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Intuition and discursive knowledge: Bachelard’s criticism of Bergson

Cristina Chimisso

Philosophy, School of Social Studies and Global Challenges, Faculty of Arts and Social Sciences, The Open University, Milton Keynes, UK

ABSTRACT

In this paper, I discuss Gaston Bachelard’s criticism of Henri Bergson’s employment of intuition as the specific method of philosophy, and as a reliable means of acquiring knowledge. I locate Bachelard’s criticism within the reception of Bergsonian intuition by rationalist philosophers who subscribed to the Third Republic’s ethos. I argue that the reasons of Bachelard’s rejection of Bergsonian intuition were not only epistemological, but also ethical and pedagogical. His view of knowledge as mediated, social, and historical, cannot be separated from his conceptions of society, education, and the human being.

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Introduction

A student of the concept of intuition in twentieth-century French philosophy is likely to remember the Fourth International Congress of Philosophy held in Bologna in 1911 for the celebrated paper on intuition that Henri Bergson delivered there.¹ By contrast, Dominique Parodi’s talk on the same topic at the same conference might well go unnoticed, but in fact exemplifies the reaction of a significant number of French philosophers to the increasing deployment of intuition in their discipline, notably due to Bergson. Bergsonian intuition appeared to be different from their understanding of the concept. Parodi summarized the new meaning as follows: first, intuition indicates all that is known immediately, without either reasoning or the use of intermediate ideas, and that is known with absolute certainty. It is opposed...
to discursive reasoning. Second, intuition indicates the knowledge of what is unique and specific in an object, in a way that this object can be neither reducible to any other object, nor regarded as composed by other objects. It is therefore qualitative, and opposed to analytical and quantitative knowledge (Parodi, “Intuition”, 555). What was most startling was that Bergsonian intuition appeared to be wholly distinct from discursive rationality. As Parodi saw it, traditionally intuition had been regarded as part of discursive reasoning by providing the principles and axioms that cannot be demonstrated, and by guaranteeing the correctness of the links between the stages of inferences and demonstrations. His presentation of intuition is a classic one, indeed it appears to echo Descartes in Rule 12 of Rules for the Direction of the Mind. Bergsonian intuition, by contrast, seemed to him to be extra-rational and “wholly sentimental”, indeed a “flash of belief”, which could be completely individual (Parodi, “Intuition”, 555–556).

The novelty of Bergsonian intuition was quickly acknowledged. The philosophical dictionary of reference, André Lalande’s Vocabulaire technique et critique de la philosophie, dedicated a specific sub-entry to Bergson’s intuition, distinct from other concepts of intuition in the history of philosophy. Alongside Descartes’ usage, to which Locke and Leibniz were added, unsurprisingly Kant’s was presented as the other fundamental one. Kant’s concept of intuition was also an important reference for the mathematician and philosopher Henri Poincaré (1854–1912), especially for the intuition of pure number, which he posited alongside sensible intuition and geometric intuition, in an effort to develop a foundation of mathematics. The Vocabulaire dedicated a brief subentry to Poincaré’s concept of intuition as ‘instinctive divination’, preceded by Bergson’s and Schopenhauer’s respective subentries (Lalande, Vocabulaire, vol 1, 537–543). As this dictionary entry reminds us, types of non-intellectual intuition, including religious intuition, linked to mystical experiences, were widely discussed by French philosophers. In this regard, Bergsonian intuition was not unprecedented. On the other hand, Bergson did not deny that discursive rationality plays an important role in philosophy, both as preparation and as means of communication of intuition. Nevertheless, Bergsonian intuition, as a means of grasping truths that elude discursive reasoning and as the core of the philosophical method, had a much greater impact on philosophy than other concepts of non-intellectual intuition. Its great success brought great opposition. Notably, rationalist philosophers regarded it not only as a spurious cognitive method, but also as a threat to

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2See Poincaré, Science and Method, Chapter 3 “Mathematical Creation”, in Poincaré, Foundations. Poincaré also defended the role of intuition in mathematics against Louis Couturat, Bertrand Russell and others’ logicism (Poincaré, “Mathématiques”).

3Bergson, Creative Mind, 48. See also Sinclair, Bergson, 164.

4Bergson, Creative Mind, 33 and passim. Bergson wrote about intuition both as the method of philosophy, and as part of the philosophical method. On this point, see Sinclair, Bergson, 162ff.
the importance of scientific rationality, and in many cases to their ethical and political views.

The opposition to Bergsonian intuition took many forms in French philosophy, and endured over time. Here I focus on arguably the most important critique of it developed from the early 1930s onwards, due to Gaston Bachelard, the central figure of twentieth-century French epistemology. In the 1930s, Bachelard published two books opposing a crucial object of Bergson’s intuition, namely duration: *Intuition of the Instant* and *Dialectic of Duration* (Bachelard, *Dialectic*, Bachelard, *Intuition*). For Bergson, time as a discontinuous succession of instants that science posits is an artificial representation, and does not capture *durée*, or the real, concrete and lived duration as uninterrupted evolution. In *Intuition of the Instant*, Bachelard defended the conception of time derived from the sciences, and in particular Einstein’s physics. In a polemical engagement with Bergson’s philosophy, he argued that memory and history are reconstructions that the mind makes by waving together remembered instants. In the *Dialectics of Duration*, once again he rejected duration: by ‘dialectising’ it, he in fact destroyed it.

In this article, however, I do not examine Bachelard’s and Bergson’s respective theories of time, memory, and history. Rather than focus on the content of intuition, I discuss Bachelard’s opposition to intuition as the method of philosophy, and as a reliable means of acquiring knowledge. For him, knowledge is always mediated and discursive, and philosophy is no exception. Whereas Bergson regarded philosophy and science as different in methods and objects, Bachelard thought that philosophy should be led by the sciences, although he neither proposed an application of a supposed scientific method to philosophy, nor a reduction of philosophy to the sciences. I show that his view of knowledge as mediated is closely connected with the centrality that, unlike other rationalists, he assigned to history. My claim that Bachelard regarded philosophy as mediated and social knowledge, on the model of science, may be challenged as incomplete. It could be argued that, while Bachelard strenuously advocated the role of science as the motor of philosophy, he did so only in his works dedicated to the philosophy of science. However, he also wrote books about the imagination, in which he observed the mind as it connects with the world in an immediate manner. Indeed, some critics have argued that in these books, Bachelard’s engagement with images is close to Bergson’s. In the “Images and knowledge” section, I argue that this is an incorrect view, which fails to evaluate Bachelard’s works on the imagination in the context of his overall philosophy, and which misunderstands Bachelard’s philosophical aims.

The contrast between Bergson’s and Bachelard’s respective views of intuition and the philosophical import of the sciences is significant not only because it involves two important philosophers. It also marks the split between two philosophical attitudes towards science in France. As Frédéric
Worms has put it in the context of a comparison of Bergson with Bachelard’s teacher Brunschvicg, some philosophers, following Bergson, have continued the critique of the place of science in our experience, notably Maurice Merleau-Ponty and Gilles Deleuze. Other philosophers, following Brunschvicg, have continued to strengthen the role of the sciences, notably Bachelard and Jean Cavaillès (Worms, “Critique and Metaphysics”, 39). The philosophical debates on the epistemological role of intuition and on the relationship between philosophical and scientific knowledge have had diverse ethical and political implications over the decades. In this article, I demonstrate that the reasons for Bachelard’s rejection of Bergsonian intuition were not only epistemological, but also ethical and pedagogical. In the Conclusion, I also briefly locate Bachelard’s criticism in the broader philosophical and political context.

**Intuition, science, and philosophy**

French rationalists were troubled by the autonomy that philosophy gains from science due to intuition as a specific method of philosophy. This went counter to the national narrative that portrayed French philosophy as in close contact with the sciences. In fact, Henri Bergson himself adhered to this customary account when presenting French philosophy to the international public of the 1912 San Francisco Universal Exhibition. However, he also highlighted a complementary tradition, which Blaise Pascal initiated when he introduced the distinction between the spirit of finesse and the geometric spirit. For Bergson, Pascal’s spirit of finesse, and later Jean-Jacques Rousseau’s appeal to sentiment and intuition, were at the root of modern theories that foreground immediate knowledge, intuition, and inner life (Bergson, “Philosophie française”, 238–43). His account enabled him to incorporate in the national tradition his own philosophy, and in particular his concept of intuition as capable of providing knowledge independently of scientific logic. Intuition for Bergson is connected with instinct. In animals, instincts are vital processes. Human beings can capture the vital force of instinct, though in a “much vaguer form” than animals do, in the “phenomenon of feeling, and unreflective sympathy and antipathy”. Intuition is “instinct that has become disinterested [and] self-conscious” (Bergson,

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5This distinction only applies to attitudes towards science, and does not suggest the existence of two completely separate traditions, as Michel Foucault did (Foucault, “Introduction”). Incidentally, Foucault did not mention Bergson: he opposed Bachelard, Cavaillès, Canguilhem, and Koyré’s philosophy of knowledge and rationality to Sartre and Merleau-Ponty’s philosophy of the subject and experience. Notably, Canguilhem employed Bergson’s philosophy, but did not share the latter’s attitude towards science. For a criticism of Foucault’s view see Bianco, “Experience vs Concept?”.

6For an example of this narrative, see how Lucien Lévy-Bruhl, Sorbonne professor of history of modern philosophy, explained French philosophy to an English-speaking readership (Lévy-Bruhl, History, 470).
Although the “push” that enabled instinct to become intuition in human beings came from intelligence (Bergson, *Creative evolution*, 178), intuition maintains contact with life in a way that discursive reasoning never could.

Bergson distinguished two “function[s] of the mind”, or mental faculties, namely intellect and intuition, by which we can know different objects. Intellect applies to inert matter, and immobility; as he put it, “of immobility alone does the intellect form a clear idea” (Bergson, *Creative evolution*, 155). The sciences employ the intellect and can achieve absolute knowledge of inert matter. However, unlike the sciences, philosophy, indeed Bergson’s philosophy, thanks to intuition is able to comprehend life, movement, evolution, and the mind. Although Bergson assigned to philosophy and the sciences different objects, methods and even mental faculties (Bergson, *Creative Mind*, 206), when he wrote about science, he often appeared to mean only physics and allied sciences, or, in his language, the study of “inert matter”. When it comes to the life sciences, psychology, and other sciences that study the mind, the distinction between philosophy and science is less clear. In fact, he claimed that “psychology, neurology, pathology, biology [had] become more and more open to [his] views” (Bergson, *Creative Mind*, 77).

Bergson’s view that “philosophy should break with scientific habits” (Bergson, *Creative evolution*, xiv) could not stand in starker contrast with Bachelard’s claim that “science in effect creates philosophy” (Bachelard, *New Scientific Spirit*, 3). It would be reductive, however, to say that Bachelard simply defended the philosophical tradition that held the sciences as model of knowledge. This tradition was very diverse. For instance, many rationalists like Parodi, as seen above, thought that intuition provides axioms to the sciences within the traditional foundationalist view of knowledge. Bachelard opposed this view, as part of the ‘non-Cartesian’ epistemology which he regarded as a consequence of modern science. For Bachelard, twentieth-century physics has shown that knowledge cannot rely on immediate and simple intuitions. In his words:

> In raising the idea of a non-Cartesian epistemology, my intention is … to criticize the doctrine of simple and absolute natures. The new scientific spirit has profoundly altered our understanding of intuition.


Indeed, Bachelard’s characterization of what he called the intuitions of modern physics appears to be aimed at destroying the concept of intuition: he claimed that intuition is neither direct, nor prior to understanding. For him, “elementary ideas” are in fact “double”, as they always stand alongside other, complementary, ideas, and require a choice. Bachelard’s talk of complementarity and choice cannot fail to remind the reader of the hot debates within
quantum physics in the years preceding the publication of *The New Scientific Spirit*. According to Niels Bohr’s complementarity principle, physicists describe phenomena from complementary, and mutually exclusive, viewpoints; they notably did so with the wave and particle descriptions of quantum phenomena. As Werner Heisenberg had previously made clear, scientists had to make a choice whether precisely to determine either the position or the momentum of a particle; for him “it is meaningless to talk of the position of a particle of fixed velocity” (qtd in Kragh, *Quantum Generations*, 207). In short, Bachelard rejected the Cartesian notion that our understanding can start from intuition of ‘simple natures’; rather, philosophy should learn from contemporary science that knowledge begins with complexity.

At the same time, unlike some positivist philosophers, Bachelard did not think that philosophy should borrow the scientific method wholesale. In fact, for him philosophy cannot employ ‘the’ scientific method, because such a thing does not exist, as the sciences use different methods. He saw nothing wrong even with research areas within the same science employing rationality in different, and possibly incompatible, ways, to the point that he introduced the concept of regional rationalism (Bachelard, *Rationalisme*, Chapter 7). Bachelard’s contention that philosophy should follow science, that “reason must obey … the most highly evolved science, the science in the process of evolution” (Bachelard, *Philosophy of No*, 122), refers to broader teachings of science. As I argue in the next section, the main lesson is that knowledge can only be gained discursively, by challenging previous and existing notions, and by interpersonal exchanges, rather than by methods founded on intuitive truths.

Not only did Bergson and Bachelard advocate for opposite relationships between science and philosophy, but they also held contrasting views of science. Bergson consistently emphasized the practical utility of science; science for him aims to “furnish us with the best means of acting” on things (Bergson, *Creative evolution*, 93), to transform them, and have power over them (Bergson, *Creative Mind*, 43). Intellect, from which science proceeds, is “relative to the needs of action” (Bergson, *Creative evolution*, 152). Humanity is first of all *homo faber*, moved by the need to make tools and other useful objects. Bachelard explicitly contested this view of science as born of need, which he credited to Bergson and the pragmatists. For him, need does not promote knowledge, but only opinion, and “opinion thinks badly, it does not think” (Bachelard, *Formation*, 25). It is neither utility nor “will to power” that moves human beings to find out about nature, but rather what he called “will to intellectuality” (Bachelard, *Psychoanalysis*, 12): human beings aspire to knowledge primarily for its own sake. The scientifically educated human being has nothing to do with *homo faber*; in fact, Bachelard wrote that Bergson’s *homo faber*, who is “stuck in his simplistic
intuition of a geometric world of perfect solids”, would be disoriented in the scientifically informed material world (Bachelard, *Matérialisme*, 14). For Bachelard, *homo faber* is a man of surfaces, only concerned with a few familiar objects (Bachelard, *Psychoanalysis*, 55–56). By contrast, modern science studies rationalized and often technically produced objects. However, will to knowledge alone is no route to authentic knowledge either. In order to produce scientific knowledge, human beings must break with their spontaneous inclinations and intuitions. In Bachelard’s terminology, an epistemological break [*rupture épistémologique*] is needed. Whereas Bergson saw continuity between every-day ways of thinking, or common sense, and science, Bachelard saw a sharp discontinuity.

**Immediate and mediated knowledge**

Can we acquire knowledge in an immediate manner without recourse to inferences, demonstrations, discussions, reflection, and other human beings? Bachelard and Bergson provided different answers to this question and built their respective epistemologies on them. For the latter, intuition does not need inferences or other philosophers to apprehend a truth; intuition is not even a vision, but a “contact” that furnishes the kernel of any philosophy (Bergson, *Creative Mind*, 132). The content of this intuition is so simple that it cannot be conveyed in its original form: concepts, which communication requires, are bound to complicate it. As an example, Bergson mentioned Spinoza’s *Ethics*, a work whose conceptual apparatus is substantial and driven by a geometric method of demonstration. Still, in the *Ethics*, “behind the heavy mass of concepts” there is a simple intuition that “no formula … can be simple enough to express” (Bergson, *Creative Mind*, 133). It follows that the only person who has full access to a philosopher’s intuition is the philosopher in question. Intuitions belong to individuals, and the philosophical method only requires one person to be applied.

Perhaps incongruously, Bachelard narrated a personal story about how Einstein’s theory of relativity awakened him from the “dogmatic slumber” of Bergsonian duration (Bachelard, *Intuition*, 29). What is important here is not that Einstein’s theory showed to Bachelard the discontinuity of time, but rather, methodologically, that an “intimate and personal experience” cannot provide evidence, let alone a full truth. In other words, he rejected Bergsonian intuition, which as Parodi put it in Bologna, is wholly individual.

1Bachelard coined the term *phénoménotéchnique* to indicate the technical nature of scientific objects (Bachelard, *L’activité rationaliste*, 91–93).
2See Bergson, *Creative Mind*, 149, 222ff. Bergson employed the expressions *sens commun* (Bergson, “Introduction”, 26) and *pensée commune* (Bergson, “Intuition”, 825), both rendered in English as common sense. Bachelard, like Brunschvicg and other philosophers, used *sens commun* to mean every-day and unscientific way of thinking, as opposed to scientific rationality that leads to genuine knowledge.
Bachelard criticized not only Bergson’s approach but also philosophers’ confidence that an individual can attain knowledge. Traditionally, philosophers have been represented in solitude, and they also often represent themselves as such, as for instance Descartes so vividly did in his *Meditations*. Bachelard, by contrast, proposed to philosophers the model of scientists working together. For Bachelard beliefs acquired in solitude are in fact sources of errors that must be overcome to attain knowledge. Our first encounter with the world is emotional and imaginative; for this reason, our first intuitions should not be trusted, as they are projections of our own desires. Intuitions are epistemological obstacles that need contradicting and overcoming.

Bachelard dedicated two books, *The Formation of the Scientific Mind* and *The Psychoanalysis of Fire*, to “curing” the mind of “its happy illusions” (Bachelard, *Psychoanalysis*, 4), or, in other words, to show that our spontaneous intuitions mislead us in our pursuit of knowledge. However, his criticism of first intuitions pervades his entire epistemological work. His early book *Atomistic intuitions* is a catalogue of erroneous views about the atom, aimed at showing “the illusory character of our first intuitions”, which provide immediate answers, and do not “foster complex and productive syntheses, they do not suggest experiments” (Bachelard, *Atomistic Intuitions*, 97). He went back to his criticism of intuitions in later works, including his last epistemological book, *L’activité rationaliste de la physique contemporaine*, in which he argued that in scientific culture intuitions cannot provide knowledge; they can only be used as ideas to be discussed and checked (Bachelard, *L’activité rationaliste*, 138). Take electricity: at first, it was seen as a fluid, and then, against that notion that suggested continuity, science created the notion of the flux of electrons, that is of discrete particles. Bachelard suggested that there is no continuity between these two views, and explicitly counterposed his thesis to Bergson’s. In fact, he generalized it by saying that *homo faber* can only become an “electrician” by a complete epistemological revolution (Bachelard, *L’activité rationaliste*, Chapter 4).

He constantly contrasted scientists’ uncovering of the complexity of the world with philosophers’ hankering after simple truths. Whereas philosophical materialism is simple and imagined, chemistry’s materialism is confronted by the plurality of matters (Bachelard, *Le pluralisme*). For him, truth is not simple, as Bergson suggested; simplicity is only a product of our desire: it pleases us. Philosophers wish for “direct, immediate, intuitive” knowledge, and end up making a method out of a naïve attitude (Bachelard, *L’engagement*, 35). Closely connected with simplicity, general knowledge is an epistemological obstacle that has been conquered by science, but still affects philosophers. As he put it: “philosophy has a science that is peculiar to itself, the science of generality” (Bachelard, *Formation*, 64). Just as early eighteenth-century chemists sought a single type of chemical activity in all
phenomena, current philosophers claimed to have an intuition of a single principle governing all vital phenomena: the \textit{élan vital}, or vital impetus (Bachelard, \textit{Le pluralisme}, 21). His readers would not have missed the reference to Bergson in his mention of the latter’s key concept of \textit{élan vital}. It is clear that Bachelard suggested that contemporary philosophers like Bergson, by failing to understand the epistemological break achieved by modern science, remained stuck in a pre-modern and poetic world.

But how can first intuitions about the world be overcome? They are no fleeting errors. In fact, our imagination and desires will always produce them: for example, the sexualisation of fire that hindered scientific knowledge is still present in poetry and in reveries (Bachelard, \textit{Psychoanalysis}). A crucial reason why science has been able to overcome the epistemological obstacles posed by the imagination is that scientists do not pursue knowledge individually, but through the mediation of other knowers. The type of interpersonal relationships typical of science do not only foster knowledge and learning; they also carry a “human value” (Bachelard, \textit{L’engagement}, 58). This is because they are founded on objectivity, unlike the social relationship of non-scientific pursuits, like alchemy. The alchemist initiated his apprentice to systems of beliefs based on intuitions that cannot be communicated objectively. The apprentice did not question his master’s knowledge, as teaching was based on authority rather than rationality (Bachelard, \textit{Formation}, Chapter 2, VII).

Bachelard argued that the relationships typical of science, based on discussion and shared aims, should be promoted in all public spaces. Schools for him are crucial settings in which the dialectics created by the interaction of teachers’ and pupils’ minds should foster progressive corrections of errors, revision of notions and constant work of clarification of ideas (Bachelard, \textit{Rationalisme}, Chapter 2). These social mediations further objective knowledge by eliminating the subjectivity of individual intuitions and inclinations. He went as far as claiming that society should be modelled on the ideal school in which objective knowledge is taught and developed (Bachelard, \textit{Formation}, 249). In order to transform the cogito into \textit{cogitamus}, as he put it, communication must be as comprehensive and transparent as possible. An intuition that cannot be fully communicated, and therefore cannot be checked and revised, cannot be regarded as genuine knowledge. In fact, for him an individual’s intuitions are so uncertain sources of knowledge that they must be challenged first of all by the subject in a rigorous exercise of reflectivity. He suggested that the individual replicates the dynamic that takes place in social learning: she should split herself and criticize her own intuitions. He evoked the psychoanalytical split between ego and superego, with the crucial difference that the Bachelardian superego is intellectual, objective, and “de-personalised” (Bachelard, \textit{Rationalisme}, 71).
The social character of science also extends over time and makes scientific knowledge eminently historical. Scientists never stop critically engaging with previous ideas, even when these ideas belong to modern science. In fact, scientific knowledge advances by “saying no”, as Bachelard put it, to previous scientific theories, ideas, and practices. For instance, current atomic science emerged not only from the polemical rejection of initial intuitive ideas, but also from the rectification of scientific ideas. Bohr proposed the attractive planetary model of the atom; Bachelard quoted Eddington pointing out the inadequacies of that model, whose orbits “can scarcely refer to an actual motion in space”. Contrary to what the model suggests, subatomic particles cannot be localized. Bachelard concluded the quotation with the following words: “in short, the physicist draws up an elaborate plan of the atom and then proceeds critically to erase each detail in turn. What is left is the atom of modern physics!” (Bachelard, *Philosophy of No*, 118).9 In turn, current atomic theories may be rectified in the future.

Should philosophy learn from the historical development of science? In Bachelard’s philosophy, history of science is crucial in two ways. First, it is the object of philosophy: his views of knowledge and of the mind derive from his study of the history of science. In this, he agreed with his teacher Brunschvicg who claimed that history is for the philosopher what the laboratory is for the scientist (Brunschvicg, “Histoire et Philosophie”, 162). Second, his own engagement with past philosophies, although not as systematic as Brunschvicg’s, appears to be modelled on what he saw as scientists’ rectification of previous theories and ideas. He argued that modern epistemology should be non-Cartesian, on the model of non-Euclidean geometry: just as “non-Euclidean geometry should [not] blind us to the limpid organisation of Euclidean thought”, so opposition to Descartes’ foundationalism “should not blind us to the importance of Cartesian thought” (Bachelard, *New Scientific Spirit*, 143). Similarly, his “polemical reason” was modelled in conscious opposition to Kant’s architectonic reason:10 rather than build systems, the philosopher should critically engage with previous ideas. Rationalism is “a philosophy that always continues; it never really is a philosophy that begins” (Bachelard, *Rationalisme*, 54).

Bachelard’s historicist view of philosophy, close to Brunschvicg’s, was at odds with traditional history of philosophy, as it appeared to relativize individual doctrines, and make them dependent on the progress of science.11 Bergson’s presentation of history of philosophy in *Creative Evolution* might

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9In the English translation, the closing quotation marks have been moved backwards; this appears to be a typo: in the French original Eddington’s words end with the exclamation mark as reported here (Bachelard, *Philosophie du non*, 138–139).


11I discuss the tension between different views of history of philosophy in the Parisian academia of the time in Chimisso, *Writing*, Chapter 2.
superficially seem similar to Bachelard’s in that it highlights the close connection between history of science and history of philosophy.\textsuperscript{12} For instance, Spinoza’s and Leibniz’s philosophies are “a systematisation of the new physics constructed on the model of the ancient metaphysics” (Bergson, \textit{Creative Evolution}, 347). However, for Bergson what is genuinely philosophical in them is the “flashes of intuition that break through the system” (Bergson, \textit{Creative evolution}, 347). Unlike Bachelard, Bergson did not envisage the future of philosophy as following the revolutions of sciences like physics. Indeed, he concluded \textit{Creative Evolution} by contrasting late nineteenth-century “scholasticism” based on physics, with genuine philosophy, this being a study of becoming or “true evolutionism”, as laid out by him, in contrast with Herbert Spencer’s.

The conception of history of philosophy that emerges in “Philosophical Intuition” contrasts even more decisively with Bachelard’s view.\textsuperscript{13} Here Bergson focussed, as the title suggests, on the intuitions that are at the core of philosophical doctrines. From this perspective, the location in history of a philosophy, and its link with contemporary science do not impact on its value in the same way as Bachelard suggested. Moreover, for Bachelard theories and ideas, whether philosophical or scientific, can only emerge as result of a polemical engagement with previous ideas, in a historical chain. By contrast, Bergson envisaged a far more autonomous birth of ideas; as he put it, the philosopher does not receive past ideas either to recast them in a new synthesis, or to combine them with new ideas (Bergson, \textit{Creative Mind}, 143); indeed, “the philosopher does not start with pre-existing ideas” (Bergson, \textit{Creative Mind}, 134). His and Bachelard’s respective views of the role of intuition inform their opposing views of the possibility of both social knowledge and the historicity of knowledge. Whereas for Bergson historical knowledge is relative and as such is not genuine knowledge (Bergson, \textit{Creative Mind}, 189), for Bachelard knowledge is historical, and only exists in history. This means that for Bachelard, in contrast with Bergson, neither science nor philosophy can attain absolute knowledge, but only an open-ended transformation and progress.

\textsuperscript{12}Here I only highlight some points of contrast between Bachelard’s and Bergson’s respective views of history of philosophy, rather than provide an overview of their conceptions of history and temporality. Such comparison would be very complex as their reflections have different scopes (e. g. life does not enter Bachelard’s) and imply different anthropologies. Bergson’s philosophy of history has had a diverse reception: some critics denied its existence (Aron, “Note”, 44–45), at least in the traditional sense (Pollin, “Bergson”); Hyppolite interpreted it as laying the foundation of existentialism (Hyppolite, “Vie et philosophe”); more recently, Zanfi regards it not only as existing, but as ground-breaking (Zanfi, “Duration”).

\textsuperscript{13}Martial Gueroult has emphasized the differences between Bergson’s views of history of philosophy in \textit{Creative Evolution} and “Philosophical intuition” (Gueroult, \textit{Dianomêmathique}, 839–873).
Images and knowledge

Bachelard and Bergson agreed that images are more immediate than concepts and stand in closer relation to intuitions. For Bergson, they are therefore crucial in the communication of the philosopher’s intuitions; he wrote that “[i]t is in concepts that the system develops; it is into an image that it contracts when it is driven back to the intuition from which it comes” (Bergson, Creative Mind, 141). Bachelard, who distrusted intuitions that are not examined and criticized, conducted a veritable epistemological and pedagogical campaign against images. Since for Bachelard images stimulate intuitions, they become obstacles to the acquisition and development of knowledge. He criticized their use in teaching, because pupils derive inaccurate ideas from them that are difficult to correct, as they cannot be articulated.14 He supported his negative view with a wealth of empirical evidence from the history of science. The early intuitions of atomic structures that he criticized were largely derived from images, such as that of dust. The image of “fine, light dust stirring and shimmering in a ray of sunlight” is “the master intuition of naïve atomism”. But it is just a reverie (Bachelard, Atomistic Intuitions, 21). Reveries may be beautiful and poetic, but they do not advance our knowledge of the atom, or any other object. Presumably drawing on his experience as a science teacher,15 he claimed that the representation of the atom as a planetarium has done endless damage to secondary school pupils’ culture (Bachelard, L’activité rationaliste, 69). Images of the instruments of homo faber, such as the lever, the mirror, the sieve, and the pump are also powerful epistemological obstacles (Bachelard, Formation, 87). He dedicated particular attention to the image of the sponge, which he presented as a “worthless intuition” used by past scholars for a variety of ends, including explaining the properties of air and glass, and describing particular stones. Reportedly, Benjamin Franklin wrote that “ordinary matter is a kind of sponge for electric fluid” (Bachelard, Formation, 83); and Descartes modelled his view of the porosity of air and water on the image of the sponge (Bachelard, Formation, 86ff).

Bachelard’s arguments against intuitions and images that I have discussed so far appear in his epistemological books, in which he examined and indeed promoted scientific knowledge. Some of his books, notably Atomistic Intuitions, The Formation of the Scientific Mind and The Psychoanalysis of Fire, mainly deal with epistemological obstacles, including intuitions and images, that scholars need to overcome. In his other epistemological books, he focussed on modern physics and chemistry, which for him speak the truth

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14Bachelard repeatedly criticized the pedagogical use of images, see Bachelard, Formation, 234; Bachelard, L’activité rationaliste, 184.
15Before embarking on a philosophy career, Bachelard taught physics and chemistry in secondary schools.
about nature. For him, Bergson rejected the value of evidence by claiming that movement is continuous. Rather than accepting scientific truth, Bergson incorrectly put forward a universal explanation solely based on the values of consciousness and life, and projected simple images of intimate reality onto external phenomena (Bachelard, *L’activité rationaliste*, Chapter 2). Did Bachelard defend mediated and social knowledge against Bergson’s intuition only as far as the study of inert matter is concerned? Is there a mismatch between the sphere of Bergson’s philosophy and Bachelard’s epistemological work? This objection deserves a careful reply, in addition to the answer I gave above, namely that, unlike Bergson, Bachelard thought that philosophy should follow current science. After all, starting with *Water and Dreams* (1942) Bachelard’s publications appear to diverge. On the one hand, he continued the development of his philosophy of science, started with his two doctoral theses, until after his retirement. On the other hand, he also started studying images without aiming to unmask their misleading influence on the development of knowledge. He adopted a new approach to images that he called phenomenological, although he did not employ any developed phenomenological method; his is a study of images as they appear, without concern about their role in scientific knowledge.

Although most critics emphasize Bachelard’s opposition to Bergson, generally focussing on their respective philosophies of time and movement, it has been argued that Bachelard’s books on poetic imagination are implicitly Bergsonian, as he allegedly suggested that, thanks to images, we can achieve non-intellectual knowledge. The sources that he examined in these books are works of literature of any type, myths, psychoanalytical texts and more besides. He claimed that the images in these texts tell us about the human soul [âme] rather than the esprit, normally translated as mind, a term that he generally employed to indicate reason. The soul is the “primitive” part of the mind, which Bachelard variously associated with the psychoanalytical unconscious, and with a layer between the unconscious and consciousness. He thought that dreamers and poets are able to experience a primitive connection with nature.

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16His last original epistemological work was “Le nouvel esprit scientifique et la création des valeurs rationnelles” (1957), in *Bachelard, L’engagement*. In the book resulting from his main doctoral thesis, he already criticized ‘first intuitions’ and advocated a ‘radical correction of intuition’ (Bachelard, *Essai*, 172).

17I discuss Bachelard’s phenomenology in Chimisso, “Bachelard’s Places”.


19He employed the term ‘primitive’ as he engaged with Lucien Lévy-Bruhl’s enormously popular theory of primitive mentality. Bachelard accepted Lévy-Bruhl’s distinction between two types of mentality, one primitive and mystic, the other modern and rational, but thought that both are present in modern people. Primitive mentality survives in modern people and can be expressed in poetry and reveries. Bachelard’s full discussion of Lévy-Bruhl’s primitive mentality is in *Bachelard, Psychoanalysis*, but he returned to the theme of the primitiveness of reverie and poetry in later books; see for instance *Bachelard, Poetics of Space*, 19.
Poetic images are primitive because they have not undergone rational rectification: whereas scientific concepts are the result of dialectic and history, poetic images are timeless, as they are expressions of the part of our mind that does not change with the progress of science. Unlike Bergson, Bachelard considered images as evidence for his study of the soul, rather than employing them to communicate his original intuition. For him, they express desires and fears that all human beings share; this is why he examined an extremely varied set of texts across centuries and across genres. His method was not introspection; rather, he employed ethnology and psychoanalysis in order to understand the timeless primitive mind, as opposed to the scientific mind, which is modern and open to change. In *L’air et les songes*, in a section to which François Pire has referred as alleged evidence that Bachelard followed the spirit of Bergsonism while going against its explicit tenets (Pire, *L’imagination poétique*, 191), Bachelard in fact claimed, contrary to Bergson, that images are not to be considered metaphors that enable us to obviate the shortcomings of conceptual language. Rather, the study of images is the best way to study the life of the psyche (Bachelard, *L’air et les songes*, 291). The suggestion that Bachelard’s books on the imagination propose non-intellectual and immediate knowledge springs from a misunderstanding of his philosophical anthropology, his epistemology, and above all of his overall project.

Just as in his epistemological books, Bachelard had a pedagogical aim when he wrote his books on the imagination. He argued that human beings’ lives should have a rhythm, that for him Bergson’s philosophy did not allow. Work and production of knowledge, for which science is the best model, should alternate with moments of rest and solitude, in which the individual can freely dream. In his words, “there is no well-being without reverie” (Bachelard, *Lautréamont*, 152–53). He urged his readers to accept a “total separation of rational life and oneiric life”, and to lead “a double life, that of the nocturnal man, and of the diurnal man” (Bachelard, *Matérialisme*, 19). Images and concepts for him are not two ways of communicating intuitions, as for Bergson; rather, they are opposed to each other. Concepts are the structure of social, historical, and objective knowledge, while images are the expression and fuel of solitary, timeless and subjective reverie.

**Conclusion**

Bergson proposed “one of the most fully developed methods in philosophy”, in Gilles Deleuze’s view (Deleuze, *Bergsonism*, 13). His method, centred on intuition, promised to make philosophy independent of the sciences at a time when bourgeoning disciplines, notably sociology, ethnology, and exper-imental psychology, threatened to relegate philosophy to an ancillary place,
or even to make it redundant. Yet philosophers like Bachelard and Brunschvicg fought Bergsonian intuition, but they did not see their discipline as destined to wither away. Rather, they aimed at reforming it in line with the revolutions of twentieth-century science. Their trust in science, and their epistemological, political, and ethical ideas, though diverse, were on the whole aligned with the ideals of the Third Republic (1870–1940). So was the opposition that they drew between discursive rationality, secularism, and modernity on the one hand and intuitive knowledge, religion and ‘primitivity’ on the other. Sandford Schwartz presents Bergson’s *Creative evolution* as capable potentially “to resolve the perpetual struggle between Catholic and secular France” (Schwartz, “Bergson”, 299). Nevertheless, many philosophers at the time feared that Bergsonian intuition was in fact a danger to secularism, and in general to the values of the Third Republic. Brunschvicg defended intellectualism and secularism against the attacks of Bergson’s protégé, the mathematician, philosopher and militant Catholic Édouard Le Roy.\footnote{See the chapter “La philosophie nouvelle et le intellectualisme” in Brunschvicg, *L’idéalisme*. Le Roy presented his own philosophy as “new philosophy”, hence the title. He aimed at separating science, which he regarded as merely useful and conventional, and authentic knowledge, which he regarded as intuitive. Le Roy temporarily replaced Bergson at the Collège de France, before obtaining his own chair. Brunschvicg, as one of the editors of the *Revue de métaphysique et de morale*, shared the anti-Bergsonianism of the journal, see Azouvi, *La gloire de Bergson*, Chapter 2.} Parodi targeted the uses and misuses of Bergson’s philosophy: in a collection of articles, he contrasted the rationalism of the French revolution to the “vitalist sentiment” of the far-right group Action française (Parodi, *Traditionalisme*).\footnote{For Bergson’s diverse political influence, see Schwartz, “Bergson”, and Soulez, *Bergson politique*, which covers both Bergson’s own activities, and the political reception of his philosophy.}

Education played a very important role in the implementation of the Third Republic values, and it was aimed at replacing religion as a means of creating a collective identity. It is in this context that philosophers’ preoccupation with education must be understood; as Jean-Louis Fabiani has remarked, education became the philosophers’ terrain of social intervention (Fabiani, *Les philosophes*, 22). In this respect, Bachelard was very much a Third Republic philosopher, although his publications date from the late 1920s to the very beginning of the 1960s. He wrote about scientific research and schools as models for society, as discussed above, in the late Thirties, when the Popular Front government, which he regarded favourably, actively promoted scientific research and scientific education.\footnote{Bachelard publicly supported the Comité de vigilance des intellectuels antifascistes which led to the Popular Front (see his signature in *Vigilance*, 1935, 4). The Popular Front government created the first undersecretariat of State for scientific research, headed by the chemist and Nobel Prize winner Irène Joliot-Curie. The minister’s advisers were all scientists in the narrow sense; see Ory, *La belle illusion*, Chapter 9, “La creation scientifique”.} Indeed, his philosophy of science, in my view, is best interpreted as a pedagogical instrument of social and moral progress. His criticism of intuition and of duration not only developed in that philosophical and political milieu, but was also...
received as integral to that very milieu. A case in point is André Lalande’s remarks at Bachelard’s presentation of his *Dialectics of Duration*. Lalande, a champion of rationality, democracy, and the values of the French revolution, considered Bachelard’s book as consistent with his own work. He shared Bachelard’s view of discontinuity as part of the defence of rationalism against “certain extremely specious” current ideas. The notion of “universal evolution”, he argued, would undermine reason’s “intellectual and social” authority and its power to unify minds.  

His concerns were indeed in line with Bachelard’s view of the social dimension of rational knowledge as opposed to the individual character of intuitive knowledge.

These contexts shed light on Bachelard’s long battle against intuition: he regarded it as a return not only to failed attempts at knowledge, but also to undesirable social structures. Bergson claimed that intuition “catches hold of a thread”: the thread may go “as far as heaven”, then the metaphysical experience overlaps with that of the “great mystics”; if it does not reach the truth, then it would be separate, but not in conflict with it (Bergson, *Creative Mind*, 57). As the content of intuition cannot be communicated directly, the philosopher can only guide others to it with the help of images, metaphors, and concepts, despite their limitations. But why should a reader embark on a journey towards a vision that the philosopher alleges to have had? To many philosophers, the answer must have been authority: it is the philosopher himself who confers worth on the promise of a vision. But for rationalist philosophers, including Bachelard, we should not accept any notion that cannot be challenged by logic or evidence. The reader of a philosophical text must be able to employ reason to question and dispute any claim. For Bachelard, modern science shows that the rejection of pre-modern social relations and teaching methods based on authority enables us to achieve genuine knowledge.

Both Bachelard and Bergson advocated schisms. Bergson separated science from philosophy, knowledge of inert matter from knowledge of life and the mind, and intellect from intuition. Bachelard, while keeping philosophy in close contact with science, separated knowledge from reverie, concepts from images, and reason from the imagination. He did not distinguish two types of knowledge, as Bergson did, but separated knowledge from dreams. For Bachelard, the immediate engagement with intuitions and images belongs to reverie, poetry, and repose. This engagement is solitary and does not create new knowledge. Bergson’s and Bachelard’s philosophies not only present us with different epistemologies, but also with two forms of life and models of social relationships. It is doubtful that Bachelard’s tools, notably discursive rationality, and historical evidence, could impart a

fatal blow to Bergson’s philosophy, as the latter, being based on an original intuition, poses itself as impervious to those types of criticism. However, Bachelard consistently attacked the very source of the former’s philosophy, namely intuition as a method, because he regarded it as epistemologically, ethically, and socially undesirable, as it promoted an individualistic view of knowledge that is not socially constructed and verified, and that cannot be challenged with objective methods.

ORCID

Cristina Chimisso © http://orcid.org/0000-0002-0960-6450

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