"WHO WAS CHARLES SANDERS PEIRCE?
AND
DOES HE DESERVE OUR HOMAGE?"

BY
KENNETH LAINE KETNER

To Charles Hartshorne

There might be persons who would think that the first question in the title of this essay is frivolous, for, they might say, by now everyone knows who Charles Peirce was -- the great American Philosopher, etc. and so forth; and of course, it would be right to give homage to such a great philosopher, etc., and so forth. If there existed in the cosmos such strawpersons who would obligingly charge me with this frivolity, I would want to disagree with them, and to address them along these general lines: The man you are most likely conceiving did not exist; such a man is principally a myth that came into being, piece by piece, through the offices of some inaccurate biographical sketches (for example, the one in the Dictionary of American Biography),¹ and by a change in scholarly habits among some academics who have tended to disavow historical antecedents, and who have created or tolerated a false gulf between philosophy and science that has grown up (or at least widened) since the real Peirce died in 1914. Without going into further detail, I hope you may grant me that there could be some little grain of truth in what I have in mind, and that you will therefore permit me to begin again from scratch with the two questions in my title, as if we had never heard anything about Peirce. I shall try to answer those questions in outline, a contingency imposed by the present format.

The place to begin, naturally, is not with the first question, but with some things one might presuppose in asking it. Chief among such presuppositions might be, "How shall we find out who Peirce was?" In fact, this issue has been begged by some scholars who have sought to deal with the matter. Many have merely assumed their procedures without argument or comment. In general, often the procedures used lack some of the following, which seem to be among the essential principles for this task: (1) read carefully what Peirce says about himself and his work, and accept it until evidence forces one away from it; (2) learn what the intellectual atmosphere of his time was and use that information to better understand his expressions and goals; (3) try to understand the longer range historical antecedents of Peirce's activities; (4) look at all that Peirce wrote, not just at what he wrote that is conveniently accessible; (5) avoid preconceptions by remembering that interpretational hypotheses are not facts.

"Very well and good," say the strawpersons, "But get on with it." And so I will. Because this is a little essay, to begin to answer "Who was Peirce?" I will use a little description, almost surely written by Peirce himself: namely, his entry in American Men of Science, edited by Peirce's friend at Columbia University, J. McKeen Cattell.² But before reading this paragraph, consider a few preliminaries. The directory includes a bit more than four thousand entries. Of these, about one thousand have an asterisk by the name of the person's principal field of scientific research. Asterisk-holders were considered by their peers, according to Cattell's introduction, to be the top men of science in the United States. Peirce has an asterisk, and his principal field of science is logic, which in MS 364 at ISP sheet

¹ XIV (1934) 398-403.

7, 3 Peirce described (circa 1872) as "the doctrine of truth, its nature, and the manner in which it is to be discovered." Here, then, is the paragraph, which has been virtually ignored in the Peirce literature.

cal geometry.

In a long and important autobiographical letter written to J. H. Kehler, dated 22 June 1911, 4 Peirce explained that there are three parts or aspects of logic.

I have now sketched my doctrine of Logical Critic, skipping a good deal. I recognize two other parts of Logic. One which may be called Analytic examines the nature of thought, not psychologically but simply to define what it is to doubt, to believe, to learn, etc., and then to base critic on these definitions is my real method, though in this letter I have taken the third branch of logic Metho
deutic, which shows how to conduct an inquiry. This is what the grea
ter part of my life has been devoted to, though I base it upon Critic.

Of course, in order to study methodeutic it is necessary to make researches in as great a variety of sciences as possible, -- real re
searches, not the two penny half penny "research work" that students of colleges do. [p. 207].

From this data we can sylogize that Peirce devoted his life to a study of methodeutic. His standards were high, for contrary to the mythical Peirce's lack of persistence or of purpose, the real Peirce mastered several natural and exact sciences to the extent that he made original and important research contributions in them. 5

Why should Peirce go to science to find a basis for methodeutic? Because, as he said, "Men, the principal occupation of whose lives is finding out the truth, are called scientific men; and their occupation is called Science..." 6 Thus we see

Eisele, Mouton: The Hague, 1976, 3:159f; hereafter this work is cited as NEM.

5 The exact nature of Peirce's contrib-
butions can be learned from pursuing Studies in the Scientific and Mathematical Philosophy of Charles S. Peirce: Essays by Carolyn Eisele, ed. R. M. Mouton: The Hague, 1979; hearafter cited as SSMP.

6 NEM, 4:188, 1904.
that science is the activity (method) that in general finds truth, so in order to accurately describe such methods (the activities of scientific men, or of scientific intelligences), such a description being the object of methodic, the real Peirce became a scientific intelligence of the first rank in his own day, and was so recognized by his contemporaries. The mythical Peirce was a philosopher, so it is said, and when it is said, what is usually meant by the word "philosophy" in such cases is "a student of systematic knowledge," a person who subscribes to the truth of a system or a party, not the truth that is "as yet unknown." The real Peirce declared this kind of activity to be dogology, and repudiated it (see p 779, The Century's Great Men in Science), but added that if by "philosophy" and by "science" were meant an older sense of each — the objective pursuit of truth — then he was certainly both a philosopher and a scientist, for the two words then described the same activity.

This then explains the rather large number of scientific endeavors in Peirce's entry in the Cattell volume, and his accomplishments in them constitute a Da Vinci-like mastery of universal science. This can be further appreciated by considering a little bit of detail from sample sciences. In metrology, he served the United States government through the Office of Weights and Measures, of which he was the head for a while. In such capacity, he undertook wavelength studies and developed pioneer techniques for using light as an exact standard for length measurement. He was the first experimental psychologist in the United States, producing, among other things, a classic experiment in psychophysics. His study of gravity and the values he developed for its strength were the best in the nineteenth century and compare favorably with present values. Peirce was apparently the first astronomer to prepare a reasonably accurate map of our galaxy, the Milky Way. He was most likely the first historian of science in the United States. He was also a great scholar of medieval science and this in a time when that era was widely supposed to be mostly a barren darkness. He theoretically studied the medieval logicians, treating their terminology and principles with respect. The real Peirce, by the way, did not simply study history as a pastime, as the mythical Peirce did, but for a very sound and serious reason. He thought that "...each chief step in science has been a lesson in logic." As far as I can see, this means that a vital part of the way to

7 References to Peirce's published works follow a standard system in A Comprehensive Bibliography and Index of the Published Works of Charles Sanders Peirce, ed. K. L. Ketner, et. al., Kraus Microfilms: Millwood, NY, 1977. P followed by a number refers to an item by Peirce.

8 SSM, 118-137.


14 P 107, The Fixation of Belief, 1877.
study methods for finding truth (logic) is to study their careers in time, including their successes and failures. No wonder then, that the real Peirce declared that "The history of the human intellect has been one of my chief interests, especially in reference to the physical and philosophical sciences." Peirce's knowledge of the history of science was vast. A part of that expertise was his understanding of the crucial role that an effective terminology has in science. Thus, he made a careful study of that matter to which he made some original contributions.  

The mythical Peirce is supposed to be dark and difficult to read. This charge exasperated the real Peirce, the careful student of scientific terminology who was struggling to reform philosophy, in part by trying to give it a terminology on principles similar to those that gave natural science its successful terminology. Thus, in a letter the real Peirce replied to William James, who had accused him of dark expression, by saying:

Now I will speak first of my meaning of which you "don't understand a word" and then of what you say. It is very vexatious to be told at every turn that I am utterly incomprehensible, notwithstanding my careful study of language.  

[Toward the end of this letter, Peirce chides James for violating the Ethics of Terminology, a part of what Peirce called the Ethics of Science.]  
It is downright bad morals so to misuse words, for it prevents philosophy from becoming a science.

One of the things I urge in my forthcoming Monist paper [P 1078, What Pragmatism Is, 1905] is that it is an indispensable requisite of science that it should have a recognized technical vocabulary composed of words so unattractive that loose thinkers are not tempted to use them, and a recognized and legitimated way of making up new words freely when a new conception is introduced, and that it is vital for science that he who introduces a new conception should be held to have a duty imposed upon him to invent a sufficiently disagreeable series of words to express it. I wish you would reflect seriously upon the moral aspect of terminology.  

A person who complains about the mythical Peirce's obscurity of expression will profit in many ways from this advise from the real Peirce.

One other aspect of Peirce's entry in Cattell stands forth -- his obvious interest in and pursuit of mathematics. This pursuit is something the mythical Peirce undertook independently of his work in philosophy. But, said the real Peirce (in a letter to his friend Judge F. Russell of Chicago):

My special business is to bring mathematical exactitude, -- I mean modern mathematical exactitude into philosophy, -- and to apply the ideas of mathematics in philosophy....

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15 NEM, 4::ix, 1902.


18 Published in NEM 4::x. One could begin to run down what special meaning Peirce attached to the word "modern" here by following his reviews of works by Klein, and his obituary of Helmholtz: see Charles Sanders Peirce: Contributions to the Nation, part two, ed. K. L. Ketner and J. E. Cook, Texas Tech Press: Lubbock, 1978.
Peirce's doctrine of exact philosophy, he explained:

is that all danger of error in philosophy will be reduced to a minimum by treating the problem as mathematically as possible, that is, by constructing some sort of diagram representing that which is supposed to be open to the observation of every scientific intelligence, and thereupon mathematically, -- that is, intuitionally, -- deducing the consequences of that hypothesis.\(^{19}\)

In other places we find that mathematical thought equals diagrammatic thought, and as a method, it precedes those normally associated with philosophy, at least in the classification of the sciences the real Peirce made. Hence, Peirce, the profound student of methodeutic, is telling us that in order to practice what would be genuine philosophy, we need to practice a general kind of mathematical method in which experiments and observations are performed upon actual or imaginary diagrams.\(^{20}\)

Peirce's name is associated today with something called semiotics, but again, this is the mythical Peirce. The real guy, consistent with the doctrine of the ethics of terminology, called his work semiotic (pronounced seem-eye-OH-tick, which means it is pronounced in English much like it is pronounced in German --

...the quasi-necessary, or formal, doctrine of signs. 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.

This often-quoted passage takes on a new light if one examines it in terms of our discussion thus far. First, consider that the entire description of semiotic is based on the notion of a "scientific intelligence," which, briefly put, is an

Contemporary Relevance," The Monist, 63 (1980), 304-315, is a serious misunderstanding of Peirce's comments about diagrammatic thought, the nature of mathematical method, and corollarlarial/theorematic reasoning.


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\(^{19}\) NEM, 4:x.

intelligence functioning according to the ethics and standards and general principles of science, which items are the object of study in methodic. Thus, the "must be" of this passage is an ethical one, not one from formalistic logic, or from metaphysics. As one or more scientific intelligences begin to observe signs in action in scientific intelligence, by means of mathematical (diagrammatic) methods, an account, eminently fallible, hence eminently testable, of the real nature of signs, is developed. Notice how the whole thing arises out of methodic and mathematics, not out of philosophy in the contemporary sense of the word. That is to say, some scholars have interpreted this passage to mean that Peirce's "must be" is a philosopher's way of telling us what logically has to be the case in "sign use by a scientific intelligence." But such an interpretation is exactly backwards. Peirce is telling us here that we observe sign use in scientific intelligences, looking for the general principles of what scientifically has to be the case in such sign usage. And mathematics will be crucial and basic in that undertaking. Peirce has elsewhere told us exactly that: "...my study of the formal laws of signs...[is]...a study guided by mathematics and by the familiar facts of everyday experience and by no other science whatever." 22

Moreover, notice that only scientific intelligences can be semioticians. Thus, if you ever were to meet a semiotician so-called who would be unable to make a mind change, you would know that this is not a genuine semiotician, at least in the sense of the word meant by the genuine Peirce. This is to say that semioticians (students of semiosis) are scientific intelligences (users of scientific methodic) who are studying semiosis(sign)-use-by-scientific-intelligence in order to develop and confirm hypotheses about whatever formal (quasi-necessary) laws might be detectable in such semiosis (sign)-use, just as a chemist (a user of scientific methodic) might seek to develop and confirm hypotheses about the laws of chemical combination. To complete the analogy by showing that chemical combination, and other natural phenomena studied by physical science, is, on the real Peirce's view, itself a vast scientific intelligence, is a debt for which I can only give a promissory note. 23 It is important to note that in this situation it is scientific methodic as used by a semiotic that brings, through hypotheses and experimentation, an understanding of the laws and regularities of semiosis. That this basis is the correct one for his semiotic is reinforced by the latter part of the above quoted MS 798. 24

22 Letter to Christine Ladd-Franklin, quoted in SSMP, 7.


24 The earlier quotation from MS 798 is to be found at Collected Papers, vol. 2, 134; the quotation immediately following is a continuing page of this MS, but the editors of the Collected Papers placed it 135 pages away from its correct place on page 269, and in a footnote. The introduction of MS 798 by the editors of the Collected Papers has a footnote that states, "From an unidentified fragment, c. 1897." In what sense this is "unidentified" is not clear to me, and it was no fragment as Peirce wrote it, but it certainly became one when it was placed into the Collected Papers in two widely separated places. Some scholars urge that we "must go beyond Peirce," but how can we do that if we don't understand him? Lacking such an understanding, we would only "go around him," to stretch the metaphor further. But in order to understand Peirce, we should do him the courtesy of reading his work in an accurate way. Imagine, dear reader, your reaction if a
To speak summarily, and to use a symbol of abbreviation, rather than an analytical and iconical idea, we may say that the purpose of signs -- which is the purpose of thought -- is to bring truth to expression. The law under which a sign must be true is the law of inference; and the signs of a scientific intelligence must, above all other conditions, be such as to lend themselves to inference. Hence, the illative relation is the primary and paramount semiotic relation.

From all this, I conclude that Peirce thought that in order to have a science of semiotic, it would have to rely on a knowledge and use of logic (methodeutic), "the doctrine of truth, its nature, and the manner in which it is to be discovered"; and that this required reliance and use connects semiotic with the entire Peircean effort in methodeutic, especially mathematical methodeutic, and all the ramifications of that.

Indeed, understanding Peirce's mathematics and his methodeutic is essential for understanding his entire philosophy. But most scholars, particularly philosophers, have neglected Peirce's mathematical work. Small wonder, then, that there is no mention of mathematics by most students of the mythical Peirce's semiotics. That the key to understanding Peirce lies in his mathematical and scientific works is a principle that I have elsewhere called Eisele's Law, after the person who first established it beyond reasonable doubt.25

In brief, what conclusion did Peirce reach in his lifelong pursuit of methodeutic? I cannot document it in the remaining brief time, but it seems that he arrived at what I would call a unified theory of objective method, a theory that deals with all the sciences, with mathematics, with philosophy, and even religion by means of common principles and terminology. Yes, the real Peirce was deeply religious, unlike the mythical Peirce which got religion only when he became senile. Peirce's account of religion is unique, and one of the great untapped resources in his vast corpus of writing. It could be a means for accomplishing a rapprochement between religion and science in our own day.26

Finally, the mythical Peirce is fragmentary, inconsistent, and unsystematic, a man who constantly changed his mind, who was able to get only a little published. The real Peirce PUBLISHED, in his lifetime, material that appeared on about 12,000 pages! The real Peirce was a master stylist of the English language and an indefatigable worker whose manuscripts run to some 80,000 sheets; all those of scientific relevance are PUBLISHED in microfilm and generally available for study. The real Peirce was as systematic and consistent a thinker as ever there has been, and his non-fragmentary can be seen if one will read all of what he wrote, as he wrote it, instead of reading only the part that escaped some editor's knife. The real

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piece of your writing were split in half by a reductor, with a note to the effect that you were fragmentary. Would you not resent, from your seat in heaven, that by this means you had acquired the false reputation of being a "fragmentary thinker"? On this theme and related topics, see Kenneth Laine Ketner, "Peirce as an Interesting Failure?" Proceedings of the C. S. Peirce Bicentennial International Congress, Lubbock: Texas Tech Press, 1981, 55-58.

Ketner, "Carolyn Eisele's

Place in Peirce Studies," forthcoming in Historia Mathematica, an issue devoted to the Hunter College symposium on Peirce.

26 For example, see NEM, 3:206, 208; recall also Pfeifer, "Charles Peirce's Contribution to Religious Thought"; and see the excellent dissertation by Donna Marie Orange, The Development of Peirce's Theism, Fordham University: Bronx, 1980, Dissertation Abstracts 40;12A (1980), 6312.
Peirce will also shine through if his mathematical and scientific works are consulted instead of being largely ignored as they have been. A convenient account of how to gain access to the massive writings of the real Peirce is now available.\textsuperscript{27}

Perhaps the foregoing can help us answer yet one other puzzling aspect about Peirce's career as a historical figure. Why has he, in view of his obvious greatness, been so neglected, misunderstood, and ill-treated as an object of study? That is, why has there been such a grotesque and popular mythical Peirce, so separated from the genuine one? Of course, all great historical figures have their mythical and their genuine personae, but there is a powerful difference in the two in this case. I surmise that it is because contemporary philosophy (and contemporary intellectual life) is sometimes hampered by what Peirce called philodoxy (love or pursuit of an orthodoxy). Contemporary students sometimes lament that Peirce changed his mind [only a philodoxer would complain about learning from experience], some complain that he is difficult [philodoxers make the same complaint about biology or chemistry], some say he speaks obscurely [scientific terminology will be opaque to anyone who reads it with ordinary language concepts only], and there are gripes about the length of his writings [philodoxers are usually lazy and even sometimes avoid original sources, preferring a convenient secondary description]. If one couples the contemporary tendency toward philodoxy with our age's confirmed nominalism and relativism, and if one remembers that Peirce's inquiries led him to be a universalist, a scientist, and a realist, then we can be amazed and cheered that his work has received such attention it has gotten so far.\textsuperscript{28}

Perhaps we now have an outline of the question, "Who was Peirce?" Now what should be said about our homage to him? Surely his memory deserves it if for no other reason than the massive accomplishments of his life. But we can respect his work for another important reason -- the Peircean corpus, because of the originality and foresight of his genius, can aid us in our own time with issues still unsolved, issues which he addressed and about which he wrote. Unfortunately his writings have, to a large extent, been as if buried in a time capsule. We are just now gaining full access to them, and they in effect add the imput of a distinguished and talented older colleague to the problems that face us as a civilization today. Thus, let us respect him as a predecessor on whose shoulders we can sometimes stand, who is worthy of our accurate study, and


\textsuperscript{28} I am led to a line of cultural speculation here that calls up memories of C. P. Snow, The Two Cultures and the Scientific Revolution, Cambridge University Press: New York, 1959. In the first place, it seems clear to me that in order to understand Peirce, an inter-preter must either have had or will have to acquire some kind of laboratory experience. To approach Peirce without any kind of scientific experience or training is to begin with a significant handicap. Moreover, Peirce's broad conception of science, and his lifelong attempt to take the laboratory attitude into every nook and cranny of human endeavor is probably the best hope we have, among any of the great thinkers, of a strategy for overcoming Snow's dilemma. Perhaps Snow himself saw this, for he wrote: "...if I were asked to nominate the two native Americans of greatest intellectual genius, I think they would both be 19th-century figures — Willard Gibbs and the philosopher C. S. Peirce." Quoted in SSMP, 291.
let us praise him in the only terms he would have wanted: "Well done, thou good and faithful man of science."

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HOMAGE TO PEIRCE

CRISIS IN FOUNDATIONS?

NOTES ON POSTMODERNISM

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