

Editorial

Gaston Bachelard and philosophy of science today

If the “conceptual character” *Gaston Bachelard* is indeed inscribed in history and in time – it is not a matter of a solidified and desiccated monolith –, it is first necessary to reconstitute the few stages which are part of this story.

We can, without oversimplifying, speak of three waves that will have punctuated and punctuated Bachelardian studies between the beginning of the 1960s and the first quarter of the 21st century.

A. FIRST WAVE

It can be said that it represents the period in which the problem of Bachelardian “dualism” essentially emerges. What were the interpretations that first challenged the “dualistic vulgate”, then operated in favor of a reassessment of the strictly dualistic reading of Bachelard? These are very precisely the inaugural studies of Jean Hyppolite, Georges Canguilhem and François Dagognet. These works were then overshadowed by the success of Althusserian-inspired and “Marxist” readings of Bachelardian epistemology: a wave that rose and dominated in France from the 1960s to the 1980s.

In a first text devoted in 1954 to the work of the man whom he then presented as his master and his friend, and whose “enigmatic” dimension he would again emphasize ten years later, Jean Hyppolite invites us to consider the philosophy of Gaston Bachelard, following a formula that will become proverbial to say the least, like a “romanticism of intelligence, a transcendental theory of creative imagination”. And Hyppolite to clarify:

It is not the least of its interest to see it develop on these two seemingly very different paths. They sometimes seem to emerge from a common center or meet here and there, at other times they seem to be radically opposed, to serve *each other* as a dialectical antithesis; one serves to purify the other. We feel, however, without being able to explain it yet, that they belong to the same philosophy, to *the same speculative and aesthetic existentialism*¹.

¹ J. Hyppolite, “Gaston Bachelard ou le romantisme de l’intelligence”, *Revue philosophique* (janvier-mars 1954). Ce texte est repris dans *Figures de la pensée philosophique. Écrits de Jean Hyppolite (1931-1968)*, tome II, Paris, PUF, 1971, pp. 644-645 [ours emphasis].

Hyppolite would take up this theme again in 1963, nine years later, in a form of self-criticism:

The unity of the thought of the scholar and that of the poet is not an academic unity, which one discovers in a general idea, a false abstraction. Surely there is *a center*, a point of reconciliation, *a living focus where everything converges*².

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It is *in a similar perspective* that Georges Canguilhem intervenes in the debate, on the occasion of the collective volume *Hommage à Gaston Bachelard*, a work which brings together various studies collected from colleagues, students, disciples and friends. Canguilhem introduces his speech by going straight to the point, namely by highlighting a notable difficulty:

If it is really the “same man” who actually wrote on science and on poetry, and if we can, after a careful reading of the work and a thorough reflection, identify a “*same approach*” in the various works by Bachelard, *this does not necessarily appear as a first approximation*³.

With François Dagognet, we find that in his first significant work he confronts the problem of the *duality of Bachelardism* under the title: “The problem of unity”:

We will therefore plead against the quartering, against this excessive dissociation. We will develop the thesis less of a contrast between the two regions of his Universe than of the mutual contamination *of one by the other*. *The two edges, which Bachelard so disjointed, meet, without his knowledge, from below*⁴.

It is particularly noteworthy that here, in this same text, Dagognet insists on the *(quasi)epistemological dimension of Bachelard’s research on images*: Bachelard elaborates *in fact* what he claimed to refute: “And what he did not want, he has, despite everything, elaborated it, a neo-science of Literature”⁵.

B. SECOND WAVE

The second wave begins in the 1970s. If we put aside the important volume – to which I will come back – published exactly in 1970 under the title, *Bachelard. Col-*

² J. Hyppolite, “L’imaginaire et la science chez Bachelard”, Conférence faite à Bruxelles le 7 février 1963, in *Figures de la pensée philosophique*, *op. cit.*, p. 677 [our emphasis].

³ G. Canguilhem, “Sur une épistémologie concordataire”, in *Hommage à Gaston Bachelard. Étude de philosophie et d’histoire des sciences*, Paris, PUF, 1957, pp. 3-12. Quoted by J. Lamy, “Le dualisme bachelardien, un ‘faux problème’ ?”. *Cahiers Gaston Bachelard*, Université de Bourgogne, 2012, *Sciences, imaginaire, représentation : le bachelardisme aujourd’hui et Le pluralisme cohérent de la philosophie de Gaston Bachelard*, Doctoral thesis in philosophy, under the supervision of Jean-Jacques Wunenburger, Lyon, 2014.

⁴ F. Dagognet, “Le problème de l’unité”, *Revue Internationale de Philosophie*, 1984, vol. 38, N° 150 (3), *Bachelard. Inédit, Correspondance avec Buber*, pp. 245-256 (here p. 248).

⁵ *Ibidem*, p. 248. See, J.-J. Wunenburger, *Philosophie des images*, Paris, PUF, 2001².

loquium of Cerisy, this second wave corresponds to the *sequence of a Marxist reading* of Bachelard, a sort of sequence of “inaugural closure” or “entry backwards” into the work of the master. It was both a stimulating and deeply disappointing, unsatisfying moment. This is the time of Dominique Lecourt’s teaching at the Sorbonne, and that of Althusser and Derrida at the École Normale.

The orientation given to Bachelardism by Louis Althusser and his acolytes⁶, which goes essentially in the direction of a “dialectical materialism” thought of in exclusively epistemological terms, has largely conditioned the *reception* and the way of confronting the work of Bachelard in France; and this, with the risk of transmitting *a distorted and simplified image* of Bachelardism, an image that no longer conforms to what we actually find on reading the texts that make up the work taken in its entirety, with its *speculative audacity* and *its sometimes enigmatic visions*. A work that we must strive to explain and analyze, and not to disqualify *a priori* on the basis of a petition of principle⁷.

We can now speak of this period as that of a “Bachelardian vulgate” constituting only a simple *approximation* of Bachelardism, an *immediate and naive approximation* which was waiting to be rectified by *a second approximation*. The watchword was then that of “epistemological rupture”, a formula that Bachelard never used, but which became the almost exclusive key for any attempt to penetrate into the work.

We will cite here the works of Michel Vadé⁸ and Dominique Lecourt⁹ who applied to their reflection on the work of Bachelard *a structure of extrinsic pre-comprehension*, too far removed from the questions, themes and concepts that animated it, both from the point of view of its organization and of its internal developments. Both advanced the problem of the interpretation of Bachelard *through the prism of the Marxian heritage and its French reception*, by situating themselves in the theoretical space opened up by Althusser’s reading of dialectical materialism. And Georges Canguilhem had clearly perceived this bias when, in his *Preface* to Dominique Lecourt’s book, *L’Épistémologie historique de Gaston Bachelard* published in 1969, he invited his reader to realize that he “mobilizes, for his study, certain epistemological concepts *whose place of importation is not concealed*”¹⁰.

⁶ See on this point, L. Althusser, *Philosophie et philosophie spontanée des savants* (1967), Paris, François Maspero, 1974. F. Balibar, « Le cours de philosophie pour scientifiques », in A. Cavazzini (ed.) *Scienza, epistemologia, società. La lezione di Louis Althusser*. Venezia, 29-30-31 October 2008 proceedings of the conference, Milano-Udine, Mimesis, 2009, pp. 15-27.

⁷ See for example, C. Alunni, « Gaston Bachelard, encore et encore », *Préface* of G. Bachelard, *Métaphysique des mathématiques*, Paris, Hermann, “Pensée des sciences”, 2021, pp. 7-22. More generally, see C. Alunni, *Spectres de Bachelard. Gaston Bachelard et l’école surrationaliste*, Paris, Hermann, “Pensée des sciences”, 2019, *passim*.

⁸ M. Vadé, *Bachelard ou le nouvel idéalisme épistémologique*, Paris, Éditions sociales, 1975.

⁹ D. Lecourt, *Bachelard ou le jour et la nuit*, Paris, Grasset, 1974.

¹⁰ D. Lecourt, *L’Épistémologie historique de Gaston Bachelard* [1969], Paris, Vrin, 1978⁵, Foreword of Georges Canguilhem, p. 7 [our emphasis].

In the context of a reconstruction of official Bachelardism in France, it cannot be denied that it is clearly necessary to refer to the works of Dominique Lecourt, in the sense that they constitute in this period the very paradigm of the French reception of Bachelard. and an essential axis of this reception. From his first publications, Lecourt has definitely worked to promote the Bachelardian heritage, in particular with his invention of the neologism “*historical epistemology*” proposed in 1969 to qualify his philosophy of science.

Finally, it is to him that we owe this insistence on *the enigmatic duplicity of the work and the character* inscribed in the very title of his work, *Bachelard or day and night*¹¹.

In conclusion, and in short, let us say that the vision of Bachelard’s work is then *distorted, denatured, deformed and incomplete*, not to say *mutilated*, despite this wave of renewal.

C. THIRD WAVE. From the 1980s to the present day

This wave, much more recent and much more complex, is none other than our contemporary. It is only necessary to underline here the importance of the research of specialists like Jean-Jacques Wunenburger, Daniel Parrochia, Giuseppe Sertoli, Gaspare Polizzi, Carlo Vinti, Maria Rita Abramo, Francesca Bonicalzi or Mario Castellana and, in the new generation, Fabrizio Paolombi, Gerardo Ienna, Paola Donatiello, Francesco Garofalo, Michel-Élie Martin, Julien Lamy or Vincent Bontems.

We started from this base, from this fund represented by the *first two waves*, themselves conceived as progression in the studies devoted to the work of Gaston Bachelard, bearing in mind *the enigma of an alleged duality*.

However, it now seems necessary to us, not only to resume the “internal” reading of the texts, often much more difficult than it seems, but also to extend the analysis to the “companionship” of Bachelard with the scientists-philosophers the most notable (his contemporaries) who shared with him what we now call his “surrationalism” (Edmund Husserl spoke in 1935 of “ein Art Überraationalismus”), a central category elaborated by Bachelard in 1936¹².

Another way of formulating this new horizon, which is that of a rectified Gaston Bachelard, would be to speak here of the *spectres of Gaston Bachelard*¹³.

This generic framework which is that of “Surrationalism” is characterized by the dialectics of reason: this one indeed questions its axiomatic, and it is reformed from the experiences *which invalidate it*. Here, the spectres, present everywhere,

¹¹ D. Lecourt, *Bachelard ou le jour et la nuit*, Paris, Grasset, 1974.

¹² G. Bachelard, “Le surrationalisme”, in *Inquisitions*. Organe du Groupe d’Études pour la Phénoménologie Humaine, n° 1, juin 1936, L. Aragon, R. Caillois, J.-M. Monnerot, T. Tzara (eds.), Paris, Éditions sociales. Réédition, *Inquisitions. Du Surréalisme au Front Populaire*, Paris, Éditions du Cnrs, 1990.

¹³ See on this point, C. Alunni, *Spectres de Bachelard*, op. cit, 2019.

play simultaneously as scientific and epistemological concepts distributing the “philosophemes” of a new scientific spirit, and as “ghosts” of *the epistemological acts* of scholars elaborating their own epistemological description.

Therefore: what are the essential traits of this “Bachelard figure” or of his “conceptual character” that must absolutely be rectified or added to the different profiles developed so far during the three waves briefly described above?

This is essentially the *mathematical “trait”* of this great specialist in mathematical physics. And this trait emerges from 1927, from his State thesis, with *The Essay on Approximate Knowledge*¹⁴ and his Complementary Thesis, *Study on the Evolution of a Physical Problem. Thermic propagation in solids*¹⁵. To this should be added, thus forming a founding triptych, *The inductive value of relativity*¹⁶ published in 1929. It can easily be shown that the “mathematical figure” of the philosopher of science Bachelard, who is extremely sensitive to developments in contemporary algebra, to non-Euclidean geometries, to Weylian gauge theory, but also to logical and axiomatic questions, is *already fully present and dominant* at the heart of these three inaugural texts¹⁷.

If some of the Bachelardian studies devoted to the Einsteinian theory of general relativity or to “modern”¹⁸ mathematics are partly already advanced, it remains to develop these new approaches from many angles and to now pay much greater attention to the analysis absolutely fundamental that Bachelard was able to propose of quantum mechanics.

In the same vein, we must continue to question his interactions with the “surrealist school” of physicists, mathematicians and philosophers of his time, while questioning the extensions of his work among our contemporaries.

This is what the various contributors to this issue of *Bachelard Studies* are working on.

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¹⁴ G. Bachelard, *Essai sur la connaissance approchée*, Paris, Vrin, 1927.

¹⁵ G. Bachelard, *Étude sur l'évolution d'un problème de physique. La propagation thermique dans les solides*, Paris, Vrin, 1927.

¹⁶ Bachelard, *La Valeur inductive de la relativité*, Paris, Vrin, 1929.

¹⁷ On this crucial point, see the central and deeply ambiguous role of Roger Martin in the erroneous interpretation he gives of Bachelard's relationship to the mathematical world: R. Martin, “Bachelard et les Mathématiques” (1970), in *Bachelard. Colloquium of Cerisy*, Paris, Union Générale d'Éditions, coll. “10/18”, 1974, H. Gouhier, R. Poirier (eds.). For a critical analysis of this now absolutely dominant position, cf. C. Alunni, “Bachelard faced with mathematics”, in *Specters of Bachelard*, op. cit., c. IV, pp. 113-138.

¹⁸ I refer here to the nomenclature established by Fernando Zalamea in his *Philosophie synthétique de la mathématique contemporaine*, Paris, Hermann, coll. “Pensée des sciences”, 2018; and in particular on his fundamental distinction between “modern mathematics” and “contemporary mathematics”, and between “elementary mathematics” and “advanced mathematics”; cf. ch. 1 and ch. 2, pages 19-78. English version, *Synthetic Philosophy of Contemporary Mathematics*, translated by Zachery Luke Fraser, London, Urbanomic/Sequence Press, 2012.