In this contribution, I would like to elaborate on some aspects of the work that resulted from the encounter of the copper engraver Albert Flocon with the philosopher of science Gaston Bachelard. The two met each other in the art circles of Paris they both frequented after World War II. In the decade that followed, they collaborated in the production of a number of artistic books, to which Flocon contributed the engravings which Bachelard accompanied or introduced by shorter or longer texts. The present text revolves around a single copper engraving. The engraving opens a cycle comprising fifteen large-format coppers engraved by Flocon complemented by “stories” by Bachelard. The cassette was printed in two hundred copies in 1957 under the title *Châteaux en Espagne* and distributed among the members of the Cercle Grolier, a group of “friends of the book.” Bachelard understood his texts as stories of a particular kind. His remarks, as well as Flocon’s engravings, can be regarded as experiments in imagination. And as such, they share a characteristic feature of experimentation: a fundamental dialectic between abstraction and concretion. This motif is the topic and leitmotif that runs through the present paper.

“THE SPACE-TIME OF THE PROJECT”

Bachelard has the following to say on the time of the gestation of this book: “How many stories did I tell to myself during this long winter, when Albert Flocon
brought to me, week after week, the loose sheets of this album!” As testified by the signature dates of many of these coppers, Flocon had engraved them in the course of the years between 1952 and 1956. Now he put his cloud-castles together, presented them to Bachelard one after the other, who provided them with a brief or more extensive text, and the printed book was finally delivered to its subscribers early in 1958. As already on the occasion of the publication of *Paysages*, their first big common artistic publication endeavor dating from 1950, Bachelard again refers to a peculiar space of resonance in which the philosopher and the artist did not seek a common understanding discursively, but rather indulged in each other’s images and texts in a sort of tacit complicity. Indeed, according to Bachelard “Flocon never explained to me what he wanted to make. From him to me, there was no discourse.”

The stories mentioned in the quote above were the ones Bachelard had told himself in front of the images. In turn, Flocon had created his castles in the air stimulated by the rêveries that Bachelard published on the “elements” of fire, air, earth and water in a series of books between the late 1930s and the late 1940s, which had prompted the artist to get in touch with the philosopher.

From the very beginning of his introduction to the volume, Bachelard spells out what fascinates him with these images: “I love the engraving for the engraving’s sake, the autonomous engraving, the engraving that originally illustrates nothing and which I, in my philosophical musings, call the auto-eidetic engraving. For me, it is the ideal of a story without words, narrative in condensed form.” It is clear that the engravings neither refer to a beyond to which they might give shape, nor do they tell a story in the sense of a report of something they refer to. They have their narrative capacity in themselves, in the multiple options to relate their elements to each other. “All ‘castles’ of Flocon glow,” Bachelard states. They shine from within. They are suggestive of their own possible continuations.

Along the same lines, Flocon once confessed: “I had always a predilection for construction sites that show buildings in the making; throughout my life […] I have built air-castles.” In this way, the movement of production in its own right, in its capriciousness, and in its autopoietic reflexivity, is foregrounded and experimentality becomes the central concern of the imagery. Bachelard summarizes the basic idea of the series as follows: “Flocon calls his collection: *Châteaux en Espagne*. He thus invites us to measure the distance between what one sees and what one dreams, to traverse what could be called the project-space, to live in the space-time of the project. With this formula, the inveterate philosopher that I am,
resumes Flocon’s vision: Flocon is the engraver of the space-time of the project.”

Projecting, in the strong sense of the term—not in its degenerated usage in today’s prose of scientific project application—is a form of giving way in which the path itself becomes thematic and with that, problematic. Bachelard again: “He [Flocon] loves it to catch that moment of the construction in which the construction is just about to engage with the project.”

For those familiar with the epistemological oeuvre of Bachelard, a comparison suggests itself here. In his *Nouvel esprit scientifique*, the book conceived as the manifesto of a non-Cartesian epistemology in the early 1930s, we can read the following sentences: “Above the *subject* and beyond the *object*, modern science is based on the *project*. In scientific thought the subject’s meditation upon the object always takes the form of a project.” The project thus defines a space in-between, a space populated by instruments through which the subject’s meditation becomes a veritable mediation. The point is elaborated a couple of pages further on: “A truly scientific phenomenology is therefore essentially a phenomeno-technology [phénoménotechnique]. Its purpose is to amplify what is revealed beyond appearance. It takes its instruction from construction.” In other words, technique and phenomenon are mutually shaping each other in the process. According to Bachelard, the project also characterizes the very gesture of the modern experimental sciences. Likewise, the tentative, the reaching out by groping, as Sandra Pravica has beautifully put it, is also the founding gesture of Bachelard’s own philosophy of science. It is this very gesture that opens a new space for the game of abstraction and concretion and with that, throws light on the scientific as well as the artistic production process. Last but not least, it elucidates a philosophy of science conceived of as a non-Cartesian epistemology. The phenomenological here has to be taken in its own exposition, neither as a symptom of, nor as a veiling of an essence. The point is no longer to seek behind the appearances for hidden depths. Everything depends on what lies in plain sight and in between, not what is hidden beneath. Thus Bachelard comments on Flocon’s engravings: “The secret of the richness of the narrative that is enclosed in each of these plates lies in the fact that our engraver is a master of simplicity. If behind a bustle of contours and shades one would have to search for a hidden value, if one would have to dig in order to find, then one could take this as an explanation for the possibility of different and changing interpretations. One could be proud to detect some hidden meaning.”

But this is not the point here. The possibility space of these engravings is not vertically, but horizontally organized. Consequently, Bachelard continues: “Here, everything is simple, everything is plain, everything is engraved. Flocon instinc-
tively commands the fantastic *plurality of the simple.*”

**LA BOUTEILLE: THE FIGURATIVE AND THE NON-FIGURATIVE**

It is now time to have a closer look at one of these copper engravings. Let us concentrate on the first, page-filling Spanish castle of the collection. The index lists it under the title of *La bouteille,* and Bachelard characterizes his remarks as a “philosophical narrative of the bottle.” Further on in the text that accompanies this gravure, he addresses it as a “cosmic bottle,” and indeed, something solemn, if not sublime, appears to surround this vessel. However, to read the picture in a simple symbolical fashion, for example, the church as the figment of an imagination led astray by obscuring powers—would carry us completely on the wrong track. A flat reading is required, not one leading into symbolical depths.

Geometrically, the image is dominated by the austerity of the vertical and the horizontal. Before a low horizon, the curling waves of a moving sea spread out. On the shore in the foreground to the right, a structure strains upwards that is wrapped in the contours of a bottle and appears to soak up the sand that the waters have washed up on the beach. In the foreground of the picture to the left, this upward movement is taken up once more and transposed in a more abstract form. A further leftover of the sea deposited on the shore, a seashell, serves as an ashtray for a cigarette that glows away next to an extinct match and a stubbed-out butt, and whose thin smoke trail moves in parallel to the bottle, straight up, where it finally tilts, separates into different strands, mixes with the clouds, and disappears behind the bottleneck. A drinking vessel finds its place between the seashell and the bottle. On the image, however, no smoker and no drinker are to be seen. The engraver has simultaneously put himself into the picture and erased himself from it via these props of meditativeness. The cloud-castle thus appears fully present as the product of the engraver’s working table and yet as evanescent as the gracefully rising swath of smoke, as haphazard as a bottle post.

Bachelard muses: “Such engravings can perfectly invoke the polemic between the figurative and the non-figurative. If I were allowed to continue in my philosophical language: I would designate such an engraving as abstract-concrete. I connect it to all that I love of the world, the abstract thinking that guides the concrete creation. Let us try to capture in it that unity of the abstract and the concrete at work, that embodiment of the thinking human in a resilient nature, that synthesis of the figurative and the non-figurative.” And he goes on: “Flocon’s prints do not
copy anything; they do not accept the slavery of a figurative art. But conversely, and without contenting himself with a non-figurative art, Flocon visualizes all the irrealities that transcend the real.\footnote{9}

This bottle thus packs a punch. Let us first have a closer look at its contours. Its two halves form a strong contrast that takes up the game of horizontality and verticality and reinforces it with the opposition between bright and dark, of day and night, of light and shadow. Surprisingly, the somber part is directed toward the sea, the blazing one toward land. Again and again in this image, we find such unfamiliar and dazzling reversals of conventions. Towards the spectator, the bottle opens and articulates its interior as a lofty gothic cathedral. Its needle-pointed middle tower juts out of the bottleneck, breaking through the image margin. A host of roof workers appears to drive it into the sky. The choir is filled with a radiating statue of a madonna that rises out of a slipstream of little human figures worshipping her and forming her socle at the same time. As soon as the spectator concentrates on the cathedral that delineates itself in the contours of the bottle, the latter appears as “slit open,” as a “provisional scaffold,”\footnote{20} that is in the process of becoming superfluous and of detaching itself like a skin from the building—the frame of a construction site. Its label as well appears to peel from the glass, as if it had lost its readability and with that, its function, in the shining rays cast by the sun on the bottleneck, from where they reflect in all directions. To quote Bachelard on Flocon’s airy castle once again: “Right from the first engraving—the bottle in front of the sea—one experiences these transactions between the function of the real and the irreal, transactions that make up the life of the imagination. As soon as the artist has entered this zone of transaction in which the irreal unsettles the real and the real beguiles the fantastic, it appears as if one could assign the task of creating images to the objects themselves, trusting that the images, in the mode of a rêverie, take possession of the objects, play around the things.”\footnote{21}

With that description, Bachelard captures a basic dimension of Flocon’s work in a precise and pointed manner: It is a sort of leftover of the objects. And although Flocon barely leaves the frame of the figurative, he treats things in such a transfiguring manner that, in the end, it is the power of imagination itself that comes into its own exactly through that excessive precision of the elements that almost invites touching them. There is no representation here, but manifestation, a projection of worlds, and with that, the process of projecting reflexively manifests itself at the same time. And yet, the way in which such heightened awareness is provoked is in itself utterly rare. “Yes, indeed, engraving, and in particular copper
engraving, is an extremely abstract technique,” Flocon once remarked in a conversation with the French writer Gil Jouanard, and he carried the argument to extremes in claiming that the only thing the engraver could have recourse to finally was abstraction. Thus, these coppers contradict the function of the technique of copper engraving in the pre-photographic and pre-lithographic age, when it was primarily used for reproduction.

**LE RATIONALISME APPLIQUÉ: THE ABSTRACT AND THE CONCRETE**

Flocon also called Bachelard “the man of the abstract-concrete,” capturing an essential point in Bachelard’s thought, in particular his vision of the contemporary sciences: In his epistemological oeuvre, Bachelard emphasizes the un-eidetic, mathematical apparatus of modern physics, and at the same time its connection with very concrete phenomeno-technical contraptions. As a consequence, it does not come as a surprise when Bachelard, in *Le Rationalisme appliqué*, one of his epistemological books he was writing at the time of his encounter with Flocon, explicitly characterizes the physics of his time as an “abstract-concrete mentality” that realizes itself in a permanent “reciprocal action of abstraction and concretion.”

These attributions are not meant to be states of mind or states of the matter. Rather, they must be understood as process categories that characterize the activities within a “field of thought” that emerged, as Bachelard put it, from the “conjunction” of mathematics and experiment: “No empty rationality, no incoherent empirism—these two philosophical promises are at the bottom of the tight and precise synthesis of theory and experience in contemporary physics.” And Bachelard returns to his earlier remarks on the relation between subject and object in his *New Scientific Spirit* of 1934 when he now states: “It is no longer a question of confronting a lonely spirit with an indifferent universe. From now on, one must act out of that center in which the knowing mind is determined by the respective object of his knowledge, and from where the former in return directs experimentation with even greater precision.”

Bachelard’s German contemporary Ernst Cassirer once quoted Werner Heisenberg to make the same point about this intimate connection in modern physics. “The modern theories,” according to Heisenberg, “did not issue from revolutionary ideas that would have been brought into the exact natural sciences from the outside. [...] The change in the foundations of exact natural science as it happened in modern physics has been compelled step by step through experimental investigations.”
What Bachelard chiastically calls “applied rationalism” and “instructed materialism” form the two inseparable sides of the same coin. 29 “We thus see that we can best assure ourselves of the rational properties of a technical materialism, and reciprocally, the real properties of an applied rationalism, if we bring reason and scientific object systematically into a dialectical relation with each other.” 30 For the scientist this means: “When it comes to assure oneself of an object of scientific knowledge, one can no longer entrust oneself to the immediacy of a non-ego opposing an ego. [...] The rationalist cogito [...] has to function like an emergence out of a more or less empirically corroborated existence.” 31

According to Bachelard, an epistemological reflection on the dynamics of the sciences must not eschew that dialectic; on the contrary, it must endorse it. Consequently, Bachelard sees his own philosophy of science as a “philosophy at work” [une philosophie au travail], and he contrasts it with what he criticizes as the “philosophies of summary” [philosophies de résumé] of his predecessors and contemporaries in philosophy of science. 32 And he does not exempt the historians of science from this critique, reproaching them to shy away all too often from a reconstruction of the obscure situations in the course of knowledge acquisition, those situations in which the abstract and the concrete, concept and object have not yet found—or have momentarily lost—their recursive connection. In contrast, Bachelard claims to proceed as process-oriented and tentative at the level of epistemology, as he perceives the sciences to do in their own work. In his view, this is what any epistemology should take as its starting point. From here, his epistemology takes its peculiar historical shade. “Epistemology has thus to be as mobile as science itself.” 33 If, for the physical sciences this means that “each new experiment exposes [...] the very method of experimentation to experience” 34—that is, to testing-, then it means for the epistemologist that he, “in order to understand, must participate in an emergence.” 35 In other words, no prima philosophia, no “philosophy of the beginning”, but rather a “philosophy of continuation.” 36 Like the scientist, the epistemologist has to immerse himself into a recursive process; his epistemology can no longer rest on Cartesian principles.

EXPERIMENTATION: A DIALECTICS OF NATURE AND COUNTER-NATURE

Let us go back to Flocon. We can assume that Bachelard saw Flocon’s craft of copper engraving as immersed into a phenomeno-technical process, that in some respects resonates with the scientific process of knowledge acquisition. Just as
modern physics is “no longer a science of facts, but a technology of effects,” a science that no longer summarizes itself in “description of phenomena, but rather in a production of phenomena”, the work of the engraver inscribes itself into a comparable space, the space of a “dialectics of nature and counter-nature,” of the figurative and the non-figurative, the real and the unreal, to refer back to Bachelard’s story about the bottle. This space corresponds to what Bachelard calls an “intermediary time,” a “time of the in-between.” Each of these castles invites us, as he puts it, to “live in the space-time of the project.”

Repeatedly, Bachelard comes back to this aspect of intermittency, a time disconnected from a beginning and an end, as one could put it. And it is exactly this limbo that creates the possibility of what he calls, at the level of narration, a “contingency of contemplation.” “I tell myself a different story from the one I told myself yesterday. Sincere contemplation is a capricious thing—pure caprice, in fact.” And to reverse once more the register of the crafts in the other direction, Bachelard sees the scientist in a comparable situation when faced with a complex reality. In the sciences as well, an object can “command several types of objectification, several perspectives of specification, and it can be part of different issues.”

“I loved it to push rationality to its limits,” Flocon once confessed, and he added: “Beyond that, there is still enough of a mystery.” The gesture of the experimenter cannot be better expressed than with these words. The experimenter sharpens and configures the available knowledge in such a way that it becomes possible to push beyond it. Flocon understood copper engraving as a form of experimenting. That is not to be understood just in the sense of probing, of trying out. For sure, he also played with the printing techniques and materials, and in particular has transferred worn copper plates into new contexts of printing. But here, something else is at work and at stake. What we are facing is the fundamental gesture of creating a surplus by omission, in other words, of concretion by abstraction. From the constraints of the technique, things hitherto unheard and unseen emerge. The technique does not exhaust itself in the reproduction of something given, rather it provokes potentials intrinsic to the objects with which it interacts, thus leading to something like an immanent transcendence. The experimental structure is that of a project. It is this gesture of pointing beyond, not in the sense of an overarching classificatory subsumption or generalization, not in the sense of a replacement by a mere other, but rather in the sense of a transgression through restriction, that constitutes the decisive aspect of experimentation. Here, the experiment ap-
proximates with what it means to be exemplary. An experiment is always exemplary in character. The experiment presents a peculiar kind of vicariousness. It does not just stand in for something. It points beyond itself in that it points to its own specificity. It is a hypostasis. It exposes.

Fig. 1: “La bouteille”. Copper engraving from: Gaston Bachelard and Albert Flocon, Châteaux en Espagne. Cercle Grolier, Les Amis du livre moderne, Paris 1957, plate on p. 19.
Experimenting is the craft and the art of the abstract-concrete. From this vantage point, Bachelard saw Flocon’s engravings as a relentless effort to abstract from the concrete and at the same time to concretize the abstract. Consequently, he addressed Flocon’s airy castles as “abstract-concrete plates”. Like he was interested in the “real” of the sciences [le réel scientifique] rather than in the representations that they offer, in the “real” of literature rather than in the tales that it tells, so he was interested in the “real” of Flocon’s engravings, not in their possible representations. What fascinated him was their auto-eidetic potential of iteration.
NOTES

27. Bachelard 1949, p. 4.
34. Bachelard 1949, p. 43.
35. Bachelard 1949, p. 11.
40. Bachelard and Flocon 1957, p. 12.
42. Bachelard and Flocon, p. 9.
43. Bachelard 1949, p. 53.
44. Flocon 1983, p. 64.