

Science as an Art of Detachment

Lucia Santaella

ABSTRACT

One of the concerns of Charles S. Peirce was the status of science, neither as a corpus of stagnant knowledge nor as a method of acquiring knowledge, but as a living body, animated by a particular spirit and a practice by living human beings. As a lifestyle of living scientists, according to Peirce, science is the inquiry of truth for its own sake. It is not knowledge but a life devoted to the quest for knowledge. As a consequence, he made a strict demarcation between scientific research and practical or technological action. On the other hand, Peirce was also aware of the limits of science and the illegitimacy of pretensions to judge faith and morality by scientific methods, as the latter require degrees of certainty more proper to belief than to science. Science and religion, although sharing in some points, have their own singular spirit. Whereas the latter is conservative and risks becoming fundamentalism when one's beliefs are imposed unto others, the former is characterized by humbleness, open to the potentials of uncertainty, indetermination, chance and innovation

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The complexity of science is immense and the facets it presents for discussion are multiple. The issue I intend to discuss in this paper is very specific. I will not address science either as it is in neoliberal societies –which are currently undergoing an acute crisis or science as it should be. I will discuss the spirit that animates the life of the true scientists and without which science would not be able to exist. A sentence in Jacob Bronowski's *Science and Human Values*¹ expresses well this idea. He says: “The men and women who practice sciences constitute a group of intellectuals lasting longer than any church. What is the power that keeps them united?” It is the power of neither arms nor coercion or coactions, but the mild power that emerges from the pleasure of exploring knowledge for love of knowledge. Bronowski completes: “it is not what an age needs that gives an individual scientist a feeling of pleasure and adventure and that emotion that makes him or her stay working late in the night while all others stop their work at 5 or 6 p.m.”²

It is this face of science that I will approach, which I have called “the art of detachment” and that allows us to understand it as an experience and a practice. To guide my reflections, I will have resort to Charles S. Peirce's conception of science.

Methods of fixating beliefs

In a quite well known text,³ Peirce describes four methods to fixate beliefs. First is the method of *tenacity*: Its practitioners systematically remove from their sight everything that can make them change their minds. As an ostrich, they bury their heads in the sand, choosing the easiest route in order to avoid any situation that may threaten their opinions. This is a method of individual fixation of belief: there is another that fixates beliefs in a collective way. This is the method of *authority*, in which the will of a state or institution rather than the will of the individual is operative:

“Let the will of the state act, then, instead of that of the individual. Let an institution be created which shall have for its object to keep correct doctrines before the attention of the people, to reiterate them perpetually, and to teach them to the young; having at the same time power to prevent contrary doctrines from being taught, advocated, or expressed. Let all possible causes of a change of mind be removed from men's apprehensions. Let them be kept ignorant, lest they should learn of some reason to think otherwise than they do. Let their passions be enlisted, so that they may regard private and unusual opinions with hatred and horror. Then, let all men who reject the established belief be terrified into silence. Let the people turn out and tar-and-feather such men, or let inquisitions be made into the manner of thinking of suspected persons, and when they are found guilty of forbidden beliefs, let them be subjected to some signal punishment. When complete agreement could not otherwise be reached, a general massacre of all who have not thought in a certain way has proved a very effective means of settling opinion in a country. If the power to do this be wanting, let a list of opinions be drawn up, to which no man of the least independence of

¹ J. Bronowski, *Ciência e Valores Humanos* (Belo Horizonte: Itatiaia; São Paulo: Edusp, 1979), 64.

² *Ibid*, 15.

³ C. S. Peirce, “A fixação das crenças,” in *Semiótica e Filosofia*, trad. O. Silveira da Mota & L. Hegenberg (São Paulo: Cultrix, 1993), 80-81.

thought can assent, and let the faithful be required to accept all these propositions, in order to segregate them as radically as possible from the influence of the rest of the world.”

It is remarkable that Peirce wrote these words well before the authoritarian and truculent regimes of the 20th century, the logic of which fulfilled one by one all requirements listed above. After this summary exposition of the methods of tenacity and authority it is not difficult to infer that both together can give an account of the mental, psychological and social processes at the basis of fundamentalisms.

The other two methods described by Peirce, and significantly less virulent, are the *a priori* and the scientific methods. The *a priori* method alludes to that which is simply agreeable to reason, not requiring confirmation by experience but merely refers to what we are inclined to believe. Such method

“(…) makes of inquiry something similar to the development of taste; but taste, unfortunately, is always more or less a matter of fashion, and accordingly metaphysicians have never come to any fixed agreement, but the pendulum has swung backward and forward between a more material and a more spiritual philosophy”⁴. It is characterized by easy conclusions: “It is the nature of the process to adopt whatever belief we are inclined to, and there are certain flatteries to the vanity of man whose we all believe by nature, until we are awakened from our pleasing dream by rough facts”⁵.

The *method of science* – which, certainly, Peirce prioritizes – is present whenever our beliefs are determined by something external and relatively stable, whose influence does not only reach one only individual, but a collectivity. The fundamental hypothesis of this method states that there are real things which characteristics are independent of our moods and fantasies, real things that impress our senses according to regular laws; inasmuch as our sensations are as diverse as our relations to objects, by applying the laws of perception we will be able to inquire through reasoning how things actually are. The novelty here is the notion of reality as that which insists.

Nevertheless, it is not on the method of science that I chose to focus; indeed, I have devoted a full book to it.⁶ The strongest difference between science and fundamentalism can be located in a subtler layer of the practice of science that, due to the lack of a better term, may be called the *spirit of science*.

Conceptions of science

According to Peirce, tradition bequeathed to us two very different conceptions of science: one defines science chiefly as a systematized body of knowledge; the other, as first and foremost a method of knowledge. Peirce sharply criticized the first conception, as it merely touches on the surface level, merely grasping the fossilized residues of science. The second view, although reaching deeper and well directed in its traditional formulations, is intimately intertwined with an exceedingly individualistic and insufficiently dynamic conception of methodology. Against both and arising from his own experience as a scientist, his knowledge of the history of science and his specialization in methodology of science, Peirce sought to characterize the concrete reality where living science is

⁴ Ibid, 84.

⁵ Ibid, 87.

⁶ L. Santaella, *O Método Anticartésiano de C. S. Peirce* (São Paulo: Unesp; Fapesp, 2004).

constituted, a project overtly contrasting with any abstract specification of the practice of science.⁷

What is the spirit of science to Peirce? When science is understood not as a stagnant body of beliefs, but as a living and growing body, we can see that it naturally tends to freedom, change and liberality. Science is a search performed by living human beings, and when it is genuine, it lives in a constant state of metabolism and growth. If we were to look up for the meaning of “science” in a dictionary by following the traditional views, it would tell us that science is a systematized body of knowledge; most classifications are grounded on such systematized and established knowledge. However, in Peirce’s view, this was nothing but the exhumation of living science.

The main characteristic of conventional perspectives on science is that carefully established truths are catalogued and placed in each scientist’s mental shelves, to be used in convenient occasions. However, simple knowledge, albeit systematized, is dead memory. As a result, Peirce avoids any abstract, precise and wrapped-up definitions of science in order to preserve the margin of indetermination inherent to any evolving process. Since the task of science is to generalize rather than merely describe experience, and since generalization leads to virtual prediction, science cannot be restricted to the past. Moreover, although system and method – and the latter more particularly than the former – are essential to the notion of science, both fail to convey the basic idea of science as alive.

Science as a lifestyle

As a lifestyle of living scientists, science is diligent inquiry of truth for its own sake. It deals with conjectures still under development or testing.⁸ Life is found in science in the desire to learn, in the intelligently honest and effective desire to learn. For this reason, science consists in stretching the bow of truth, eyes attentive and energy in the arms. What is essential to science is the scientific spirit, which cannot be satisfied with existing opinions but that presses for the real truth of nature. The true man of science is ready to abandon all his beliefs the moment it is necessary. In a highly poetic passage, Peirce states that there are three kinds of men:

“The first consists of those for whom the chief thing is the qualities of feelings. These men create art. The second consists of the practical men, who carry on the business of the world. They respect nothing but power, and respect power only so far as it [is] exercised. The third class consists of men to whom nothing seems great but reason. If force interests them, it is not in its exertion, but in that it has a reason and a law. For men of the first class, nature is a picture; for men of the second class, it is an opportunity; for men of the third class, it is a cosmos, so admirable, that to penetrate to its ways seems to them the only thing that makes life worth living. These are the men whom we see possessed by a passion to learn, just as other men have a passion to teach and to disseminate their influence. If they do not give themselves over completely to their passion to learn, it is because they exercise self-control. Those are the natural scientific men; and they are the only men that have any real success in scientific research”.⁹

⁷ C. F. Delaney, *Science, Knowledge, and Mind: A Study in the Philosophy of C. S. Peirce* (Notre Dame: University of Notre Dame, 1993), 13.

⁸ C. S. Peirce, *Collected Papers*, ed. C. Hartshorne & P. Weiss (vol. 1-6) & A.W. Burks (vol. 7-8) (Cambridge, Mass: Harvard University Press, 1931-58), 1: 104-107. References are quoted CP followed by number of volume and paragraph.

⁹ CP, 1.43.

From this perspective, science is practiced by living persons, and persons of a particular kind, with specific inclinations and dispositions. Science is the fundamental fruit of the concrete search by real groups of living individuals. Men and women of science compose a social group and their social lives are animated by the passion of discovering truth: truth for its own sake, not for the pleasure of possessing it, but by the simple desire of “penetrating into the reason of things”¹⁰ Science is a lifestyle, it is not knowledge itself, but a life devoted to the search of knowledge; devotion to truth – not as each one individually sees it, as that would not be devotion to truth at all – but devotion to the truth one is not yet able to see but fights to reach.¹¹

Such being the essence of science, it is obvious that its first offspring will be men -- men whose whole lives are devoted to it. By such devotion each of them acquires training in making some particular kind of observations and experiments. (Unfortunately, his acquisition of books, instruments, laboratory, etc., depends upon qualifications in which the man of science is usually rather wanting -- as wealth, diplomacy, popularity as a teacher -- so that he is less likely to be provided with them than are men less qualified to use them for the advancement of science.) He will thus live in quite a different world -- quite a different aggregate of experience -- from unscientific men and even from scientific men pursuing other lines of work than his.¹²

There is no doubt that Peirce took the notion of science to the limit of radicalization. Nevertheless, he lived in a time when the spirit of engineering was still an object of adoration in many parts of the world. “It was a time when several European nationalisms, armed with the slogans of social Darwinism demanded loyalty from their own scientific communities”.¹³ Particularly in the United States, university education still strived to free itself from its traditional role of training men for the pulpit. Peirce abhorred the subordination of science to such conditions and as a reaction sought to emphasize that science has its own timing of internal development and does not need any external guidance or control. Peirce saw behind the cult of engineering a return to the ancient worship of force that had enabled the Egyptians to build pyramids despite they could not match the Babylonians in math and astronomy.¹⁴

Although he spent 30 years in experimental research, becoming skilled in technique, Peirce was not interested in technological applications of science lacking an experimental purpose. Moreover, he was liberal in his demonstrations of dissatisfaction with the state of the specialized education in his country, which according to him, was dominated by the churches and the business communities, devoted to train successful youths rather than to the advancement of learning. To Peirce, such were not only theoretical issues but also a personal tragedy as he became twice the victim of the moralism, lack of vision and conformism of the educative policy prevailing at the time. Both, Johns Hopkins and Harvard denied him a university career, most probably because his profile did not fit the image of the Eastern-coast Puritan gentleman. For this reason, his writings on education are filled with expressions of despise for university administrations.

Swimming against the current, Peirce vehemently advocated that science is drastically against all forms of conservatism. It is radical by nature and one of its tasks is to teach us to ponder on received opinions and beliefs by subjecting them to the test of experience. In this context, he fought for the autonomy of fundamental research against three threats that hovered around it: the cult of engineering, the narrow-minded education

¹⁰ CP, 1.44.

¹¹ M. Fisch, “Peirce’s place in American life”, *Historia Mathematica* 9 (1982): 265-287, 281.

¹² CP, 1.236.

¹³ P. Skagestad, *The Road of Inquiry: Charles Peirce’s Pragmatic Realism* (New York: Columbia University Press, 1981), 200.

¹⁴ *Ibid*, 202.

policy-makers and conformist institutions. Neither skeptic nor cynical, all three were to blame for the excessive trust they laid on science as a humble tool to obtain practical results. In this sense we must interpret statements by Peirce such as: “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”.¹⁵

In this way, Peirce was not aiming to deny that the discoveries of some sciences lead to results that have immediate application, but to assert that scientists must not search for the utility and practical purpose of their research, as it risks compromising their acumen as men of science. This neither means that scientists are not responsible for the transformations that sometimes they make in the world nor that they are not also responsible for the solution of problems that affect social life. What Peirce wanted to say is that it is not those powers that move the authentic man of science, but that his true strength resides in his desire to pursue truth.

On the grounds of his understanding of the scientific method, whose merit consists in that its application, when sufficiently developed, tends to self-correct itself, Peirce advocated a strict demarcation between scientific research and practical or technological action. Although it is true that scientific activity is a kind of action, it is directed to a very specific goal, namely the discovery of truth, in spite that it is something continually receding. For this very reason, when the aim is merely practical, both scientific activity and practical goal suffer. The detached and experimental attitude characteristic of the scientist is completely unsuitable for the goals of practical actions. Preoccupation with immediate practical results and their concomitant beliefs cannot be transferred to science because in the latter there are not beliefs but only hypotheses to be tested. Peter Skagestad opportunely reminded us that by establishing a demarcation line between pure science and practical application,¹⁶ Peirce sought to warrant research freedom to follow the timing of its own internal development, because as soon as science is conceived of as a means for a practical aim, it becomes a mere tool.

Against the imperialism of science

Nevertheless, Peirce also engaged himself in defending religion and morality against the imperialism of science. Just as science must be protected from any religious or political restriction, it does not have the right to legislate on religious issues. Whereas science advances through brave and uncertain hypotheses, religion, faith and morality deal with vital subjects that require some degree of certainty and faith which is more likely found in traditional and instinctive beliefs than in science. On the other hand, this does not mean that science cannot take religion as an object of knowledge as by principle, no issue is immune to scientific inquiry.

From this perspective, although science and religion are not necessarily in conflict and they even have some points in common, the spirit of science and the spirit of religion stress and develop their tendencies in different directions. One of the most evident distinctions between both is found in science’s permanent inclination to transformations, whereas the spirit of religion is, and must be, conservative as its target is to guide our behavior.¹⁷

In this sense, all forms of fundamentalism can be interpreted as perverted versions of religiousness, versions that take the instinct of conservation – proper to religion – to the edge of irrationalism, sometimes of the cruelest kinds, versions that cling to the

¹⁵ CP, 1.76.

¹⁶ Skagestad, 46-7.

¹⁷ L. Santaella, “A ciência precisa da religião?” in *Teologia e Ciência: Diálogos Acadêmicos em Busca do Saber*, ed. A. M. L. Soares & J. D. Passos (São Paulo: Editora Paulinas; Educ, 2008), 137-150.

immutability of origins with the rage of an animal. For this reason, they become means of imposing blind beliefs, at the very opposite of the provisory and always metamorphous beliefs that the spirit of science teaches us to admit with a humbleness open to the potentials of uncertainty, indetermination, chance and innovation. A humbleness that mixes itself to the flame of watchfulness and restlessness, i.e. the basic nutriment of the spirit of science.

Lucia Santaella

Communication and Semiotics

Head Professor, Graduate Program in Communication and Semiotics, Pontificia Universidade Católica de São Paulo, Brazil

lbraga@pucsp.br