

# Alexandre Koyré and his method

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Although the pages by Alexandre Vladimirovich Koyré (Taganrog 1892-Paris 1964) presented in this issue of “Philing” contain, in an embryonic form, methodological outlines and principles associated with the later works which established his international reputation (Koyré 1957; 1961; 1966; 1968, etc.), they have never been translated into English; even in French, they were only published posthumously (EHPS 1966) and partially, up to 1984.<sup>1</sup> However, they have often been quoted over the past fifty years since the author’s death.

The original source for these pages is a *leaflet* that Koyré published at his own expense in 1951 for his application to Collège de France. As such, it was only intended for the forty-odd professors (scientists and humanities scholars) who were members of the institution at that time. It thus falls within the *presse grise*, as opposed to the literary works that the author published for his readers, including – from the 1940s – not just specialists but also general readers and ones interested in politics. Besides, this text dating from 1951 has exercised a significant (if unhappy) influence and the episode had a negative impact on Koyré’s career and private life, as did the earlier refusal to grant him a doctoral degree in 1912 after four years of study at Göttingen University.

I will briefly sum up the latter mentioned event: for while it is a remote one compared to the curriculum and research programme translated here (it occurred forty years earlier!), it presents a certain degree of continuity with the negative reactions that Koyré displayed towards anti-Positivism and neo-Kantianism from the time of his arrival in Germany. In this respect, he appreciated Husserl, who should have been his *Doktorvater*; later, however, he refused to talk about him and about this episode, fearing perhaps that he might betray his resentment. But in actual fact, what Koyré harboured was

<sup>1</sup> These pages were later completed by Redondi 2016: 186-191. The original edition of the leaflet had a half-title page: *Titres et travaux*, and also included a few biographical details; copies of it are preserved at the Centre A. Koyré (henceforth, CAK) and in the BNF (Kojève bequest). I thank Donato Verardi Ph.D. for having obtained a copy for me from the BNF.

not resentment, as much as an enduring interest and understanding – to the point that later he played a central role in the debate between Thomists and Phenomenologists at Juvisy (1932), repeatedly visited Husserl, and promoted his invitation to Paris.

Koyré had arrived in Göttingen just after the so-called ‘Munich Phenomenologists’ at the beginning of their debate with the ‘idealist’ (i.e. no longer Platonist and ‘realist’) Husserl (Lavigne 2005; Tedeschini 2014). The young Koyré showed great interest in this theoretical engagement, embracing the positions of Adolf Reinach and Theodor Hans Conrad (while proving especially keen on Max Scheler). Yet he became the most oft-cited victim of this internal conflict between Phenomenologists (realists and idealists). He failed to earn his Ph.D., even though he was a brilliant student, because Husserl rejected his thesis. Having found in Koyré a student proficient in mathematics and its principles, the *privat Dozent* organising all the teaching, Adolf Reinach, had rashly advised him to write about a problem that was destined to lead him into trouble. The topic could hardly have been a welcome one to Husserl, since it took up the criticisms directed against his *Philosophie der Arithmetik* (Husserl 1891) in a harsh review published by none other than Gottlob Frege (Frege 1894). After turning from mathematics to philosophy, Koyré was forced to leave Göttingen (Schuhmann 1984; Parker 2017), as Husserl refused to grant him a Ph.D.

As a student in Paris, Koyré followed Victor Delbos, André Lalande, Léon Brunschvicg and especially Lucien Lévy-Bruhl (the last three signed his *diplôme en philosophie* in 1913). In the aftermath of World War I, in 1920, he returned to Paris and soon started working on two dissertations on topics suggested by the medieval scholar François Picavet, under whom he had begun studying Anselm of Aosta already before the War. He met Etienne Gilson, who had also had Picavet as his supervisor. Some of Koyré’s early texts betray the latter’s influence (even though he does not mention Picavet in his *curriculum vitae*). In the context of Koyré’s academic career, it is difficult to see Picavet as a father figure or master; however, Gilson may be regarded as an elder brother to the exiled Koyré. It was Gilson who introduced him to Meyerson, possibly in the hope that the latter might provide some material assistance. This encounter led to a rich scholarly exchange, as Koyré himself stated in 1961:

I was personally very indebted to Meyerson: it was through his influence, perhaps, that I turned, or returned, from the history of philosophical thought to the history of scientific thought.

From the point of view of their careers, but especially intellectual point of view, both Gilson (cf. Zambelli 2016: 102n26) and Koyré looked to Lucien Lévy-Bruhl, Professor of Modern Philosophy at the Sorbonne. To put it briefly,

it was he who inspired Koyré to take an interest in the development and endurance of ‘collective mentalities’ (this being the theme of Lévy-Bruhl’s 1922 book), later to become predominant, especially in relation to scientific paradigms. Koyré filtered Lévy-Bruhl’s influence through the lenses of Husserl as well as Dilthey<sup>2</sup> (despite the fact that in German universities the two were seen to embody very distinct positions). As we shall see, one of Koyré’s French editors and one of the presenters to the voters of the Collège in 1951, the great historian Lucien Febvre, had also been influenced by Lévy-Bruhl: in his personal studies, as well in his running of the ‘Annales’ and of the 6ème Section of the École Pratique des Hautes Études (EPHE), Febvre acknowledged the prominent role played by Lévy-Bruhl as an historian, sociologist and public figure.

Koyré was ready to take in and absorb these ideas on ‘collective mentalities’ precisely because he had been a friend of Scheler’s and had been a member of his audience: in Göttingen the latter had developed his *Erkenntnis und Arbeit* by presenting an outline of his debate with the Pragmatists (Scheler 1926; Scheler 1960) to the students of the *Philosophische Gesellschaft*.

After some challenging experiences during the First World War, Koyré was appointed temporary lecturer (from 1923 to 1930) for the courses on ‘speculative mysticism in Germany’. After discussing his *thèse d’état* on Boehme (Koyré 1929), in 1930-31 he received an appointment from the University of Montpellier. Immediately afterwards, he was summoned to the capital as *directeur d’études* for the course on the ‘History of religions in the modern age’ at the 5ème Section of the EPHE. He was to resume this teaching upon his return from New York in April 1945 (it remained his chair until his death).

As Koyré himself wrote in a letter to Roman Jakobson, in America he engaged in “five years of propaganda” for *France libre*. During these years in exile he was unable to embark on any new and challenging research, or even to plan it. He did, however, circulate a few pages of his *Études galiléennes* (Koyré 1939-1940) and his *Introduction à Platon* (Koyré 1945), which he had written and first presented during his flight to the Middle East in 1940-41, and used for his courses in New York in 1943-44. This short work offered an adequate interpretation of the dialectic and political theory of the great philosopher, but it was chiefly meant as a propaganda tool against the Nazi invaders in France – against their ideology, principles, and politics. This and other writings from the period of Koyré’s exile were well received by British readers. In the aftermath of World War II, he was among the first European scholars to be invited to the United States.

<sup>2</sup> See Koyré 1932: 490: “possibilités, attitudes et structure de l’âme plutôt que de l’esprit”; “structure mentale de l’époque”. See also Koyré 1930.

*Research Orientation* is a short methodological manifesto written for a high-brow readership, and it foreshadows *From the Closed World to Infinite Universe* (Baltimore, Johns Hopkins UP 1957). It is worth noting that in 1951 it not only focused on cosmology from Nicholas of Cusa to Bruno, as the later highly successful book was to do, but also announced the author's subsequent research on Newton, which is to say the essays that came to be collected in a posthumous volume (Koyré 1966) and the edition that he gradually produced in collaboration with an American pupil of his.

It must also be noted, however, that only a few years after the manifesto was written and submitted for the author's candidature at the Collège, Koyré held some courses in Baltimore in which he further built upon this masterpiece.

For Koyré – as he himself stated on repeated occasions – only in the 20th century, after the theory of relativity and quantum theory had revolutionised cosmological conception was it be possible to grasp the full import of the Newtonian system.

As we ourselves have undergone two or three profound crises in our way of thinking – the crisis in the foundations of mathematics and the 'eclipsing' of mathematical 'absolutes', the relativist revolution, and the quantum revolution – we have experienced the destruction of our long-standing ideas and have made an effort to adapt to new ideas. (Redondi 2016<sup>2</sup>: 189-190)

With regard to Newton, Koyré stated:

we have all, or nearly all, accepted the idea of the Newtonian world machine as the expression of the true picture of the universe and the embodiment of scientific truth – this because for more than two hundred years such has been the common creed, the *communis opinio*, of modern science and of enlightened mankind. (Koyré 1965: 4)

This definition is a recurrent one in Koyré's published works and notes.

As late as 1948, in some essays published in "Critique" in the post-war period and then brought together in EHPP that lay the foundations for his candidature at the Collège, Koyré took up the formula he had outlined in 1922:

even though I had proven [...] that the development of thought has been influenced, and not hindered, by that of philosophy (EHPP: 235); the real problem for the Aristotelian conception lies in the need to set geometry within a non-Euclidean universe, within a metaphysically curved and physically differentiated space (EHPP: 238); this revolution, which has replaced the qualitative world of common sense and of everyday life with the Archimedean world of reified geometry, cannot be explained by the influence of a richer or broader experience than that which the Ancients – Aristotle – had at their disposal. Indeed, as P. Tannery already showed a long time ago, insofar as it

was founded on sense-perception and was truly empirical, it agreed with common *experience* as much as with that of Galileo and Descartes. (EHPP: 238)

In regard to this, and within this context (EHPP: 239), Koyré mentions the title of a book of the History of Ideas Club, *The Breaking of the Circle* (see Nicholson, 1950), which he acknowledges to have inspired his most famous work (Koyré 1957). Here he argues that Newton was the heir and highest expression of the scientific revolution. The defining features of this movement are

to abolish the world of the “more or less,” the world of qualities and sense perception, the world of appreciation of our daily life, and to replace it by the (Archimedean) universe of precision, of exact measures, of strict determination. (Koyré 1965: 5)

For this reason in his programme for the Collège Koyré promised to devote considerable space to contemporary issues. In the light of these – he argued – his teaching would allow students to better grasp the turnabouts and errors made by scientists of the past.

Koyré’s observations on the great 20<sup>th</sup>-century historians of science are well-known. Foremost among these was Pierre Duhem, “to whom we owe the re-discovery of medieval science [...] the starting point for all modern research” (EHPS 1966: 88). Koyré did not share Duhem’s theses, yet made ample use of his rich research data. He was happy to engage with other historians of science as well: some he listed in *Research Orientation*, while others (Thorndike, Crombie, Anneliese Maier, Guerlac) he made the focus of review articles or minute discussions. Most notably, Koyré was keen to enunciate and compare his own method, when debating with epistemologists and scientists.

This occurred in 1954, when Koyré engaged in discussion with Philip Frank, who at Harvard represented the Vienna circle in its most refined and up-to-date form. Einstein had chosen Frank as his successor at Prague. In this discussion in Boston, and often elsewhere, Koyré contended that the Newtonian conception could better be understood by those familiar with relativity and quantum field theory. In this 1954 discussion, he enunciated the principles of his method as follows:

The history of scientific thought teaches us (or so I would argue):

1. that scientific thought has never truly been separate from philosophical thought;
2. that the great scientific revolutions have always been brought about by upheavals or changes in philosophical conceptions;
3. that scientific thought – I am talking about the physical sciences – does not develop in a vacuum, but always exists within the framework of ideas, fundamental principles and axiomatic proofs which are usually considered to properly belong to philosophy. (Redondi 2016: 189; cf. EHPP 1961: 234).

Koyré bore this views and methodological theses in mind already in his first works.<sup>3</sup> As early as August 1920, in his unpublished *Essai de critique sur la relativité*, he made an interesting methodological observation regarding what today we would call ‘paradigms’. Koyré here already emphasised the possible connection between metaphysics and science:

The inertia of intellectual habits certainly plays a significant role in the history of science. Yet Einstein is wrong to accuse of this all those who do not wish to follow him into the domain of metaphysics – it seems to us that he himself, for all his apparent radicalism, offers a striking example of this [...] I am fully aware of the fact that most scientists accept all of Einstein’s theories, without distinguishing the scientific elements from the metaphysical ones, but the metaphysical theories of great scientists must very often be approached with caution. (Zambelli 2016: 110-112 and 112n7)

Koyré, therefore, began focusing on this issue early on, speaking of the metaphysical prejudices of learned men and of conceptions that were universally accepted on the basis of previous discoveries (conceptions that Kuhn was to call ‘paradigms’), and which only a ‘scientific revolution’ (i.e. the emergence of a contrary and original project/conception/experience) could undermine:

for the physicist the notions of absolute time and simultaneity are merely old metaphysical prejudices which we need to get rid of as quickly as possible. They only owe their existence to the inertia of human thought, they cannot be experimentally confirmed, and hence they do not exist at all for the physicist. Only the time of experience, ‘relative’ time, has any real value and existence. (Zambelli 2016: 113)<sup>4</sup>

<sup>3</sup> Unpublished ms. from the CAK which was submitted to the editor-in-chief of the *Revue de métaphysique et de morale*, Xavier Léon. The latter refused to publish it, probably because Koyré’s calculations did not agree with the 1915 version of the theory of relativity.

<sup>4</sup> The young author carefully followed Einstein’s variations and self-criticism, as presented in texts published during the Great War (he mentions, for instance, the *Grundlagen des allgemeinen Relativitätsprinzips* of 1919). Koyré announced that he was working on a book on Minkowski and his views on relativity. He compared Minkowski to Henry Bergson: “Nous nous bornerons à signaler la concordance de cette ‘spatialisation’ du temps avec les idées de M. Bergson. Minkowski avait pleinement conscience de faire œuvre non seulement mathématique, mais nettement métaphysique. Malheureusement, nous semble-t-il, il ne s’est pas compris lui-même. [...] Dans sa théorie générale de relativité Einstein abandonne le principe de la constance de la vitesse de la lumière, mais comme il le remplace par une autre constance, nos développements n’en sont nullement invalidés. [...] Einstein arrive aux conclusions semblables en partant de l’analyse logique du principe de relativité de la mécanique newtonienne. Le mouvement absolu des corps ne joue aucun rôle dans la mécanique newtonienne, c’est-à-dire, les phénomènes mécaniques se passent exactement de la même manière dans les systèmes en repos ou animés de mouvement rectiligne et uniforme. Nous n’avons aucun moyen de déterminer si un corps ou – ce qui veut dire au point de vue mathématique exactement la même chose – si un système de coordonnées, est en repos ou en mouvement” (text published in Zambelli 2016: 113).

As early as 1920 Koyré thus viewed scientific theories within the context of “general questions”, which is to say as falling within the framework of shared metaphysical convictions and collective scientific mentalities. This thesis about the inertia of intellectual ‘habits’ – developed by a young scholar who had been kicked out of Göttingen and had earned a modest *diplôme* in Paris – stood out for its originality.

In the immediate aftermath of World War II, Koyré visited New York (Columbia and the New School for Social Research), along with several institutions belonging to the University of Chicago, and later Yale (Woodward Lectures, November 1950) and Buffalo (Rosswell Park Lectures). Initially in America he had been encouraged to speak not as a historian of science, but rather as a historian of alternative religious thought or as a scholar of contemporary philosophy. He officially made his first visit (1946) to hold a course at the New School and to give a lecture on Jan Hus at Columbia. By popular request, these lectures were followed by one or more lessons on Existentialism, Heidegger and Sartre. Koyré’s notes on *L’être et le néant* have been preserved on sheets bearing the letterhead of the New School. They were jotted down in New York, because in Paris Koyré had been unable to find a copy of this book by Sartre, which had run out and was only for sale on the black market. But before leaving Paris, he had been persuaded to write – or rather pressured into writing – various essays on Existentialism. A very challenging one on Heidegger’s language had been published in “Critique”, the new journal founded by Bataille.

Evidently, however, in Paris Koyré sought to establish himself as a historian of science and especially to obtain a more prestigious chair, even though at the 5ème Section of the EPHE he had always been held in high esteem. No one here had ever opposed his habit of studying and teaching the history of science rather than the history of religion or of mystical currents. If anything, it was during his years at the Ecole Libre – which had a smaller teaching staff – that he had been forced to deliver contributions on Condorcet and De Bonald.

Koyré made the hasty decision to submit his candidature for a chair at the Collège de France in the early months of 1951: it was probably Gilson’s sudden and unexpected resignation that precipitated this decision. The reason why his “master” had opened up this vacancy (in December 1950) is that, within the context of the heated debate on the Atlantic Pact and the unilateral rearmament of France, Gilson had created a scandal when – as a Christian Democratic leader and journalist – he had spoken badly of Raymond Aron as a columnist more or less in the pay of the United States.<sup>5</sup>

<sup>5</sup> Schook 1991: 357-376; Michel 2018: 191ff.; Gilson’s attack on Raymond Aron had been made public by W. Gurian (whom Koyré knew and whose death in 1954 he lamented).



Gilson was the leading international specialist in the history of medieval Christian philosophy. Koyré had devoted a dissertation to Anselm of Aosta (Koyré 1923), followed by an annotated edition (Koyré 1927). He had also published numerous reviews of other medieval texts or studies. In France as much as the United States he was known as a pupil of Gilson's (and, to some extent, as a medieval scholar too). In a way, Koyré had been Gilson's first pupil. Shortly after having defended his *thèse d'état* – in the footsteps of his teacher, who had probably wished to show that he had already created a school – in 1932 Koyré had been voted into the Collège *en seconde ligne*, as chair in history of medieval philosophy. No doubt, this had been a significant acknowledgement, but twenty years on he must have overestimated its importance and enduring relevance.

After 1945 Gilson had reverted to his usual living between Canada and the United States. Therefore, in the first months of 1951 Koyré could not have met him to discuss whether he ought to submit his candidature. Gilson's sudden and unexpected resignation must have led Koyré to take this step, without really taking into account the fact that this was no longer a position in the field of the history of medieval philosophy. By this time, he was focusing on other historical periods. Indeed, he was tackling different fields and problems: particularly, he was studying the history of cosmology and of mathematical-physical sciences in the modern age.

Koyré may not have been able to ask for Gilson's blessings and he claimed to have submitted his candidature even though "gens avisés" had advised him not to. He also knew that in the past excellent candidates had been rejected or had withdrawn, including his New York friend Claude Lévi-Strauss (who finally made it into the Collège after repeated attempts). However, in the meantime Gilson's school had achieved considerable results in the field of medieval, Cartesian and post-Cartesian philosophy, thanks to the effort of other pupils. One of these, Martial Guérout, whom Koyré himself regarded as "un très bon historien", was awarded the chair at the Collège that Koyré had unsuccessfully applied for.

Koyré was first introduced to the members of the Collège by a distinguished physicist, Francis Perrin, who had shared his exile in New York and the experience of the École Libre des Hautes Études. Francis Perrin was an authoritative figure, not just because he was the son of Jean Perrin (the Nobel laureate in nuclear physics and founder of the École Libre, who had died in exile in New York), but also for his research in the nuclear field. Indeed, shortly afterwards he was appointed High Commissioner in France, an office he maintained for many years. Perrin understood the theses behind Koyré's method well and discussed them during a 1949 conference on *The Abandoning of Fundamental Scientific Determinism*. In his presentation at the Collège he emphasised the



connection between scientific systems and metaphysical principles. His speech praised the French Resistance and ended with a significant tribute to two of its heroes, the mathematicians Jean Cavailles and Albert Lautmann.

Being introduced by Perrin may have been an honour; but had it truly been an advantage?

From a procedural standpoint, a candidature submitted with implicit political motivations by fellow scholars working within two different disciplines – in addition to Perrin, another presentation had been given by Lucien Febvre – was unusual, innovative and, all in all, risky.

The de Broglie brothers and some professed friends, such as the Slavist Mazon (who knew about Koyré's Russian experiences during WWI: see Zambelli 2016: 156-157; cf. pp. 27-56), did not vote for him. Koyré received a fair number of votes (17 against 21), but was so wounded by the experience that he attempted to kill himself. Having escaped death, he gradually overcame his depression, not least because his friends (including Jakobson, Klibansky and Mc Keon) did their best to keep him away from the theatre of his defeat. Thus in the last fifteen years of his life Koyré presented himself as the prototype of the 'visiting professor', a figure who back then was far less common than today.

Koyré preferred to conduct his research in the United States than in Paris, aware of the advantages provided by American universities and libraries. It is commonly believed that he founded the history of science in the United States; and although he was keen to present himself as following in the footsteps of Brunschvicg, Tannery and Pierre Boutroux (not to mention Duhem), he did not import this discipline exclusively from Paris. We must never underestimate his experience as a student and later visitor in Germany. He had developed a method which brought "habitudes mentales" into focus, a category reminiscent of Lévy-Bruhl's "mentalités". Koyré applied it not to the beliefs and behaviour of primitive peoples, but rather to those of scientists and their contemporaries. The category in question introduced a new way of investigating every scientific field. The studies Koyré had unsuccessfully begun in Göttingen and his journeys throughout the world contributed to making him a cultural mediator between the various European philosophical traditions, as well as between the latter and American universities.

Regarded as an authority in American culture, Koyré vowed never to set foot on German soil again; but as he stated in a letter to Klibansky, he felt that he could never truly leave Paris. Proof of this is provided by an amusing episode: when he was invited to Buffalo, where two analytic philosophers – E. Anscombe and P.T. Geach, soon destined to become famous – were working on an English edition of Descartes' *Meditationes*, Koyré was offered to have his *Entretiens* – first published in Cairo in 1936 and later reprinted

in New York in 1945 (Koyré 1949) – translated and published as introduction. This great honour helped establish his fame as a historian of philosophy in the English-speaking world. Yet Koyré complained that his first name, *Alexandre* in French, had been distorted into the more English-sounding *Alexander*.

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