

PEIRCE'S TYCHISM AND THE EPICUREAN SWERVE

Charles A. Hobbs

I. Introduction

According to biographer Joseph Brent, the classical American philosopher Charles Sanders Peirce (1839-1914) engaged in some serious study of Epicurus and Lucretius (Brent 368).¹ So it is not surprising that Peirce mentions Epicureanism at various points. The most notable of these are found in his articles, "A Guess at the Riddle" (1887-1888) and "The Doctrine of Necessity Examined" (1892), along with his Harvard lecture "The Logic of Continuity" (1898).² Now, it is fairly well known that Peirce views the world in terms of the three categories of Firstness, Secondness, and Thirdness. Receiving less attention is his identification of Firstness with the Epicurean notion of the "swerve." This brings us to Epicurus himself, but we shall also examine some sections of Book II of Lucretius' *De Rerum Natura* (*On the Nature of Things*). Within this context I inquire into how Peirce conceives and appropriates the Epicurean swerve.

II. *The Doctrine of Necessity and Peirce's Replacement for It*

In "The Doctrine of Necessity Examined" (1892), Peirce allies himself with Epicureanism.³ Peirce attacks the thesis that every event is explainable without reference to either purpose or chance, or, as he says at the beginning, ". . . the common belief that every single fact in the universe is precisely determined by law . . ." (EP 1.298).⁴ He contends that there is little scientific evidence supporting determinism, and a significant amount against it.

Peirce views his attack on the doctrine of necessity as one against such a doctrine of complete determinism, or, in his word, "necessitarianism."⁵ This is part of a defense of his own doctrine of chance, and, given the association of necessitarianism with science, Peirce views his attack on this view as part of a defense of science, as opposed to scientism. That is, his articulation of principles of chance, growth, and spontaneity constitutes a challenge to various scientific prejudices of his era, given that necessitarian theory fails to account for diversity and growth.⁶

As part of a brief examination of the history of philosophy, Peirce recalls that the ancient Greek atomists held the universe to be composed of discrete particles, namely atoms, which were understood as the smallest units of impenetrable reality. These atoms were considered to interact with one another according to efficient and mechanical causes. Peirce reminds us that, after Democritus, Epicurus added his swerve to the atomic theory, and so added the principle that atoms are deflected from their respective courses by some spontaneity. For Peirce, Epicureanism has it right, not necessarily with its atomism, but with its project of replacing necessitarianism with absolute chance. Peirce writes that Epicurus ". . . in revising the atomic doctrine and repairing its defenses, found himself obliged to suppose that atoms swerve from their courses by spontaneous chance . . ." (EP 1.298-299). He thinks this a development for the better.

Regarding the opposition, Peirce defines “necessitarianism” as the proposition “. . . that the state of things existing at any time, together with certain immutable laws, completely determine the state of things at every other time . . .” (EP 1.299). That is, necessitarianism constitutes the view that whatever is at *any* time necessitates whatever is at *every* other time. Peirce thus says that, according to such a position, “. . . a sufficiently powerful mind could deduce from these data the precise form of every curlicue of every letter I am now writing” (EP 1.299). This view is that every happening is determined causally to occur in just the manner in which it does, and that this is the case by virtue of the preceding happenings and the laws governing these natural happenings.

Peirce explains that usually the justification of such a doctrine of necessity consists in its being a presupposition in virtue of which we can base scientific law. Yet such a belief is unhelpful and unnecessary. It fails to account for much of observable phenomena. Peirce writes that observations favoring mechanical causality “. . . simply prove that there is an element of regularity in nature, and have no bearing whatever upon the question of whether such regularity is exact and universal, or not” (EP 1.304). He says that “. . . in regard to this *exactitude*, all observation is directly *opposed* to it; and the most that can be said is that a good deal of this observation can be explained away” (EP 1.304). Peirce adds that attempts to verify laws of nature lead to the discovery that the more exact the observation, the more certain it is that irregular departures from the law can be demonstrated (EP 1.304-305).

The departures from law are, as Peirce says, explained just as well by chance or arbitrary determination as they are by claiming that they necessarily result from observational error. In any case, Peirce claims that necessity is not observed within nature, despite the fact that regularity is a routinely observed aspect of nature. The point here is that regularity is partial as opposed to complete, exact, or universal.

As opposed to necessitarianism, Peirce advocates a metaphysics of absolute chance. This anti-necessitarian view of chance is called “tychism,” which is the doctrine that chance is an objective or real element of the universe, or, as Peirce says in his “The Logic of Continuity,” it is “. . . the doctrine that absolute chance is a factor of the universe . . .” (CP 6.201).⁷ In claiming the universe to be tychistic, one is claiming that it has the habit of chance, which is a habit of breaking habits. Not all events are causally determined to occur in the manner in which it does by the preceding happenings. That is, there are some events that happen without their being caused in *all* respects, for causality is not perfect operation. Given this belief, any complete or unmitigated mechanical philosophy is rejected.

In “A Guess at the Riddle,” Peirce writes that it is strange to say that “. . . there are many people who will have a difficulty in conceiving of an element of lawlessness in the universe, and who may perhaps be tempted to reckon the doctrine of the perfect rule of causality as one of the original instinctive beliefs . . .” (EP 1.274).⁸ What he calls “the doctrine of the perfect rule of causality,” which is another phrase for the “doctrine of necessity,” is, Peirce says, a completely “. . . modern notion, a loose inference from the discoveries of science” (EP 1.274). Chance or lawlessness is more historically rooted. Peirce writes that “Lucretius, following Democritus, supposes his primordial atoms to

deviate from their rectilinear trajectories just fortuitously, and without any reason at all . . .” and that “[t]o the ancients, there was nothing strange in such notions; they were matters of course . . .” (EP 1.274).⁹ Much of modern thought rejects or ignores such ancient tendency of thought, because it has been assumed that mechanistic determinism is the correct understanding of the world.

In place of this, Peirce suggests his tychism, an ancient view that is most striking in Epicurean thought.¹⁰ This view comes from the Greek (*tyche*) for “chance” or “luck,” and refers to the hypothesis that the universe is fundamentally indeterminate, or that, contrary to the doctrine of necessity, there is no law of nature that is completely exact or unchangingly precise.¹¹ Such a doctrine, according to which there are immutable laws, cannot be viably maintained even just as a presupposition or postulate demanded according to the needs of science.

Now, there are, according to Peirce, real laws of nature, although they are mutable. In other words, there is no fixation of everything by virtue of exact and precise law. In fact, Peirce says that there are ongoing, although infinitesimal, violations of natural laws (EP 1.308). Such violations are fairly typical, with the world being dynamic as opposed to static. As such, spontaneity is an objective fact of the world. Peirce accounts for diversity through “...admitting pure spontaneity or life as a character of the universe, acting always and everywhere though restrained within narrow bounds by law, producing infinitesimal departures from law continually, and great ones with infinite infrequency. . . .” (EP 1.308). This element of spontaneity is part of Peirce’s Epicureanism, and, in accordance with this metaphysical principle, the universe is understood as always increasing in both diversity and in order. The happenings of the world are some by chance and some by order. Peirce frames this discussion of tychism by way of the ancient debate about whether the fundamental material parts of the world, namely atoms, move about in some determined direction or, on the other hand, whether they somehow *swerve* spontaneously and unpredictably, thus entering the spontaneity just mentioned. We see that tychism is exemplified by the Epicurean swerve.

III. The Relevance of Epicureanism

Much like Peirce, Epicureans are anti-determinists, rejecting what Peirce calls necessitarianism. Epicurus says the following in his “Letter to Menoecus”:

As to [Fate], introduced by some as the mistress of all, <he is scornful, saying rather that some things happen of necessity,> others by chance, and others by our own agency, and that he sees that necessity is not answerable [to anyone], that chance is unstable, while what occurs by our own agency is autonomous, and that it is to this that praise and blame are attached. 134. For it would be better to follow the stories told about the gods than to be a slave to the fate of the natural philosophers. For the former suggests a hope of escaping bad things by honouring the gods, but the latter involves an inescapable and merciless necessity. (Inwood 31)

This seems to involve some notion of choice, or some form of causation other than the mechanical. This assertion appears performed upon the basis of observed facts about

human behavior where there are sometimes instances of successful resistance to outside or external compulsions, and also instances of natural phenomena whereby there is a lack of the usual repetition of events from antecedent causes. Epicurus is countering those who would claim a total determinism, thus allowing Peirce to find in Epicureanism an ally.

It is well known that Epicureans, while advocating non-determinism, are *materialists*. They hold that there exist only simple bodies and empty space, *atoms* and the *void*. Complex bodies, such as those observable things in our everyday world as tables and chairs, and you and I, are just conglomerations of atoms, and atoms normally fly through space or the void, owing to their past motion and weight, and sometimes colliding with other atoms. An important reason for atomic collisions is the infamous *swerve*. Also, the swerve, as already mentioned, establishes the possibility of genuine choice, a distinctly anti-necessitarian notion.

In short, the Epicurean notion of the swerve is that there is a minimal amount of unnecessary atomic movement, a deviation of atoms from their normal trajectory, not significant enough to generate chaos on the macroscopic level, but enough that the future is left undetermined. Explicit discussion of this atomic swerve is absent from the few surviving works of Epicurus.¹² Yet Lucretius credits Epicurus for first formulating the swerve, and, from among other sources, we also know it from the lesser known contemporary of Lucretius, the Epicurean philosopher Philodemus, whom Peirce reportedly admired, and from whom he derived his term “semiosis.”¹³

As we have seen, the position involves a spontaneous, random atomic movement, this being one of the quite distinctive and startling elements of Epicureanism. This notion, of course, is one of the most problematic of Epicurean views, and it has been the subject of much criticism. This physical indeterminacy was ridiculed in antiquity, and it remains controversial. There is evidence from Plutarch that the Stoic Chrysippus knew about the theory and argued against it (Inwood 68-74). Cicero demonstrated a fondness for making light of it, calling the swerve unscientific (Inwood 47-64).¹⁴ Last but not least of Epicurus’ ancient cohorts (and this is by no means an exhaustive list), Plotinus refers to the swerve as “empty” and “vain” (135).

Classical discussion of the atomic swerve is found in most detail in Lucretius’ celebrated poem *De Rerum Natura*. In Book II, Lucretius points out that the swerve is postulated not just as a way of explaining how complex bodies originate, but also to account for something at least approximating free will, which Democritus’ physical determinism left out. It would be wrong to suggest that Epicurus had argued for indeterminate atomic movement as proving that there is such a thing as choice or free will. Instead, as Lucretius’ discussion indicates, Epicurus’ argument is that our faculty of choice demonstrates the swerve’s existence. It is too bad that the surviving sources fail to demonstrate how chance atomic motion allows various actions carried out by choice, but, in any case, it is clear that Epicurus believed that this theory preserved, or provided room for, our moral autonomy.

In any case, let us say something of what sort of motion the swerve is, and also of how atoms move when they swerve. Lucretius, in Book II, introduces, rather abruptly, the notion of the atomic swerve. Just before this, he mentions, at some length, two kinds of motion as causally responsible for the movements of atoms.

There is, first, downward motion, owing to the weight of atoms. Secondly, there is multi-directional motion, owing to atomic collisions. Lucretius writes that "Since they are wandering through the void, the primary elements of things must all be propelled either by their own weight or by a chance blow from another atom" (37). He then comes to a third kind of motion, whereby, regarding their temporality and spatiality, there is an unpredictable shift or swerve of the atoms from their typically straight courses (40-41). Failing this, we are told, there would be no collisions of atoms, and nothing would be created in nature. Also, the swerve is postulated as only a slight or infinitesimal deviation of atoms, and as happening at an indeterminate place and/or time (41).

IV. The Encounter with Epicureanism in Peirce's Eighth Harvard Lecture

As already mentioned, Peirce indicates in "The Logic of Continuity" that the category of Firstness is found within Epicurean thought.¹⁵ He claims that Epicureanism exemplifies this category with its notion of the *swerve*. This is within the context of a discussion about his doctrine of tychism, which is, again, the view of the reality of absolute chance in the universe (*Reasoning and the Logic of Things* 260).¹⁶ It is with regard to tychism that Peirce mentions that "[t]here is one class of objectors to it who are so impressed with what they have read in popular books about the triumphs of science that they really imagine that science has proved that the universe is regulated by law down to every detail." (RLT 260). He speculates that such people might be theologians or that they were raised in an environment in which all things were so carefully regulated that they came to believe that all of the tendencies in nature are necessarily taken to their respective extremes. Peirce is sure that these people "... are wrong in their logic" (RLT 260). He is, in any case, rightly dismissive of this first group of objectors.

Yet there is, Peirce says, another group of objectors for whom he has more respect. These objectors "... are shocked at the atheism of Lucretius and his great master" (RLT 260). They fail to realize that what really bothers them is not the Epicurean notion of the atomic swerve as a model of Firstness, but rather "... the attribution of this firstness to things perfectly dead and material" (RLT 260). Peirce agrees here with this second class of objectors, because "... whatever is First is *ipso facto* sentient" (RLT 260). He recoils from any attribution of spontaneity to something merely material. So Peirce, unlike the orthodox Epicurean, is not a strict materialist. He is far from it. Instead of holding a materialistic view of atoms with just "... a small dose of sentiency added, ..." Peirce expresses the theme that the nature of the universe is constituted by Firstness, Secondness, and Thirdness (RLT 260).¹⁷

V. Conclusion

So, is Peirce an Epicurean? The question is in a way vulgar, for it seems to assume a simple affirmative or negative answer. The issue is more complex. Now, Peirce is not an Epicurean regarding ethics, for he does not hold any hedonistic principle.¹⁸ We also just

noted that Peirce objects to part of the very basis of the Epicurean swerve, namely the Epicurean conception of the nature of atoms. Nevertheless, Peirce is an Epicurean insofar as his cosmological tychism allows. In this regard, I shall not gloss over the objection Peirce has to our simply calling his system as a whole Tychism (RLT 261).¹⁹ He says, in “The Logic of Continuity,” that “[f]or although tychism does enter into it, it only enters as subsidiary to that which is really . . . the characteristic of my doctrine, namely, that I chiefly insist upon continuity . . .” (RLT 261).²⁰ This is why Peirce prefers calling his system as a whole Synechism, for continuity is its basis.²¹

In any case, Peirce is allied with Epicureanism in his battle against the doctrine of necessity, or, as Peirce names the enemy, necessitarianism. Now, I am not suggesting that Peirce is a strict Epicurean materialist. Peirce does not believe in Epicurean atoms, any more than he would have believed in Democritean atoms, and, indeed, he is no atomist, at least not in the sense of there being irreducible, simple material atoms without parts. This hinges on an important element of Peirce’s synechism which forbids the positing of simple atomic facts in our explanations of the world. Accordingly, as we have seen, Peirce will not attribute Firstness to things that are, as he has put it, “perfectly dead and material” (RLT 260). What *does* matter about Epicureanism for Peirce is that it offers a model of absolute chance corresponding to the Peircean category of Firstness. This is a significant part of the importance of Epicureanism for Peirce, and to this extent, at least, Peirceans ought not shy away from or find terribly odd this alliance with classical Epicurean thought.²²

NOTES

1. Brent reports that Peirce was actively studying Epicurus and Lucretius (and also Aristotle) in 1883.
2. Other writings in the *Collected Papers* that include reference to Epicurus or Epicureanism include “Notes on Scientific Philosophy” and “Telepathy and Perception.”
3. This essay was originally published in the *Monist* 2, April 1892: 321-337.
4. Peirce notes, further, that “It must not be supposed that this is a doctrine accepted everywhere and at all times by all rational men.” EP 1.298. In somewhat standard fashion, I abbreviate references to *The Essential Peirce* as “EP,” followed by the volume number and page number(s).
5. Carl R. Hausman, among others, refers to Peirce’s term *necessitarianism as determinism*. See Hausman’s *Charles S. Peirce’s Evolutionary Philosophy*.
6. Christopher Hookway points out, however, that this assumption of Peirce is hardly obvious. Hookway says as follows: “Notoriously, it is far from obvious that a deterministic theory cannot allow for the growth of variety and law: the fusion of Darwinian natural selection and Mendelian genetics offers to do just that. Peirce does not provide any strong arguments that exclude this possibility.” 270.
7. “The Logic of Continuity” is from the Cambridge Lectures on “Reasoning and the Logic of Things” (Lecture Eight). See *Reasoning and the Logic of Things: The Cambridge Conferences Lectures of 1898*: 242-268.
8. It is not, of course, without some irony that Peirce claims this is “strange to say,” for it was not at all unusual for thinkers in Peirce’s day to believe in total causal necessity.
9. Peirce adds here that “. . .the strange thing would have been to have said that there was no chance.” EP 1.274.
10. With regard to ancient philosophy, I am in no way suggesting that this view is found in the Epicureans only, but simply that it is most clearly identifiable with them. I believe this to be Peirce’s view on the matter as well.
11. Interestingly, in an earlier draft of part of his “Hume on Miracles and Laws of Nature” (May 1901), which was later retitled “The Laws of Nature and Hume’s Argument against Miracles.” Peirce credits Lucretius

with the phrase "law of nature." See unpublished Manuscript #870: "What is a Law of Nature?" (I thank Doug Anderson for allowing me access to microfilm copies of many of the unpublished, mostly handwritten, manuscripts of Peirce. The originals are held at the Houghton Library at Harvard University.) See also "Laws of Nature," CP 2: 67-74.

12. This includes Epicurus' "Letter to Herodotus," where he provides a kind of outline of his physics. Of course, this could mean simply that Epicurus proposed the swerve after having composed the "Letter to Herodotus." Walter G. Englert favors this view in his *Epicurus on the Swerve and Voluntary Action*. See Chapter III. ("The Swerve and Epicurean Physics"). In any case, there is little, if any, doubt that this theory belongs to Epicurus, given both the number of ancient writers attributing the theory to him and also that the Epicurean tradition has been notorious for *not* making advancements or innovations over and above those of the founder.

13. See Book II of Lucretius' *De Rerum Natura*, lines 216-293 and lines 36.2-17 of Philodemus' *De signis* ("On Methods of Inference"). Regarding Peirce's study of Philodemus, inspired by and conducted with his one and only doctoral advisee, Allan Marquand, see Max H. Fisch's "Peirce's Arisbe: The Greek Influence in His Later Philosophy" in *Peirce, Semeiotic, and Pragmatism*, 227-248 and Gerard Deledalle's "Semeiotic and Greek Logic: Peirce and Philodemus" in *Charles S. Peirce's Philosophy of Signs: Essays in Comparative Semiotics*. Of course, see also Philodemus' *On Methods of Inference*. Philodemus, a contemporary of Cicero and Lucretius, was a leader, and possible founder, of the Epicurean school at the town of Herculaneum, near Pompeii and the Bay of Naples.

Regarding Marquand, his surviving papers (which include detailed notes on Peirce's courses at Johns Hopkins University) are housed at the Princeton University Library. As Fisch notes, to the best of his knowledge, Marquand's 1883 "Philodemus on Inductive signs and inferences" is "...the earliest recognition in English of the importance of Philodemus's work, and the earliest competent recognition anywhere of the merits of the Epicurean logic." *Peirce, Semeiotic, and Pragmatism*, 245-246. According to Brent, Peirce worked with Marquand on Philodemus in 1880, the same year as his father's death and also shortly after Peirce had probably begun using cocaine. See *Charles Sanders Peirce: A Life*, 367-368.

I add the following remark that I have found in unpublished Manuscript #648, 49-50:

"Whoever will read the interesting and accurate summary of the Logic of the Epicureans in ten small pages that Professor Allan Marquand, while he was a student of mine, contributed to the volume entitled "Studies in Logic," cannot fail to perceive that, if Logic be the Theory of the Attainment of Truth, the movement of thought to which it relates was of more promise than the whole Organon of Aristotle. . . ."

14. Cicero accuses Epicurus of having engaged in the worst crime that a natural philosopher could commit, namely that of admitting the existence of some uncaused event or happening.

15. This is the eighth and last of his 1898 lectures delivered at Harvard University where William James was in attendance. For information about these lectures, see the Introduction (by Kenneth Laine Ketner and Hilary Putnam) to *Reasoning and the Logic of Things: The Cambridge Conference of 1898*, 1-54. See also Hilary Putnam's "Comments on the Lectures", *Reasoning and the Logic of Things*, 55-102.

16. I shall hereafter refer to this text as "RLT."

17. There is, of course, not room in a paper as brief as this to adequately discuss these three metaphysical and phenomenological categories of Peirce.

18. I leave examination of this issue for another project.

19. "Synecism" comes from the Greek "syneche," meaning "continuity" or "held together."

20. Of course, of all concepts, continuity, Peirce says at the beginning of this lecture, is undoubtedly "...the most difficult for Philosophy to handle." RLT, 242.

21. For Peirce, continuity is exemplified by his category of Thirdness.

22. I thank Doug Anderson for his helpful comments on an earlier version of this paper.

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