

What is a problematic?

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Gaston Bachelard's 1949 book, *Le Rationalisme appliqué* (RA; best translated as *Reason Applied*), is essential to an understanding of his work, and Bachelard is essential to an understanding of twentieth-century French philosophy. That this book has never been translated into English shows how little the anglophone world is yet acquainted with some key aspects of this corpus. Bachelard, like Bergson, is one of those authors that we now need to rediscover. The extract translated below addresses a central concept in his work, one that came to play an important role not only in French thought, but also in general culture: the concept of *problematic*.*

Every school pupil in France today has to learn how to 'construct her problematic' when she works on her 'dissertation' in Literature, History, Philosophy, and so on. A 'problematic' in this pedagogical sense is not simply a set of questions; it is rather the matrix or the angle from which it will become possible and even necessary to formulate a certain number of precise problems. For instance, if you pick as your essay question 'What is self-evident?' (as is perfectly possible in France), your problematic will consist in discovering the philosophical topos that the term alludes to, perhaps opposing formalist and intuitionist approaches in the philosophy of mathematics. Similarly, if you are asked, 'Does freedom mean doing whatever I like?', you could oppose individual and social concepts of freedom, or contrast the notion of pleasure with that of law, or even combine the two in a dialectical order. But the point is always to go from a rough theme or question to a precise problem, which has the form of an alternative between already elaborated or structured options.

The word is so popular that everybody has forgotten that it was invented quite recently by Bachelard in *Le Rationalisme appliqué*. This is all the more surprising in that the concept has undergone very sophisticated elaborations in subsequent philosophical history: it inspired Althusser's reading of Marx and more generally his attempt at constructing a materialist concept of scientific knowledge; it is implicitly behind Foucault's concept of *episteme* and explicitly at work in his later notion of *problematization*; and it is at the heart of Deleuze's meditations on the 'Problem-Idea' in *Difference and Repetition*. In all these cases, it is meant to open up to a different 'image' of thought, a structuralist and a materialist one.

There are three especially important points to note in this regard.

First of all, the concept of problematic initiates a critique of the subject-object relation in the explanation of thought in general and of science in particular. To think is not to try to tell the truth about any particular given objects (be these living organisms, things in motion or brains), as if there was a world out there waiting for us to lay our eyes on it; to think is to try to solve specific, singular problems. It might be worth observing that this substitution of the category of problem for that of object is something the French epistemological tradition shares with both the Popperian and the Heideggerian traditions. It accompanies what Deleuze calls in *Difference and Repetition* the critique of *representation*. Problems cannot take the form of an inquiry about the *essence* of things ('what is matter?', 'what is life?', 'what is X?'); instead they constitute that which makes it important, relevant, critical, to know about X. Bachelard thus argues that

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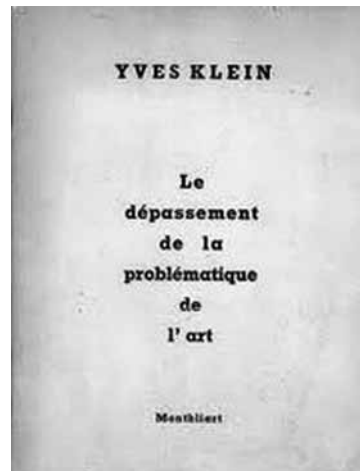
there is not, on the one hand, the world, divided into large ontic domains (matter, life, etc.), each one characterized by a certain number of properties or laws that the various disciplines (biology, sociology, etc.) would have to learn about, and on the other hand, the mind, which would try to map this reality and fill in any blanks with the right information; there are only *singular* problems which simultaneously determine the subject to think and the object to be thought: 'We must first posit the object as a subject of the problem, and the subject of the cogito as a consciousness of the problem' (RA 56).

Neither objects nor subjects, neither things nor minds, exist primarily; there are only problems, which institute the very possibility of the correlation. This clearly commits Bachelard to nothing less than an ontology of problems that has to wait for Deleuze before it finds its full elaboration. But it also gave to Althusser the means to develop a truly materialist epistemology: that is, an epistemology that approaches knowledge not in terms of how well it matches a static reality, but in terms of its actual *production*, articulated on other levels of production, such that truth serves here as an operator in a dynamic process and not as a kind of revelation or epiphany. This dynamic conception of knowledge is part of the common legacy that even Latourian science studies share with Bachelard.

The second important point worth retaining from the Bachelardian concept of problematic is that it is not only (as it might seem in the first instance) a promotion of interrogation over affirmation, as we can find in the Heideggerian hermeneutic tradition for instance. On the contrary, it is meant to oppose notions like 'wonder', 'bewilderment', 'curiosity' and 'enigma'. To think is indeed to 'problematize', but to problematize is not simply to interrogate or to refer to Being as a Question and not as an Object; it is to criticize the questions themselves. The concept of problematic is thus closely linked to the notion of 'epistemological break'. This notion has been as widely contested as it has been misunderstood. It means among other things that scientific disciplines do not answer 'ready-made' questions we encounter in the course of our ordinary practical life, and have no ground in what Husserl calls the 'lifeworld'. It is not because we always wondered about the movements of the planets that astronomy exists, but on the contrary because it neutralized these questions and replaced them with precise problems.

In the passage translated, Bachelard gives two examples: the scientific theory of the 'dew point' does not give any answer to the ordinary question of whether dew comes from *inside* or from *outside* of the

plant; it rather demonstrates that each particular level of dew is determined by a more general correlation between vapour pressure and temperature. Similarly, the question as to whether light is faster or slower in air than it is in water is simply irrelevant: none of the terms used here ('water', 'air', 'fast', 'slow') can be univocally translated in the scientific statement, because science doesn't refer to things but to parameters and

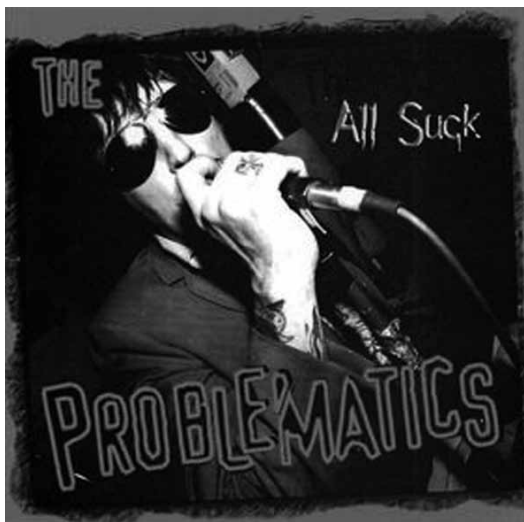


correlations. This is a very important point for it shows that Bachelard does not situate science against the background of some more fundamental questioning, as Heidegger does, but on the contrary valorizes science for the way it creates new problems and new interests. It is also important because it shows that for Bachelard every science is critical: it consists not in satisfying our curiosity, but in displacing the very questions we have. As Marx said, 'Not only in their answers but in their very questions there was a mystification' (*The German Ideology*). We can call *critical* a kind of knowledge that does not content itself with filling an already given frame with new items of information, but one that forces the frame itself to be reconfigured. Knowledge is not only an enterprise of acquisition; it is also an exercise in self-transformation. 'In self-questioning rationalism [*le rationalisme questionnant*], the bases for knowledge are themselves put to the test, and brought into question by the question' (RA 57).

We might remark, to introduce a third point, that there seems to be a contradiction between the two first ones: aren't we saying at the same time both that problems precede and determine all positive statements, and that scientific problems are constructed and depend upon already quite specific scientific theories, and only make sense within such theories? How can scientific theories be provisional solutions to problems, if problems are conditioned by scientific theories? This raises another problem. Does the notion of epistemological break mean that the scientific 'problematic'

simply has nothing to do with the world in which we live, fear, need and work, and so on, or that a scientific ‘subjectivity’ simply has nothing in common with the living person who walks out of the lab? Putting ‘Science’ in such a position of exception seems such an extreme and implausible idea that it is easily refuted by those who, like Latour, seek to study scientific *practices* and their actual production.

To answer these two questions we simply need to understand that a ‘problematic’ does not involve the substitution of one set of (bad) questions by another set of (good) problems; it is rather an operation on the very substance of our ordinary life, and an operation that is best described as a ‘structuration’. Scientific practices are indeed determined by their relation with ordinary practices, but this relation is negative (dialectical) and progressive (pragmatic). It is negative in the sense that it only consists in diverting and emptying the semantic content of the *notions* used in our ordinary intelligence of the world, intuitive notions like weight, speed, volume, and so on, through their being redefined in relation to one another. Thus, instead of having an independent concept of mass, mass is defined by its relation to speed, and therefore is diverted from the isolated meaning it has in the lived *experience* of weight. Since, conversely, the notion of speed is



redefined by the law of acceleration, it appears that the ‘scientific mind’ is characterized by the redefinition of terms through interlocking *correlations*.

Bachelard calls this process (perhaps following Cassirer’s *Substance and Function*) the ‘functionalization’ of the terms, since it replaces absolute notions with functional concepts. This is why we must not interpret what Bachelard says about the dew point as meaning that dew is investigated by the scientist only in so far as it confirms or refutes an already given scientific law. It is rather that the phenomenon itself

becomes a *variant* or a variable in the correlation between co-determined concepts. The entire world is as if folded within itself, and all dimensions of reality now refer to one another, as in a play of echoes. The problematic is not the theory itself, it is not the set of formulated *laws* held to govern any particular domain: it is the *structure* of the theory; that is, the way the different concepts are diverted from their isolated and immediate ordinary semantic sense and redefined in relation to one another.

It is important to note, however, that this process is never-ending. We don’t go from substantial terms to functional concepts at one stroke; there are degrees and levels of ‘functionalization’ of the terms we use, and no set of concepts is ever entirely functionalized. There always remains some room for what Bachelard would call (without negative overtones) ‘imaginary’ associations. This is why the relation between ordinary language experience and scientific problematization is a *progressive* one as much as it is a dialectical one. The passage translated here constantly emphasizes this element, the interesting object, for instance, being ‘an object for which the process of objectification has not been achieved’. The scientific mind is for Bachelard an ever greater effort to create within our own thought or our own language a sort of internal environment [*milieu*] (in the sense in which it is said that the organisms have both an external environment and an internal one), which consists in replacing the external relations that notions of the theory maintain with extra-theoretical entities by internal relations operating within the theory. In other words, if we problematize the world, it is neither because the world reveals itself in some enigmatic light, nor because our theories offer different alternative routes of empirical verification, but because our own thought proceeds as a process that structures a set of propositions. The structure is neither given in advance, nor constructed: it is all in the making.

We can now see how problems can have an ontological dimension for Bachelard, while being at the same time constructed: they *are* to be constructed, they are the metastable part both of mind and of reality, which will distribute the two sides of the single process-reality differently, according to its requirements. This hints towards a pragmatic ontology for which *to be* does not mean *to be finished*, but on the contrary to be *in the making*. That problems are in fact vectors of structuration, while structures are always in the making, are just some of the wider implications of Bachelard’s concept of ‘problematic’, which are only today beginning to receive their full meaning.