar as it is pertinent here. Each successive science presupposes, in part at least, those preceding it in the classificatory order.

I. THE MATHEMATICAL SCIENCES

II. THE PHILOSOPHICAL SCIENCES
   A. Phenomenology
   B. The Normative Sciences
      1. Esthetics
      2. Ethics
      3. Semiotic (Logic in the broad sense)
         a. speculative grammar
         b. critical logic
         c. speculative rhetoric
   C. Metaphysics

III. THE SPECIAL SCIENCES (i.e. physics, psychology, biology, etc.)

8A lengthy discussion of the classification of the sciences is in 1.180ff.
BIBLIOGRAPHY

For an extensive bibliography of secondary works on Peirce the reader should consult "A Draft of a Bibliography of Writings about C. S. Peirce," compiled by Max H. Fisch, with the assistance of Barbara E. Kretzman and Victor F. Lenzen, in Studies in the Philosophy of Charles Sanders Peirce: Second Series, ed. E. C. Moore and R. S. Robin (Amherst: The University of Massachusetts Press, 1964), 486-514; and also a first supplement to this, compiled by Max Fisch, in Transactions of the Charles S. Peirce Society, Vol. II, No. 1 (Spring 1966), 54-59. The following bibliography does not represent all material directly pertinent to the topic of this study, nor does it represent all material consulted, nor does it include all works cited in the text. It consists rather of (a) standard book-length studies or collections of studies of Peirce's philosophy, and (b) miscellaneous works -- many of them not on Peirce at all -- which I have, in point of fact, found especially helpful or especially pertinent in writing this.


• "What are Universals?", Journal of Philosophy, XXXIII (1936), 281-88.


Weiss, Paul, and Burks, Arthur. "Peirce's Sixty-Six


———. Novum Organon Renovatum. London: John W. Parker and Son, 1858.

———. On the Philosophy of Discovery. London: John W. Parker and Son, 1860.
