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Science as Thinking Reason[1]

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At the end of his 1943 essay dedicated to 'Nietzsches Wort "Gott ist tot" Heidegger says: 'The madman' that proclaims the death of God 'is the one who searches God crying out "God" loudly. A thinking creature may have really shouted here *de profundis*? And the ear of our thought? […] This cry shall not be heard until we start thinking. Thought, though, will start only when we have experienced that reason, glorified for centuries, is the staunchest adversary of thought' (Heidegger 1975-, v: 267).

What emerges from these words particularly clearly is a contraposition between thought and reason that, in different ways, characterises Heidegger's intellectual path and draws more strength after the turning taken in the years immediately following the 1927–1932 period – a period of crucial importance which saw, following one other in rapid succession, the publication of *Sein und Zeit* and *Kant und das Problem der Metaphysik* (respectively 1927 and 1929), the well known meeting in Davos with Cassirer and Carnap (1929), and the attack launched by Carnap himself on Heidegger's philosophy in the essay 'Überwindung der Metaphysik durch logische Analyse der Sprache' (1932). This contraposition sees, on the one hand, a thinking thought, that seems to pertain to speculative philosophy, and, on the other, a reason that seems to exhaust the intellectual activity of science and scientific rationality confined both in the algorithmic or calculating field of formal and abstract procedures of logic, mathematics and exact disciplines in general. It is from this antithesis that Heidegger's considerations on science and technique mature as expounded in his early 1950s lessons on *Was heisst Denken?*, lessons in which we find the famous (and by some vituperated) expression that 'science does not think' (Heidegger 1975-, VIII: 9).

It was observed that, in expressing this judgement, Heidegger intended not so much to criticise science, as to indicate and delimit the field in which it consciously and methodically moves. In other words, according to the German philosopher, science posits itself the task of investigating something that it takes as an object without putting it in question as such. Physics, for example, deals on the ontic level with the

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nature of certain entities, but it does not posit the ontological question of the way of being that belongs to those entities and that has to be ascribed to them. Science, thus, does not think, because the peculiar task of thought consists rightly in going beyond the methodical procedures both of science in general and of any particular discipline in order to bring to light and question the presuppositions, generally accepted as given and unquestioned, that are at its basis.

It may be superfluous to specify that the author of this article, who had the honour to receive the award made to his Professor Giulio Preti, cannot help but to move in a horizon of ideas very different from Heidegger's. Preti's very lesson, though, invites us to assume regarding the *philosopher* Heidegger (and I underline the word 'philosopher' to indicate that I do not intend to speak about the *man* Heidegger and, even less, about the *rector* Heidegger!) a more cautious and somehow more articulated position than the one that has been generally taken, especially in Italy, both by his detractors and admirers. I certainly believe – as will be clear at the end of my short essay – that the statement that science does not think has to be contested on the basis of a more updated vision of scientific rationality and of what I would like to call from the start scientific *thought*; nonetheless, I think that such a 'scandalous' idea (as Heidegger himself [1975-, VIII: 9] qualifies it) has to be seen within a general conception in which suggestions that could be used (and will be used by others) for a very different evaluation of scientific activity were not totally absent.

In a few words, what I am trying to say is that it was Heidegger's attack on science and reason that drew like a magnet, in a virtually exclusive way, the attention of the majority of those who, in a positive or negative way, confronted themselves with his position. For this reason, before saying how and why I think that it does not render justice to science, I would like to show briefly how on these very topics Heidegger supported theses that were even more subtle and not devoid of sharp intuitions. In his texts, in fact, we find extremely interesting considerations, in which we can see surfacing a certain sensitivity toward the heated epistemological debates of the time, debates roused by the deep scientific transformations of the early 1900s. In particular, I am referring to those discussions on the philosophical implications of relativistic physics and quantum mechanics that in the early 1920s led a prominent exponent of scientific philosophy, Hans Reichenbach, to defend an epistemology that, albeit critical of Kantism and Neo-Kantism, firmly holds the idea of a constitutive a priori. This led Reichenbach to sum up the sense of the radical transformations which occurred in science with the beautifully succinct sentence: 'Philosophy is confronted with the fact that physics creates new categories which cannot be found in traditional dictionaries' (Reichenbach 1922: 34).

The above statement made by Reichenbach dates back to 1922. Five years later Heidegger published *Sein und Zeit* introducing – as is well known – the famous difference (already recalled here) between the ontological problem of Being and the ontic problems regarding the entities, and denouncing at the same time the capital mistake of traditional metaphysics and onto-theology. They had allegedly misinterpreted Being either as simple presence, or as the entity interpreted in the most general terms or as the Supreme Entity. Two years later, in 1929, with the monographic work *Kant und das Problem der Metaphysik*, Heidegger rightly started using that very thesis known as the thesis of the ontological difference between Being and entity in order to

offer a new reading of the Copernican revolution performed by Kant. Now, it is from this very reading that we can deduce how he recognises also in scientific activity the possibility to question the Being-modalities of the entities it deals with.

Let us pay close attention to the words with which, since *Sein und Zeit*, Heidegger defines the interpretative line that he will follow, in a detailed way (and not without serious contortions), in the text on Kant. '[T]he positive outcome of Kant's *Critique of Pure Reason* – he says in his '27 work – lies in what it has contributed towards the working out of what belongs to any Nature whatsoever, not in a "theory" of knowledge. His transcendental logic is an *a priori* logic for the subject-matter of that area of Being called "Nature"' (Heidegger 1962: 31). In fact, in his monographic work on Kant, he stated that Kant had the merit of understanding that 'Apparentness of beings [entities] (ontic truth) revolves around the unveiledness of the constitution of the Being of beings [entities] (ontological truth)' (Heidegger 1992: 8 ff). Kant, thus, first of all interrogated himself in a Heideggerian manner, not on the epistemological problem, in other words the problem of the possibility of knowledge, but on the ontological problem, in other words the problem of Being and the relationship of such Being with the entities although limited to the Being of the entities of nature.

I think that an author capable of translating in such a speculatively creative way into his own language Kant's transcendental epistemology must have measured himself by the idea that if science – as Reichenbach says in the abovementioned text – is capable of creating new categories that cannot be found in traditional dictionaries, and in particular in the dictionary of Kant's philosophy, this may mean – using Heidegger's terminology – that it is capable of shaping new ways of *thinking* the Being of the entities it speaks about. Undoubtedly, if we read the introductory paragraphs of *Sein und Zeit* we find a Heidegger fully intent on vindicating the absolute foundational priority of the ontological enquiry on the nature of Being in general; a priority that is claimed not only with respect to the particular scientific investigations, which, moving on the ontic level, set aside the problem of the Being of the entities they speak about and focus exclusively on properties and relationships of those entities, but also with respect to those ontological enquiries of a more specific nature (as, rightly, Kant's research in the critical period), that interrogate themselves not on the general notion of Being, but on the particular way of Being of the entities the various sciences deal with.

This vibrating vindication of such priority, though, does not make Heidegger totally deaf to what can happen in science, and what *de facto* was happening in that moment right under his eyes with the deep transformations that first of all invested physics. In *Sein und Zeit*, in fact, he shows himself well aware of how, using his own words, 'The real "movement" of the *sciences*' – and I underline the word 'sciences' – 'takes place when their basic concepts undergo a more or less radical revision which is transparent to itself. The level which a science has reached is determined by how far it is *capable* of a crisis in its basic concepts. In such immanent crises the very relationship between positively investigative inquiry and those things themselves that are under interrogation comes to a point where it begins to totter' (Heidegger 1962: 29), in other words, in the language of the ontological difference, we see surfacing the problem of the Being which is to be recognised in the entities we are dealing with.

So, if we come back to the contraposition set by Heidegger between reason and

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thought from which we started, we could very well say that for Heidegger himself, in sciences, we can see operating not only a rational procedure, or an empirical-rational one, which aims at establishing at an ontic level a complex of hypotheses and theories regarding the properties and the relations of the entities that fall under their dominion. In addition, – at least judging from some of his passages – we may also find that thought that leads us to inquire, and if it is the case, to upturn the boundaries, the modalities of Being and the ontological status of the entities the sciences deal with.

We may think, perhaps, that considerations such as those above can be found in Heidegger's work only before the turn that will lead the philosopher to underline, with growing intensity, listening to poetical language and word as a privileged answer, if not unique, to the question on Being as contrasted to the questions on entities. Some interpreters, in fact, held that from a certain point onwards Heidegger no longer resumes the 'discourse on the ontological implications of the other human activities, beyond the art, […] if not for what regards thought in its vicinity to poetry' (Vattimo 1971: 117). Unsurprisingly, in the 'Brief über den "Humanismus"' (1946–47) he cited Aristotle's statement that 'poeticising is truer than the inquiry on the entities' (Heidegger 1975-, IX: 363).

Obviously, I leave these questions to the attentive analysis of the interpreters of Heidegger's philosophy, among which I cannot be listed. Nevertheless, I would like to point out the fact that, also in the essay on 'Der Ursprung des Kunstwerkes', written in the middle of the 1930s and later on reprinted in the 1950 collection *Holzwege*, Heidegger shows that he has not abandoned the idea that in science there could be space for a genuine movement of thought. It is true that, when he speaks of truth as original openness and of its happening in man's work, he does not place science among the human activities (as the foundation of a State, religion or art) in which such an occurrence can realise itself. Moreover, if we continue in the reading a little further, Heidegger is even explicit in denying to scientific activity what he recognises in art and man's other ways of operating. Contrary to what happens in these areas, – he writes – 'science […] is not in the least an original happening of truth, but is the ongoing structuring of an already opened truth domain, and indeed a structuring realised via the understanding and founding what, in its field, appears to be as possibly and necessarily correct, exact' (Heidegger 1975-, V: 49 ff). Nevertheless, immediately after such an undoubtedly negative description, we see coming back to the fore the awareness that there are aspects of scientific ways of operating to which such characterisation cannot be applied. 'When, and to the measure to which,' Heidegger adds and concludes 'a science goes beyond exactness and comes to a truth, in other words to the essential unveiling of the Being as such, it is philosophy' (Heidegger 1975-, V: 49 ff).

Also in scientific activity we can then find space for the exercising of thought and so, in Heidegger's vision, for philosophy. Certainly, it may provoke some understandable irony such a recognition which sees science, at its highest peak, transforming itself into something different from itself. I cannot discuss here the complex relationship between science and philosophy nor the question – allowing but not conceding that it is a real question – of whether some drastic conceptual transformations that can occur, and have actually occurred, in the field of sciences should be

labelled as scientific or philosophical. What I wish to underline here, though, is that it is the very pondering on such radical changes of a categorical framework – at the centre of Reichenbach's meditation in the 1920s, but, as we saw, perceived also by Heidegger – which have led epistemology today to a conception of scientific rationality far from the vision that Heidegger mostly gives it and which we constantly find in most of his followers. In other words, the fact that in science, as it historically developed, we can find moments of thought in Heidegger's sense of the term – i.e. moments in which a certain science, or science, still Heideggerially speaking, discovers the entity as such and rethinks its own foundations – imperiously posited the question whether scientific rationality can be still identified with a reason confined to the automatic application of abstract rules univocally determined and formally specifiable.

Although, today, many think that the contrast between revolutionary science and normal science is not as sharp as presented by Thomas Kuhn, it still remains true that it was mainly the inquiry into the structure of scientific revolutions that led epistemologists to rethink the traditional vision of scientific rationality. The reflection on the changing of the paradigms (in the sense of disciplinary matrices) that would occur in the so-called 'revolutionary' phases, led to the birth of an 'open texture' conception of such rationality, so to speak, a conception that no longer exhausts it – as Heidegger does when he contrasts it to thought – in logical and algorithmic procedures and not even, more generally, in a rationality of a *criterial* kind, in other words based on the use of concepts deemed as clearly definable and delimitable in their applications. Rationality, far from being only conformity to rules that can be more or less fully formulated, realises itself also via the activities of judgement and deliberation, in other words via a process that is not led by principles of a general nature and whose end results are not the result of a way of reasoning of an exclusively 'calculating' nature. A consistent portion of our evaluations and rational decisions is carried out not via the 'dispute', but via the critical-rational discussion that depends on the application of peculiar discursive procedures that stretch from those studied by Aristotle when he speaks of wisdom to the systematic utilisation of metaphors and analogies, from the denouncing of performative contradictions to the case judgements present in many parts of the judiciary field, clinical medicine and art criticism (from the literary to the musical and figurative). There is, to sum up, a rationality that proceeds with modalities different from those that Kant ascribed to the determinant judgement, but that remains, nevertheless, a form of rationality (see Parrini 1998: 171–187).

Can such an expansion of the concept of reason be considered as some sort of 'getting closer' of contemporary philosophy of science perspectives to some instances of Heidegger's ontological-hermeneutical vision? In some respects undoubtedly so, but in others we must not forget – as one of the most perspicacious American interpreters of the German philosopher observed – that the method by which, since *Sein und Zeit*, Heidegger aimed to the understanding of the Being of the entities intends to posit itself as 'an alternative to the tradition of critical reflection in that it seeks to point out and describe our understanding' of Being 'from within that understanding without attempting to make our grasp of entities theoretically clear' (Dreyfus 1991: 4). Whereas those instances of clarity and intersubjectivity remain

an ideal prerequisite of primary importance also within the 'broader' conception of rationality that emerges from modern epistemological reflection.

In all cases, when confronting a concept of rationality that has become so broad, 'mobile' and 'open', we must at least recognise that it seems difficult to continue contrasting science and philosophy, reason and thought, in such drastic terms as the ones most frequently used by Heidegger and all the more difficult to delimit or relegate science to the kingdom of non thought. In spite of Heidegger's formulations that move in this direction (and without taking anything away from the importance of Heidegger in twentieth century philosophy), it seems more opportune to recognise that science is not calculating reason, but also, and mainly, thinking reason.

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Note

1. *Lectio Magistralis* held in Florence, on 15th November 2008, in the Sala Gonfalone of the Consiglio Regionale della Toscana, on the occasion of the assigning of the 2008 Giulio Preti Prize. The Italian version, 'La scienza come ragione pensante', is published in the volume *Pianeta Galileo 2008*, ed. by A. Peruzzi, Centro Stampa del Consiglio Regionale della Toscana, Firenze, 2009, pp. 235–242.

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