Charles Peirce's Theory of Scientific Method

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Chapter VI

SOME EVALUATIONS

It is not an easy task to evaluate the contribution that Peirce has made to philosophy and to the study of scientific method. The extent of his interests and the variety of his intellectual achievements leave the reader somewhat stunned at first. And even after long study the reader finds that he is still far from a complete comprehension of Peircean thought. Certain grand themes attain prominence, as is evident from the foregoing chapters, but their prominence in Peirce is no guarantee of their comprehension by the reader of Peirce.

During the almost four decades since the publication of the earlier volumes of his Collected Papers, Peirce has received some of the esteem he deserves. Authors have been generous in their praise of his stature. However, some have made vigorous efforts to get Peirce to defend their own positions, and in this way they have fallen back on the methods of tenacity and authority so clearly discredited by Peirce himself. Others, instead of using Peirce for their own defense, have made disinterested attempts to present Peirce's thought in a more detached fashion, hoping to understand Peirce as he intended himself to be understood. I have endeavored to present what I believe Peirce really thought about the method of the sciences, "without any sort of axe to grind" (1.44). It is in this final chapter that I may be permitted to evaluate Peirce's views from my own standpoint. There are certain outstanding features
that deserve praise and there are some key shortcomings that will be criticized, perhaps inadequately.

Among the aspects of his thought which merit strong praise, I have selected two for rather lengthy treatment here: his Greek insistence on the primacy of theoretical knowledge, and his almost Teilhardian synthesis of evolutionary themes. My basic attitude toward both of these topics in Peirce is one of endorsement, but it must also be admitted that there are some defects in each that should be criticized.

I. GREEK EMPHASIS ON THEORY

Peirce was not only an outstanding philosopher but also a man well acquainted with the history of philosophy. His knowledge of history, going back to Plato, Aristotle, and other Greeks, contributed to the formation of his own personal philosophy. One obvious Greek attitude that he made his own was the dedication to theoretical knowledge.

In the texts presented in the second chapter it is clear that for Peirce the scientist is in search of knowledge for its own sake. But this is not just an historical fact, a summary of the motives of the generality of scientists. It is also a value judgment: that is what the scientist must search for, and the purity of his science is exactly proportional to the purity of his quest for the truth for its own sake.

Furthermore the search for truth for its own sake is a more admirable enterprise than the quest for practical, useful knowledge. This is an undeniable belief of Peirce's (1.671; 5.589; 8.142). But when the thinker begins to search in Peirce's writings for a philosophical underpinning of this value judgment, he runs into complexity.

Peirce did not remain content with the view that inquiry is undertaken from a motive of escaping the irritation of doubt and passing to the satisfaction of holding a settled opinion. Personal contentment is not the scientist's aim. He cannot accept the continuation and betterment of the human stock or the happiness of mankind and social efficiency as the goals of inquiry either, as he wrote in a review of Karl Pearson's *The Grammar of Science* (8.133-135).¹ Such a view, he writes, "is historically false, in that it does not accord with the predominant sentiment of scientific men; second, that it is bad ethics; and,

¹ The notes for this chapter begin on page 189.
third, ... its propagation would retard the progress of science" (8.135). Peirce does not accuse Pearson of holding the "grotesque" opinion that scientists are motivated by the desire to strengthen the stability of society; but Pearson should have explained the motive that actually has inspired men of science. That motive Peirce himself describes in a lengthy paragraph that deserves quotation in full because of its richness:

The man of science has received a deep impression of the majesty of truth, as that to which, sooner or later, every knee must bow. He has further found that his own mind is sufficiently akin to that truth, to enable him, on condition of submissive observation, to interpret it in some measure. As he gradually becomes better and better acquainted with the character of cosmical truth, and learns that human reason is its issue and can be brought step by step into accord with it, he conceives a passion for its fuller revelation. He is keenly aware of his own ignorance, and knows that personally he can make but small steps in discovery. Yet, small as they are, he deems them precious; and he hopes that by conscientiously pursuing the methods of science he may erect a foundation upon which his successors may climb higher. This, for him, is what makes life worth living and what makes the human race worth perpetuation. The very being of law, general truth, reason—call it what you will—consists in its expressing itself in a cosmos and in intellects which reflect it, and in doing this progressively; and that which makes progressive creation worth doing—so the researcher comes to feel—is precisely the reason, the law, the general truth for the sake of which it takes place [8.136].

The cosmos presents law, reason, general truth in a majestic way, for Peirce, and the man of science passionately endeavors to take small but precious steps in the discovery of that truth. This description is proposed as a matter of historical or biographical fact, but it is the philosopher's task to say why, in ethical terms, it should be so.

As Peirce explicitly asserts, what is at stake here is the determination of what is "desirable in itself without any ulterior reason." Though such motives as the pursuit of pleasure and the promotion of one's own way of life or one's creed can be discussed as desirable in themselves, it is still "furthering the realization of some ideal description of a state of things" that Peirce chooses in defending the theoretical character of scientific research (8.136n3; 8.140).
To look further in Peirce's writings for a philosophical justification of the superiority of theoretical knowledge over practical knowledge is a somewhat futile task, because when he discusses the question, he usually branches off either into a presentation of various other motives of human behavior, or into an epistemological investigation of what sort of science a knowledge of the good is. The latter is the more frequent course, and, though it is a worthwhile pursuit, it does not give the reader a satisfactory understanding of theory as an ultimate goal.

Peirce's approach to the justification of the value of theoretical knowledge is made through his logic and his value theory. Logic is not exclusively a formal study of knowledge, but a theory of knowledge in a very inclusive sense. His value theory is not a single science, it seems, but a complexus of phenomenology, ethics, and aesthetics. All of these are parts of philosophy, and so the theoretical defense of the value of theory is altogether a rather involved philosophical question. His most developed writings on this question were the products of his thinking in the late 1890s and the 1900s.

Among these writings his "Why Study Logic?"—a long section of the projected "Minute Logic"—offers some insights into the context of the question of the value of scientific knowledge. In this work he makes it clear that value theory is not the same as ethics. Ethics deals with questions of aims, and not merely with questions of right and wrong: "The fundamental problem of ethics is not, therefore, What is right, but What am I prepared deliberately to accept as the statement of what I want to do, what am I to aim at, what am I after? To what is the force of my will to be directed?" (2.198). Ethics indicates the end of life, whereas logic, in the inclusive sense just mentioned, deals with the means of attaining the end of thought. "It is, therefore, impossible to be thoroughly and rationally logical except upon an ethical basis" (2.198).

But, since it is a part of logic to assert that the goal of scientific work is knowledge for its own sake, the justification of this goal as worthy of a man and as superior to other types of knowledge belongs to an ethical inquiry. Peirce recognizes this and regrets that he did not see it earlier in life.

But even ethics is of itself an unsatisfactory support of the superior value of theoretical knowledge. There is a more basic investigation that
must be undertaken beyond ethics. This is aesthetics. Aesthetics is not exactly a theory of beauty, since such a theory “is but the product of this science” (2.199).

Ethics asks to what end all effort shall be directed. That question obviously depends upon the question what it would be that, independently of the effort, we should like to experience. But in order to state the question of aesthetics in its purity, we should eliminate from it, not merely all consideration of effort, but all consideration of action and reaction, including all consideration of our receiving pleasure, everything in short, belonging to the opposition of the ego and the non-ego. We have not in our language a word of the requisite generality [2.199].

Aesthetics attempts to uncover that one quality that is, ἀξιωματικός, a quality which he designates in another writing as the admirable in itself (1.611-615). As logic, therefore, depends on ethics, so ethics depends on aesthetics, the theory of the admirable in itself. “Esthetics, therefore, although I have terribly neglected it, appears to be possibly the first indispensable propedeutic to logic, and the logic of esthetics to be a distinct part of the science of logic that ought not to be omitted” (2.199). But without pursuing the question of the truth, he immediately returns to a familiar theme: the justification of a method of inquiry—a logical question—should be framed in terms of its reliability in leading to the truth, or to an increasingly better and more accurate grasp of it (2.200).

Since “Why Study Logic?” has left the question of the admirableness of theoretical knowledge up in the air, we must turn to another work, which the editors have entitled “Ideals of Conduct.” This is a draft of one of the Lowell lectures of 1903. After again acknowledging that the logician depends on the ethician and that the ethician depends on “the esthetician, whose business it is to say what is the state of things which is most admirable in itself regardless of any ulterior reason,” he goes on to ask about that latter inquiry (1.611).

No particular quality of feeling can be considered admirable without ulterior reason. Rather, “the object admirable that is admirable per se must, no doubt, be general” (1.613). Peirce claims that the admirable in itself must be precisely known in a unitary ideal, and that turns out to be the development of reason, reason’s governing individual events (1.615). This is the growth of reason, as opposed to a stationary situa-
tion; it is a process of development, an evolution, a continuum. "I do not see how one can have a more satisfying ideal of the admirable than the development of Reason so understood. The one thing whose admirableness is not due to an ulterior reason is Reason itself comprehended in all its fullness, so far as we can comprehend it" (1.615). Reason is what constitutes the admirable character of the cosmos. Moreover, this is a declaration of how we must evaluate a method of knowing: the ideal is to follow a method that will most effectively uncover the meaning of the universe. But does it come to immediate grips with the problem of philosophically grounding that same pursuit as admirable in itself?

In a sense it does, especially when one keeps in mind Peirce's attitude toward the contrast between a practical cognitive enterprise and a theoretical pursuit. A practical goal is likely to discolor the process of inquiry, inducing hasty belief for purposes of action; this is characteristic of seeking knowledge for the practical purposes of life, and not a reprehensible procedure. But the man who is motivated by the love of truth for its own sake will give only a careful and hesitant assent which is exactly proportional to the evidence manifested by nature. The admirable quality of this careful and hesitant assent is based on the continuity of the cosmos with the human mind. For science, "Nature is something great, and beautiful, and sacred, and eternal, and real—the object of its worship and aspiration" (5.589). And the human mind is in some way adapted to the apprehension of nature. But the intellectual grasping which is proportional to the evidence must be accomplished via a method which has been carefully weighed theoretically and controlled practically.

The pragmatic method of scientific inquiry is such a method, and has as its aim the expression of the cosmos in an explanatory fashion, and with careful control achieved in developing meaning through a knowledge of conceived consequences, expressed in conditionals. The admirableness of theory, then, consists in its being the most suitable way of uncovering cognitively—no matter how slightly—the manifestations of a cosmos evolving in the direction of increased lawfulness, developing more and more fully the embodiment of reason.

The combination of concrete reasonableness with the suitability of the pragmatic method to grasp it does indeed seem to be justified by
Peirce in his philosophy, and does seem to be within the reach of the pragmatic method as he understands it (though, perhaps not as some of his commentators have understood it). The beauty and magnificence of the cosmos are within the competence of the pragmatic method understood, as Peirce seems to understand it, in a fashion not excessively empirical. The admirable in itself and the admirable character of theoretical knowledge are within the ken of the rather broad interpretation of pragmatism which Peirce developed—a pragmatic method sufficiently flexible to include an understanding of scientific knowing and methodology. If Peirce’s theory of knowledge—valid inasmuch as it is itself pragmatic—is to stand, then, there seems to be no reason, on the grounds of the requirements of the method, for excluding a pragmatic understanding of the admirable and of the admirableness of theoretical knowledge.

But what, then, has become of pragmatism? Has it become so inclusive as to be worthless in a scientific pursuit? Or is it a very general and yet adequate description of human knowing that should be applied in a proportional way to both scientific and philosophical problems? Peirce seems to tend to the latter understanding.

The importance of the matter for pragmatism is obvious. For if the meaning of a symbol consists in how it might cause us to act, it is plain that this “how” cannot refer to the description of mechanical motions that it might cause, but must intend to refer to a description of the action as having this or that aim. In order to understand pragmatism, therefore, well enough to subject it to intelligent criticism, it is incumbent upon us to inquire what an ultimate aim, capable of being pursued in an indefinitely prolonged course of action, can be [5.135].

In view of this it seems that we are almost forced to recognize the value of the cosmos in terms of its being an object of scientific inquiry. In pragmatic terms the concrete reasonableness, the thirdness, of the cosmos means that it calls forth the action of assenting from us, that it deserves to be known for no other reason than the very knowing of it. Even if it be objected that such a conceived practical consequence is non-sensible and therefore non-pragmatic, the reply can be made that, if pragmatism is to stand as a method and theory of knowing, it must break free from its empirical shackles. If on purely empirical grounds
knowledge becomes unknowable, how can any sort of theory of knowing, empirical, pragmatic, or what-have-you, be formed at all?

Peirce explicitly links his pragmatism with ethical and aesthetical ideals which transcend the sensibly verifiable.

And you . . . will see that since pragmatism makes the purport to consist in a conditional proposition concerning conduct, a sufficiently deliberate consideration of that purport will reflect that the conditional conduct ought to be regulated by an ethical principle, which by further self-criticism may be made to accord with an esthetical ideal. For I cannot admit that any ideal can be too high for a duly transfigured esthetics. So, although I do not think that an esthetic valuation is essentially involved, actualiter (so to speak) in every intellectual purport, I do think that it is a virtual factor of a duly rationalized purport. That is to say, it really does belong to the purport, since conduct may depend upon its being appealed to [5.535].

The pragmatic method, then, does not exclude transempirical meaning. In fact, the method is regulated ultimately by aesthetics inasmuch as the conduct envisioned must accord with the admirable. In other words, grasped meaning, which is understanding, must be measured by the concrete reasonableness of the cosmos. And this is already a perfectly admirable human pursuit, apart from any admirableness which practical results (extra-cognitive elements) may add.

I think, then, that Peirce in his later years overcame the defects of certain excessively empirical expressions of the pragmatic method, found in some of the earlier works. Toward the end of his life he was working out, certainly in practice but also in theory to some extent, a pragmatic method, broad and unrestricted in scope—one which was adapted to transempirical meaning, to understandings that could not be checked merely by sensible phenomena. In this way it seems that he was no longer content with developing a methodology merely for the physical sciences. There are grounds for thinking that this later opinion represents a development of what was already in Peirce's thought from the beginning, though not so clearly articulated. Peirce, I think, was never an empiricist.8

What is involved in his defense of the admirableness of theoretical knowledge is the familiar Peircean theme of an increasingly more perfect double control: of chance by law in the cosmos, and of man's un-
derstanding through the community of scientific inquirers. The evolution of the cosmos and of scientific knowledge is a process of control.

The pragmaticist does not make the *summum bonum* to consist in action, but makes it to consist in that process of evolution whereby the existent comes more and more to embody those generals which were just now said to be *destined*, which is what we strive to express in calling them *reasonable*. In its higher stages, evolution takes place more and more largely through self-control, and this gives the pragmaticist a sort of justification for making the rational purport to be general [5.433].

The *summum bonum* (an expression not too happily chosen) in the cosmos is for Peirce the development of thirdness, the control of law over chance. And in thought, it is the process of using a method which has been critically justified and which is most suited, if applied correctly, to tracking down gradually and fallibly the secrets of the cosmos.

Peirce's criticism of practical goals of knowledge is somewhat excessive but, it must be admitted in his defense, formed more in the tradition of the popular lecturer poking fun at the over-practical interests of his audience. Despite the excessive downgrading of "vitally important topics" and the interests of practical technological progress, he was altogether right in defending the purely theoretical goals of scientific pursuits. "True science is distinctively the study of useless things. For the useful things will get studied without the aid of scientific men. To employ these rare minds on such work is like running a steam engine by burning diamonds" (1.76). In a theoretical inquiry the human intelligence is operating with the freedom that it deserves. In such a process, knowledge, or the quest for knowledge, is not subordinated to a purpose that is outside itself, as it is in practical inquiry. It is not hampered by the needs of the immediately practical situation, but is allowed to adjust itself in keeping with the limits of a critically justified method to the evidence which the cosmos presents and which the inquirer finds. Theoretical inquiry looks for intelligibility as an object to be possessed in understanding it, and does not aim at the service of a practical outcome. Pure knowledge is the goal of the scientist, and success in this endeavor is not possible on any terms other than the purity of his motivation. For these reasons both science and philosophy must
be free to pursue their goals without being put to the service of practical goals.

The true, then, is the intellect's goal apart from any practical justification. But even more, practical knowledge, in a very important sense, depends on theory. The practical judgment that \( x \) is useful for a need can ultimately be evaluated only in terms of a theoretical knowledge which is beyond the useful. It is in this sense that speculative knowledge is the source of all practical knowledge. And there can be no genuine human progress or human effectivity except insofar as the attempt to progress—even technologically—is based on a knowledge of the truth. The possession of truth undergirds the internal perfection of a man and his control over the cosmos. It is not so much that we put the truth to the service of progress, but rather that we gain freedom to progress by serving the truth.\(^{13}\)

**II. SYNTHESIS OF EVOLUTIONARY THEMES**

The fifth chapter has already made it clear that Peirce understood evolution as one of the chief characteristics of the world. It is not restricted to the biological sphere, but extends to the whole cosmos and to the historical development of science. In proposing this synthetic, post-Darwinian view of evolution, Peirce was decades ahead of his time.

His stand on the development of law and regularity from chance, on the original “flashes” and the habit-taking tendency of things, is a cosmogonic inquiry, as Gallie points out.\(^{14}\) A cosmogonic inquiry is eminently worthwhile, and its worth has been hailed by many philosophers of our own day. If it can be carried out critically, it may lead to an outstanding breakthrough in the cosmonomic inquiry itself. “Nomic” inquiry is the current movement of science, and it is accomplished largely through the steps already described in the third and fourth chapters of this book. But “nomic” inquiry, the search for explanations in terms of laws of the predictive type, carried out through tested hypotheses, stands to benefit from a “gonic” inquiry. This is true because a knowledge of the development of the cosmos should enable the scientist to know with far greater accuracy what explanations of the universe are more likely and what less likely. In addition, it proceeds in such a way as to destroy the old fixed world view of Ockham–Descartes–Hobbes–Newton, since
it proposes nature as a process, and not as a fixed outlay of characters and objects to be explained by a fixed number of general laws. The latter world view barricades the road of inquiry. What Peirce attempts to accomplish in his cosmogonic theory is to open the minds of man to the fruitfulness of the evolutionary view of the history of the world and of man's knowledge of the world. "Tell us how the laws of nature came about, and we may distinguish in some measure between laws that might and laws that could not have resulted from such a process of development" (1.408).

But whether hypothesis-and-verification is the proper method of a cosmogonic, as opposed to a cosmonomic, inquiry should be faced squarely.

As has already been mentioned in the fifth chapter, certain elements of Peirce's description of the habit-taking tendency of the world and of the "flashes" which grew into regular habits are to be regarded as figurative. But beneath the figurative language there is a strong commitment to an ontological growth of regularity and law. What must be questioned here is not the growth of the organic species or the changing character of the environment that occasions such growth. Rather it seems that in terms of the method to which he has committed himself he has overemphasized the parallel between knowledge and external reality. Within the limits of that method the historical development of knowledge from its primitive beginnings in men's minds to its present scientific perfection should not be taken as an archetype of the evolution of the cosmos from less to greater intelligibility. Peirce's own overhasty attempts at verifying the hypothesis of the growth from chance to law lead the reader to suspect that the hypothesis was never really studied as it should have been, and that, had it been so studied, it would have been proposed much less firmly.

His theory of the growth of reasonableness, it seems, may have resulted from an excessively constitutive use of logic. The historical development of science is most obvious, but it cannot be taken as a model for the growth of the universe toward increased reasonableness. While Peirce makes frequent reference to the similarities between knowledge and the cosmos, it would be difficult to find an explicit defense of the use of the evolution of science as an archetype for the growth of reasonableness in the world. Nevertheless at a much more
general level he does defend this procedure. For him metaphysics de­
 dend on logic, not merely in that it must a method critically eval­
uated by logic, but also in that it must draw its principles from logic.  
“Metaphysics consists in the results of the absolute acceptance of logi­
cal principles not merely as regulatively valid, but as truths of being”  
(1.487). Logical processes are somewhat representative of the way  
things really are; we think in general terms and things really do belong  
to classes; the scientific mind naturally seeks explanations of observed  
reality and things really do have explanations; the gradual growth of  
law and reasonableness parallels the growth of knowledge. “Nature  
only appears intelligible so far as it appears rational, that is, so far as  
its processes are seen to be like processes of thought” (3.422).  

Neither the method of hypothesis and verification nor that of the  
constitutive use of logic seems to be adequate for a cosmogonic inquiry.  
Peirce, as noted above, did make certain feeble attempts to justify his  
cosmogonic speculations by the method of hypothesis and verification,  
and the results are not at all impressive. As Goudge makes clear, the  
use of this method to test his hypothesis of flashes and the growth of  
the habit-taking tendency of the universe can lead to almost any pre­
diction; it is for this reason not impressively successful. The deduction  
of consequents is not scientifically compelling. In addition, as I  
pointed out above, the synthesis of the various evolutions, accomplished  
through the constitutive use of logic, seems to be out of step with the  
approved method, and to be more in line with an apriorism repeatedly  
discredited by Peirce himself.  

If, then, the cosmogonic quest is worthwhile, as I think it is, both in  
itself and for the further progress of scientific inquiry in the more  
usual sease, can another method be employed?  

Peirce’s own warnings against blocking the road of inquiry seem  
quite inconsistent with his defenses of the method of hypothesis and  
verification as the only road. And in his own speculations, especially  
after 1900, he seems to be employing a method which is more meta­
physical and even religious, in forming highly unified syntheses of  
knowledge which are very enlightening. But he never worked out the  
details of the method involved, and never engaged in a thoroughly  
critical discussion of this other method. For this reason Goudge and  
others have accused him of a basic inconsistency.
III. THE QUESTION OF METHOD

Peirce, then, both in his philosophical defense of the admirableness of scientific inquiry and in his cosmogonic proposals has to face the question of the method of knowing. A narrowly empirical understanding of pragmatism will not be able to defend the value of its own pursuit, though it seems that this value can be known, at least partially, through a pragmatism that breaks free from the excessive empiricism which some of Peirce’s followers have emphasized. In a significant number of writings in which Peirce defends the value of theory in terms of ethics and aesthetics, he asserts sometimes explicitly and at other times implicitly that pragmatism is capable of grasping the worth of a theoretical inquiry. And in his cosmogonic proposals the reader gets the impression that the feeble attempts at verification are set forth with a certain embarrassment over the inadequacy of the method of hypothesis and verification to cope with such a quest.

In fact his attempts at metaphysics seem to be rather pathetic endeavors to account for philosophical attitudes to which he subscribed quite strongly, but for which he had no satisfactory method thematically worked out. His handling of the questions of God’s existence and the creation of the universe by God is a clear indication that he was a theist, and even a religious and moral person basically, but also that his knowledge-theory fell short in dealing with these important topics.

It seems that what is called for both in the philosophy of Peirce and in our own Teilhardian, post-Darwinian age is an evolutionary philosophy that will be open to the evidences for evolution in the biological and earth sciences, and that will be able to synthesize these with a metaphysics carefully controlled and criticized that will show how in terms of theistic realism such a development may have come about. The elements of the synthesis have already been critically approached even by Peirce himself through the history of the sciences. And the attempt to form the synthesis with philosophical knowledge, especially with metaphysics, was made repeatedly by Peirce, though not with outstanding success.

Present-day admirers of Peirce should feel themselves invited to keep the way of inquiry open, in the spirit of Peirce himself, by pursuing
an evolutionary synthesis of philosophy and science which their master was unable to complete. For this task it is imperative that a method be followed which is proportionate to the insights sought, and which is therefore not a priori confined to hypothesis and empirical verification. In its metaphysical phase the method should be such as to achieve a knowledge of the sensible beings of our experience, initially in terms of that internal principle by which they are real, and then in terms of that transcendent Being, the Creator, who by efficiency and with liberality makes the cosmos be. The enterprise cannot stop at a philosophical acknowledgment of God's existence, however, but must push on to achieve a knowledge of the relations between the cosmos and the Creator, within the limits of philosophical investigation, understanding that the created sphere is a participation, an image of the uncreated Being, and reflects the Creator in some small way, especially by its being and its activity. The latter understanding—sc., of the active created sphere as a reflection of the active Creator—is, I think, essential to the formation of a theistic philosophy of evolution, and one that is altogether faithful to the philosophy of Peirce, though inadequately developed by him. A philosophical theology is all the richer for understanding the universe, not as an original outlay of fixed and permanent types from the Creator, but as endowed with an inner power by the Creator to develop itself from a less complete embodiment of perfection, through a process of evolution at many levels, to a more perfect image of the Creator. The process of evolution does not occur independently of the divine influence, but it nevertheless progresses in a manner commensurate with the beings which compose the cosmos acting according to their own natures, advancing the embodiment of perfection and reasonableness, without requiring a miraculous intervention of the Creator to produce greater variety and new types. It is altogether acceptable to assert that chance occurrences, resulting in a perfection greater than the created agents immediately involved but under the overarching providence of the Creator, may have led to the development of the universe as we find it. The role of the Creator in such conjectured events can be assessed by the philosopher working within the limits of his own discipline and aware of the unique perfection that the human person possesses, and consequently of the need of a special, though not miraculous, dependence which the human person and his form have on the
Creator. This does not rule out the possibility that the appearance of the first human beings may have been accomplished under divine Providence by events which were chance occurrences with respect to the created agents immediately involved, but altogether willed and intended by the Creator as the mechanism for bringing into being those agents who are the most astounding and outstanding reflections of the Creator within the cosmos.

From the slight eminence which the metaphysician can mount in his evolutionary synthesis, the role of final causality, advocated by Peirce himself, can be of significant help. Although Peirce discourages us from attempting to scrutinize the divine plan in the universe, it still seems a possible and worthwhile endeavor to uncover in the slight way that is open to a controlled and cautious metaphysics what God is about in His governing of the universe. Peirce himself has attempted this in proposing the growth of reasonableness. And in keeping with Peirce's own understanding of God as a benevolent being, the metaphysician can put forth the conclusion that the Creator is directing the universe, through a process of growth, to an increasing embodiment of being and goodness as sharings in the Infinite Goodness which He Himself is. In this process the Creator is cooperating with those things which He has created, and leading them to bring about, in their own sphere and by their own activity, a continually increasing embodiment of being and goodness. Since the appearance of man in the cosmos, the most obvious growth has been in the realm of knowledge, and of technology stemming from knowledge. It does not seem excessively cynical to say that, despite the basic human capacity for growing in virtue, even in the moral sphere of justice, prudence, and temperance, the growth has been disappointingly minimal. But the Creator, the author of freedom in men, is fully respectful of the free created agent and allows that agent freely to cooperate or freely to fail to cooperate within the necessarily social context of human living, with his endeavors to promote growth in all areas of human living. Our history has not been lacking in magnificent examples of such cooperation, but it must be openly admitted that this area of growth has been quite neglected.

The theistic metaphysician who is appreciative of Peirce’s emphasis on evolution may find that Peirce himself has already supplied a key insight for the enterprise, even though it is inadequately developed:
the evolution of the universe is the working-out of a definite end, accomplished through love. The universe at all levels is acting through telic causation bringing to fulfillment in a developmental way the plan of the loving Creator, who is continually present to it. "In general, God is perpetually creating us, that is developing our real manhood, our spiritual reality" (6.507). Peirce's agapistic approach to growth may turn out to be very helpful in working out a synthetic philosophy of evolution, which will be faithful both to the riches which the biological and earth sciences offer and to those which the theistic metaphysician can supply.

The philosopher who attempts such a synthesis must like Peirce be imbued with the spirit of laboratory science, and not tied down to a mere "seminary" philosophy, which Peirce has criticized (1.3; 1.129). The philosophical training required is long and tedious. That man is only a beginner in philosophy "who has not been seriously, earnestly, and single-mindedly devoted to the study of it for more than six or eight years," and his ideas may be largely wrong (1.134). And the spirit in which the study of philosophy should be undertaken is "the spirit of joy in learning ourselves and in making others acquainted with the glories of God" (1.127).

What is most necessary in developing an evolutionary synthesis that will be genuinely philosophical is that the road of inquiry not be blocked by a declaration that one method is the exclusive way to the truth. Peirce deserves strong praise for advocating an open road, and for gradually progressing along that road toward an understanding of the cosmos, of the man who studies it, and of the value of that theoretical study. The progressive growth of concrete reasonableness in the cosmos and in intellects which reflect it is the basis of all worthwhile pursuits. For this reason, theorizing about method demands an openness of spirit both to the cosmos embodying reasonableness and to the mind discovering (and thereby embodying in its own way) that same reasonableness. This, I think, is what Peirce exemplifies and teaches.

What Dewey says prophetically may hold true for generations: "Peirce will always remain a philosopher's philosopher."21 And Perry, echoing Dewey, puts it rather poetically:
Charles Peirce . . . stands like a lonely peak, its altitude increasing with distance. . . . He remains a philosopher's philosopher, belonging to no school, and having little in common with his American environment. 22

Peirce was a man thoroughly dedicated to knowledge, a scientist, a philosopher, and a philosopher of science.