

Hans-Jörg Rheinberger, *Le graveur et le philosophe: Albert Flocon rencontre Gaston Bachelard*, translated by Arthur Lochmann
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INTAGLIO AS PHILOSOPHY

For Hans-Jörg Rheinberger, the end of the nineteenth century and its vigorous empiricism, which had been fuelled by the successes of the experimental sciences, brought about ‘a crisis of reflection on scientific knowledge’. Writing in *On Historicizing Epistemology*, published in English in 2010, Rheinberger was reflecting on the ways in which the shift from classical to modern physics had made the question of scientific revolutions ‘unavoidable’, while a glance back at a past littered with obsolete theories and discarded things—ether, crystalline spheres, the humours—naturally prompted questions about the historicity of scientific knowledge. Positivism, Rheinberger wrote, was ‘the first symptom’ of this crisis. As an attempt to synthesize the fragmented landscape of the sciences, Husserl deemed positivism a ‘residual concept’—a nineteenth-century hangover. Flaubert delivered a harsher judgement. ‘Stupidity consists in wanting to reach conclusions’, he wrote, and the work of positivism’s chief French architect, Auguste Comte, thus ‘deadly stupid’: the *Cours de philosophie positive*, in particular, ‘contains vast mines of the comic, whole Californias of the grotesque’. Indeed, Flaubert continued in a letter to a friend in 1879, the subtitle of his unfinished novel, *Bouvard et Pécuchet*, ‘might be: “On lack of method in the sciences”’, since, he said, ‘I intend to pass in review all modern ideas.’ After they have given up on agriculture, horticulture, chemistry, anatomy, physiology, medicine, hygiene, geology, archaeology, history, the historical novel, literature, politics, love, gymnastics, spiritualism, hypnotism, philosophy, religion, the critique of religion, phrenology and pedagogy, Bouvard and Pécuchet take to copying ‘haphazardly, whatever falls into their hands, all the papers and manuscripts they come across, tobacco packets, old newspapers, lost letters,

believing it all to be important and worth preserving'. While they 'are often at pains to catalogue a fact in its correct place'—finding and classifying 'examples of every style, agricultural, medical, theological, classical, romantic, periphrasis'; composing a 'Dictionary of Received Ideas'; even writing a 'history of the world in howlers'—classification becomes more and more difficult as they copy.

Flaubert's great satire of modern epistemology, his novel of agnotology, found a surprising echo in the work of Gaston Bachelard. He, too, opposed positivism—Comte's dominance in French pedagogy, the universal-knowledge projects of the Vienna Circle, all fictions of historical cumulation; he, too, rejected his contemporaries' desire for synthesis and sought to make 'a close study of error, of ignorance and of thoughtlessness'. In *The Formation of the Scientific Mind* (1938), Bachelard set out to reveal and uproot the epistemological obstacles that 'encrust any knowledge that is not questioned'. An 'over-familiar scientific idea', Bachelard wrote, 'becomes weighed down by too much psychological concreteness, amassing too many analogies, images and metaphors, and gradually losing its *vector of abstraction*.' As such, 'all scientific culture must begin with an intellectual and emotional catharsis'. Bachelard sought to purge the scientific mind of pernicious metaphors like the sponge, salt, digestion. For the philosopher of science, 'abstraction is a duty': philosophy must 'turn the mind from the real to the artificial, from the natural to the human, from representation to abstraction'. Despite its insistence on a strict philosophical and historical demarcation between science and pseudoscience, and its treatment of literature as useful only as an archive of errors, the structure of Bachelard's book resembles that of Flaubert's novel: in presenting 'the objects on view in our chamber of horrors', Bachelard wrote, 'our plan will then have to be a loose one and we shall find it pretty impossible to avoid repeating ourselves since it is the nature of epistemological obstacles to be intermixed and polymorphous. It is also very difficult to establish a hierarchy of error and to describe in an orderly way the disorders of thought.' Out of such rebellions against positivism and vitalism (the treacle spilt on the dining table of nineteenth-century thought, to paraphrase T. E. Hulme) came a new way of thinking about science—as process and as plurality—and, eventually, the research methodology of the Max Planck Institut für Wissenschaftsgeschichte in Berlin.

Founded in 1994, the Institute was initially housed in the old Czech Embassy building in the former eastern zone of central Berlin. (Its relocation to a purpose-built facility in Berlin-Dahlem in 2006 concluded the Max Planck Group's funded participation in the unification and reconstruction of the German scientific environment.) In its own most general terms, the Institute 'is dedicated to the study of the history of science and aims to understand scientific thinking and practice as historical phenomena.

Researchers pursue an historical epistemology in their studies of how new categories of thought, proof and experience have emerged.’ In *On Historicizing Epistemology*—a text at once introduction, genealogy and manifesto—Rheinberger, the Institute’s Director from 1997 to 2014, traced its methodology back to the *fin-de-siècle*: a pivotal moment in the history of epistemology’s transformation from ‘a synonym for a theory of knowledge (*Erkenntnis*) that inquires into what it is that makes knowledge (*Wissen*) scientific’ to a concept used ‘for reflecting on the historical conditions *under* which, and the means *with* which, things are made into objects of knowledge’. In Rheinberger’s account, Émile Boutroux’s vision of philosophy as the study of the historical becoming of scientific objectivity—refined at the nineteenth-century Sorbonne, where Boutroux was professor of the history of philosophy—becomes the historical epistemology of Gaston Bachelard, who ascended to the chair of the history and philosophy of science at that same university in the mid-twentieth century. In his opening address to the 1911 International Philosophical Congress in Bologna, ‘Du rapport de la philosophie aux sciences’, Boutroux rejected Comte’s view of the philosopher’s task—that, faced with the archipelago of the modern, plural sciences, the philosopher should determine their true relations and synthesize them—and instead proposed that philosophy begin again, by studying the sciences in action. Like Bachelard, Paul Feyerabend, David Bloor and countless others after him, Boutroux picked apart the myth of a unified science: each of the sciences deploys a different principle of research (its own ‘question put to nature’, as he phrased it) as an epistemic tool. By analysing these tools, and the methods by which scientists ‘attain vigour and progress’, the philosopher could uncover ‘the very foundation of scientific objectivity’, and philosophy as a discipline could assert its legitimacy against those in the scientific community who would proclaim its ‘nonentity’. ‘Objectivity, in the last analysis, thus becomes a historical task’, Rheinberger concludes. Boutroux, he writes, was therefore ‘one of the fathers of a rapprochement between philosophy and the natural sciences in France, which later was to flow into a special form of historical epistemology’.

A Liechtensteiner born in 1946 in Grabs, Switzerland and educated in Tübingen and Berlin, Rheinberger often declares historical epistemology a specifically French tradition. This choice of inheritance likely dates back to Rheinberger’s years as a student at the Freie Universität: ‘It was a time of heightened attention to French “theory”. Many of the soon-to-be classics published in the second half of the 1960s were translated into German within less than five years of their appearance’, he recalled in a 2013 piece, ‘My Road to History of Science’. It was most probably via Althusser, on whom he wrote his master’s thesis, that Rheinberger first encountered the ideas of Gaston Bachelard. Despite Bachelard’s own lack of demonstrable

political engagement, his concepts were assimilated to and disseminated by a Marxist tradition: Althusser took up the epistemological rupture, while Dominique Lecourt's doctoral thesis, published as *L'Épistémologie historique de Gaston Bachelard*, branded Bachelard's work as 'historical epistemology'—a phrase Bachelard himself never used. The preface by Lecourt's supervisor, Georges Canguilhem, helpfully divided Bachelard's philosophy of history in two: the rectified history of science, written from the perspective of the present, and the lapsed—our aforementioned chamber of horrors. Bachelard, along with Jacques Derrida, whose *De la grammatologie* Rheinberger and a fellow student translated into German, has proven to be an abiding intellectual influence on Rheinberger's work in the history and philosophy of science. It was only after many years in the laboratory as a molecular biologist that Rheinberger turned to historical epistemology, publishing *Toward a History of Epistemic Things: Synthesizing Proteins in the Test Tube* (in German in 1991 and English in 1997) to widespread acclaim. In 2017, finally crossing back into the tradition to which its author felt it had always belonged, that book was translated into French by Arthur Lochmann as *Systèmes expérimentaux et choses épistémiques*. In the same year, Lochmann's French translation of *Der Kupferstecher und der Philosoph: Albert Flocon trifft Gaston Bachelard*, Rheinberger's meditation on a little-known byway in the history of printmaking, appeared.

Le graveur et le philosophe: Albert Flocon rencontre Gaston Bachelard has been variously described as a 'double biography', a 'work of intellectual history' and in a humble, honest moment in the book's preface, as a 'homage to its protagonists': Bachelard the philosopher and Flocon the engraver. Their portraits are drawn in miniature; their encounter—documented in a series of collaborative works made in Paris in the 1940s and 1950s—intended as an Auerbachian *Ansatzpunkt* from which new light might be cast on Bachelard's epistemology and the chasm between the history of art and the history of science bridged. The vocabulary of engraving has permeated Rheinberger's writing since *Toward a History of Epistemic Things*, where it was given philosophical ballast by Derrida:

The French notion of *écriture* is only inadequately grasped by its translation into writing. *Écriture* is the 'writing' and the 'written', and it is the 'how to be written' as well. It covers the graphemic space and the things from which it is built. According to Derrida, 'to write is to produce a mark that will constitute a sort of machine which is productive in turn, and which my future disappearance will not, in principle, hinder in its functioning.'

Graphs, graphemes, inscriptions, scriptural traces: such fragments from the etymology of engraving proliferate in Rheinberger's archaeology of laboratories, where they have a particular fit, since techniques of transcription

and translation have indeed been central to the histories of molecular biology and genomics that Rheinberger has focussed on. Riffing through Bachelard's archives, then, Rheinberger delights to find that he, too, took philosophical inspiration from engraving: from, in particular, the intaglio prints of Albert Flocon.

Bachelard, like one of his over-familiar scientific ideas, comes to us already encrusted with imagery—Cristina Chimisso's intellectual biography, *Gaston Bachelard: Critic of Science and the Imagination*, begins with a rigorous, chapter-length analysis of the man's beard—with meaning and with myth. Born in 1884 to a tobacconist in Bar-sur-Aube, Bachelard proceeded, in his own words, to live 'a very irregular intellectual life': 'I studied science at the Sorbonne and graduated with an examination in mathematics and physics. Then I was employed at the post office and wanted to become a telegraph engineer.' Instead, he spent the First World War fighting on the front lines and from 1919 to 1930 taught chemistry and physics at the secondary school in his hometown. He received his doctorate in philosophy of science and history of science at the Sorbonne, supervised by Abel Rey and Léon Brunschvicg. After a decade as a professor of philosophy at the University of Dijon, he returned to the Sorbonne in 1940 to take up the chair of history and philosophy of science. This is a life that lends itself to romance: the bearded thinker journeying from petit provincial to professor; from the quiet of the nineteenth-century countryside to the noise of industrialized, cosmopolitan postwar Paris.

Albert Flocon, meanwhile, remains a relatively obscure figure. His journey to Paris was one of exile. He was born Albert Mentzel in Köpenick, near Berlin, in 1909. Between 1927 and 1930 he was a student at the Bauhaus in Dessau, where he took the preparatory training course under Josef Albers and was taught the theories of point, line and plane by Wassily Kandinsky. Mentzel renounced his early architectural ambitions after joining Oskar Schlemmer's theatre workshop. The *Bauhausbühne* made a deep impression on him, visible decades later in the composition of his engravings and the dance of tiny, marionette-like figures in geometrical costume across them; and in 1987 he published a series of lithographs and autobiographical writings titled *Scénographies au Bauhaus, Dessau, 1927–1930, Hommage à Oskar Schlemmer en plusieurs tableaux*. In 1930 Mentzel left Dessau for Berlin and in 1933—a resolute socialist married to the Jewish Lo Rothschild—he left Germany for good and sought refuge in France. With the outbreak of war, and to avoid deportation back to Germany, he joined the Foreign Legion and served in Algeria. After returning to Occupied France and making contact with the Résistance, Mentzel and his family were apprehended by the Gestapo in 1944 in Toulouse. His wife and daughter were deported on the last train out of Drancy and murdered at Auschwitz. Mentzel was imprisoned

at Saint-Michel in Toulouse, a prison Rheinberger deems a panopticon. There, according to his memoirs, *Points de fuite* (Vanishing Points), Mentzel began the perspective sketches that would inspire his work as an engraver and art theorist—from *Perspectives: Poèmes sur des gravures d'Albert Flocon*, his 1948 collaboration with the surrealist poet Paul Éluard, to his work with André Barre, *La Perspective curviligne* (1968), codifying a technique of graphical projection for drawing three-dimensional objects on a two-dimensional plane. After the Liberation, Albert Mentzel travelled to Paris, adopted the name 'Flocon' (from a revolutionary French ancestor, Ferdinand Flocon, Rheinberger informs us) and became a French citizen.

'Black is where colour takes shelter', Bachelard once wrote. It was in an old, monochrome technique of intaglio that Flocon trained in those postwar years in Paris at the Studios Georges Leblanc, and that he would practice in all his collaborations with Bachelard: engravings made by burin on copperplate. Rheinberger offers a careful, caring, examination of the resulting prints and of Bachelard's accompanying, slightly disjointed, reflections. Some sixteen of Flocon's prints are reproduced in this book, where they testify to his technical mastery, if never quite to a singular style. Haunted by their postwar belatedness, the rather damning accusation of 'lyrical abstraction' may come to mind as the viewer is, by turns, reminded of the works of others: the Surrealists' eyes, the Bauhaus manifesto's cathedral, Escher's perspectival games. Flocon's very first engraving was, he said, of 'an open hand pointing in one direction, in the palm of which an eye opens, in other words a hand that sees, the hand of the engraver'. In Rheinberger's interpretation, it was that engraver's hand—present in so many of Flocon's prints—that drew Bachelard to him, because it was emblematic of the reflexivity that Bachelard demanded of work in the philosophy of science. Flocon and Bachelard both contributed to a 1949 compilation *À la gloire de la main*, after which they collaborated on two books, *Paysages* (Landscapes), 1950, and *Châteaux en Espagne* (Castles in the Air), 1957. Bachelard also wrote the preface to Flocon's 1952 *Traité du burin*.

Flocon described his contributions to *Paysages* as prints on the theme of metamorphosis, inspired by Bachelard's mid-period psychoanalysis of the elements (fire, air, earth and water), but with those malingering images—which, for Bachelard, were a tangle of ahistorical, pernicious and non-scientific *paideuma*—remade as artistic prompts. While praising Flocon's 'botany of the imagination'—his stock images of branches, wood, leaves, bark, flowers, grass and so on—and remarking that 'we would all profit by taking a census of this private herbarium in the depths of our unconscious', Bachelard's contribution to *Paysages* was largely concerned with the 'engraver's landscape' and the ways in which it differed from those of the poet and the philosopher.

If the poet's landscape is a state of mind, the engraver's landscape is a disposition or outburst of will, an activity that is impatient to come to grips with the world. The engraver sets a world in motion, stirring up the forces that fill and swell form, provoking the forces that lie dormant in a flat universe. This sculptor of the blank page, then, is in many respects the antithesis of the philosopher. The philosopher's landscape, the landscape of thought, is flat—systematically, sometimes gloriously so.

Yet, for Rheinberger, Bachelard's philosophy of work can be rediscovered in—perhaps even redeemed by—the reflections in *Paysages* and *Châteaux en Espagne* on the vocational archetype of the engraver with his synecdochic hands.

In order to make this argument, Rheinberger must disregard Bachelard's own insistence on maintaining a strict division between his work on science, which has a history, and his work on literature and art, which, properly speaking, do not. *La poétique de l'espace* (*The Poetics of Space*, 1957) opened with its author gazing into just such a chasm:

A philosopher who has evolved his entire thinking from the fundamental themes of the philosophy of science, and followed the main line of the active, growing rationalism of contemporary science as closely as he could, must forget his learning and break with all his habits of philosophical research, if he wants to study the problems posed by the poetic imagination. For here the cultural past doesn't count . . . Whereas philosophical reflection applied to scientific thinking elaborated over a long period of time requires any new idea to become integrated in a body of tested ideas, the philosophy of poetry must acknowledge that the poetic act has no past, at least no recent past, in which its preparation and appearance could be followed.

The text of *Châteaux en Espagne* could, perhaps, be read as a vindication of Rheinberger's approach. 'Flocon is the engraver of the *space-time of the project*', Bachelard proclaimed, describing Flocon's prints, with their 'abstract-concrete' style, as 'illustrated philosophy', modelling 'a *present-future* temporal contraction'—a projection 'extending from the quarry to the distant vision'. Yet the analogies drawn in *Châteaux en Espagne* could just as easily be attributed to the excesses of Bachelard's prose style, and this short text thus considered as an exception, oddity or lapse, akin to the famous moment in his *Lautréamont* (1939) when, in the process of arguing that literary biographers are unable to explain works of literature that 'tear away from ordinary existence', Bachelard claimed that such works 'must be understood within their own system as non-Euclidean geometry is understood within its own axiomatics', thus apparently contradicting the epistemology espoused in *La philosophie du non* (*The Philosophy of No*)—or, at least, the singularity of the scientist's 'no' ('non-Lavoisian Chemistry', 'Non-analytics'; 'Non-Aristotelian Logic' and so on).

Against what he has elsewhere argued is an overemphasis on Bachelard's demarcation of the scientific from the non-scientific—a mistake he feels has distorted Bachelard's reception, and for which he blames the sociology of science and technology (David Bloor's strong programme as much as the work of Bruno Latour)—Rheinberger views Bachelard's work as an internally consistent philosophical edifice, with the notion of the 'phénoménotechnique' as its through-line, connecting the early epistemology to the late, the works on the philosophy of science to those on literature and art. This argument remains implicit in *Le graveur et le philosophe*, which gestures toward a rapprochement between the history of art and the history of science, but refuses to make bold claims of the sort that Lorraine Daston, Rheinberger's former colleague at the Max Planck Institute for the History of Science, did in *Objectivity*, coauthored with Peter Galison. They tracked the historical construction of objectivity—'blind sight, seeing without interference, interpretation or intelligence'—from the mid-nineteenth century onwards by analysing the images in scientific atlases, including intaglio prints, engravings and photographs. Along the way, Daston and Galison showed that the history of objectivity was bound to a parallel history, the cultivation and disciplining of a new scientific self, and to the making of new epistemic virtues, techniques of representation and ways of seeing.

If *Toward a History of Epistemic Things* was too much troubled by historiography—in that early attempt at historical epistemology, unable to bring the two terms together into a unified method, Rheinberger divided his chapters between the historical and the philosophical, giving each markedly different narrative styles—*Le graveur et le philosophe* is too little concerned with what kind of history it has to offer and on what narrative scale. There is little radiation outward from the concrete, circumscribed point of departure. Instead, an abundance of possible histories and contexts of understanding—the avant-garde art movements of the twentieth century; the experiences of war, of exile, of life in the salons and ateliers of postwar Paris; the use of the history of art as a trope in the post-positivist history of science (see Feyerabend—or even Kuhn); the reassessment of Bachelard's epistemology—are compressed into details and proper names, with the work of allegory or extrapolation often left undone. Of the possibilities suggested by the book's preface, the promise kept is that of homage to its protagonists—or, perhaps, a sketch of three routes to the Montagne Sainte-Geneviève, if thankfully not to the Panthéon itself.