

# **PRESENTACIÓN / INTRODUCTION**



# THE CONCEPT OF MOTION IN LATE MEDIEVAL PHILOSOPHY

“Motion” has been the main research subject of natural philosophy from Aristotle’s *Physics* to Newton’s *Principia* and beyond. Discussions and reflections on it have not only accompanied the scientific revolution of the seventeenth century, but they have also played a determining role in the outcome of the new theories of the twentieth century. Thus, “motion” seems to be inevitable if we wish to deal with whatever object of the natural world. As Albert the Great put into words a phrase that would be repeated for centuries to come: Those who ignore motion will ignore the *whole* of nature.<sup>1</sup>

However, it is by no means evident what motion really is or how it is to be defined. For Aristotle and the Aristotelian tradition, “motion” means something more general than “local motion” from one point in space to another within an interval of time. It includes a more general process of change, which Aristotle managed to conceptualize as the transition from potential to actual being. That this conceptualization be neither simple nor immediately understandable is something that one can appreciate by reading not only Aristotle’s texts but also a whole tradition of medieval and renaissance commentators.

The following volume gathers seven papers presented at a conference organized in collaboration with the *Laboratoire SPHère* (Université de Paris; CNRS) and held at the University of Munich in November 2021 (<https://www.mcmp.philosophie.uni-muenchen.de/events/workshops/container/motion/index.html>).

For the conference and this volume as well, our aim was to cover a broad field of authors, questions, and texts belonging in their great majority to “late medieval” philosophy and science. Chronologically, the first author studied is the Catalan philosopher and prolific writer, Ramon Llull; the last one is the equally unusual French poet, moralist, and philosopher, Jacques Legrand. Of course, in the body of the papers, the reader will also find some references going back to ancient philosophy – mostly, of course, to Aristotle – and some others projecting the discussed points forward to the period of the “scientific revolution.” For, in a volume which is centered on the concept of motion, a line of discussion – though not necessarily of continuity – between Aristotle and Newton does not seem to be unjustified.

Given the fact that two of the papers are on Nicole Oresme, one of the most outstanding thinkers of this period, another one on Robert Halifax, and still another on an anonymous text from approximately the same time – the treatise *De sex inconvenientibus* – it is

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<sup>1</sup> “Ignorato motu, ignorabitur tota natura”, Alberti Magni ... *Opera omnia, Physica*, edited by P. Hossfeld, 4.1 (Münster: Aschendorff, 1987), 146a,22-23. This short formula used by Albert goes back to Aristotle himself, *Physica* III, 1, 200b12-15.

obvious that this volume mainly deals with natural philosophy from the fourteenth century. Lull announces, in fact, many of the motives which are typical for the fourteenth century, and Legrand clearly continues this tradition of thinking.

While the volume displays a thematic unity, it does not intent to be a systematic presentation of the concept of motion in all its manifestations. This would not only be unconscionable, but also less credible. Focusing on this fundamental subject of philosophy and science of all times, however, variety rather than a uniform textbook presentation was a priority from the beginning. Thus, the reader will find diverse sources, methods, and problems in each case, always connecting with discussions around this one basic concept: motion.

The first contribution by José Higuera Rubio addresses the linguistic perspective on the motion's intermediate parts which are implicitly involved in the Aristotelian conception of *energeia* and *kinesis*. These concepts do not allow a merely intuitive understanding of motion as the flowing from potency (*dynamis*) to actualization (*entelechia*). The unlimited division of the parts of motion is of little help in solving all the problems it causes itself. Thus, the middle parts could be spotted linguistically through verb tenses (as Aristotle did) or Latin declensions (e.g. Albertus/Llull). Llull refreshed the medieval semantics of motion's middle parts to grasp an innovative vocabulary. He points out the continuity of motion and the flowing of change vindicating the Averroistic perspective: for a natural philosopher "to have the capacity of 'being white,' 'to become whiter' and 'being white' are equivocal motion's parts.

Aurora Panzica explores the scholastic debate about *antiperistasis*, a mechanism consisting of the intensification of a quality caused by the action of the contrary one. Because of its (partial) incompatibility with the categories of Aristotelian physics, the process of *antiperistasis* led medieval commentators to deepen and adapt the Aristotelian categories on motion in order to be able to include the apparent paradoxical phenomena for which Aristotle elaborated this explanation into the normal order of nature. This paper shows how – differently from Aristotle but following Galen's *Commentary on Hippocrates's Aphorisms* – scholastic masters explicitly applied the model of antiperistasis described in the first book of Aristotle's *Meteorology* to a biological context, thus establishing a link between physics and medicine substantially extraneous to Aristotle's theory.

With the paper by Edit Anna Lukács, we arrive at the *calculatores*, the group of authors who have been recently again in the focus of research because of their quantifying understanding of Aristotle. This contribution brings a new, until-now-neglected, figure into the discussion: Robert of Halifax. This Franciscan theologian active in Cambridge during the same time as the first generation of Oxford calculators, wrote – as far as we know – only one work, a *Commentary on the Sentences*, in which he approached several optical and astronomical phenomena related to motion within a theological context. The contribution focuses, above all, on Halifax's analysis of shadows, in which the optical tradition of the thirteenth century is enriched with imaginary cases involving different cases of motion. His examples and the application of proportion for the special cases of motion seem

to be very close to some of the calculators. It is to be remarked that Halifax's text was later well-known at the universities of Paris and Vienna.

The quantitative approach to motion is present, above all, in the contribution by Sabine Rommevaux-Tani. From the fourteenth century onward and following the path established by Thomas Bradwardine, William Heytesbury, and Richard Swineshead, a double point of view prevailed in the study of motion: On the one hand, (imaginary) velocities were calculated according to the factors which produce it (powers and resistances, usually), i.e. according to its causes. On the other hand, the "effects" of motion in terms of covered space and elapsed time were taken into consideration. The classical history of mechanics has assumed that to be a proto-differentiation between "dynamic" and "kinematics." This paper focuses on the anonymous treatise *De sex inconvenientibus*, in which the author confronts these two ways of determining the rapidity of a motion. A close consideration of the paradoxes discussed in this text within the more general (Aristotelian) concept of change makes clear how problematic this double approach was. As a matter of fact, medieval authors seem to not have even tried to combine them, as Rommevaux-Tani argues, going in-depth into *De sex inconvenientibus*.

The two subsequent papers are devoted to Nicole Oresme, a giant of medieval theories of motion in all thinkable dimensions. Philippe Debroise deals with the problems of continuity in Oresme's theory of motion. Continuity is an essential feature in Aristotelian physics, but it is by no means obvious. As a matter of fact, Aristotle himself provided a discussion approach and anticipated many of the difficulties later developed during the late Middle Ages. For Oresme, eager to approach motion mathematically, continuity is as important as it is difficult. As Debroise shows, an analysis of Oresme's understanding of the problem needs also a presentation of his own position regarding the nature of motion. Including the discussion of particular topics in the fields of ontology, theory of knowledge, mathematics and physics, this paper highlights the tensions in Oresme's writing between the affirmation of the continuity of motion and its mathematical atomization.

Valérie Cordonier's contribution focuses on one of the more original texts of the late Middle Ages, Oresme's *De configurationibus*. In this text, Oresme not only presents a new approach to motion and qualities based on geometry, but he also tries to explain how his new doctrine could be useful to understanding some special phenomena occurring in the soul (we may not neglect the fact that the medieval concept of motion embrace also emotions and psychological alterations). In one chapter of this text, Oresme mentions the process of throwing a javelin. In fact, he is interested in explaining the behavior of people who seem to have a kind of natural ability to succeed in their actions. In analyzing a set of other texts connected to this chapter of *De configurationibus*, Cordonier shows the importance of the pseudo-Aristotelian *Liber de bona fortuna* for the history of the concepts of *impetus*, *impulsus* and *inclinatio* and *motus* in late medieval thought.

The last paper by Daniel A. Di Liscia deals with the concept of motion in a late-medieval author, who until now, has been studied little: Jacques Legrand, a member of the

Order of the Hermits of Saint Augustine, who was active in Paris at the beginning of the 15<sup>th</sup> Century. After some background information about Legrand and his main work on natural philosophy, the *Compendium utriusque philosophie*, the paper focuses on Legrand's discussion of local motion. It includes first a section on the *forma fluens* and *fluxus formae* theories previous to Legrand, as well as on Ockham's impact on the discussion about the nature of motion. In addition, the paper provides a detailed analysis of Legrand's own arguments. It shows that by rejecting the idea of motion as a *fluxus supperadditus*, even for the case of local motion, Legrand follows the main nominalist approach represented by Ockham and Gregory of Rimini. The paper suggests that this position could have been motivated by a cautious attitude regarding ontological realism, a philosophical approach identified with Wyclif and their followers and ideologically persecuted by important personalities close to Legrand, like D'Ailly and Gerson.

Finally, it is my pleasant duty to thank a series of colleagues and institutions that have been involved in the process of production of this special issue. My first thanks go to my colleague Sabine Rommevaux-Tani for her cooperative attitude as the head of SPHère. I would like also to thank Hannes Leitgeb, head of *Munich Center of Mathematical Philosophy* (LMU), my home institution, for his permanent support of my work, and to Ursula Daninger and Karsten Thiel (also MCMP) for putting at our disposal all needed resources for a successful event. I would like also to express my gratitude to the editorial committee of REMIFE for accepting these contributions for a special issue of the prestigious journal, to the fourteenth different anonymous reviewers involved in the critical assessment of the papers, and to Brian Krouzek, who as a native speaker, and with consideration of all details, made the last linguistic check on them. Above all, I am particularly grateful to the *Deutsche Forschungsgemeinschaft* for their generous funding of both the conference itself and the production of this volume.<sup>2</sup>

Daniel A. Di Liscia, Ludwig-Maximilians-Universität München

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During the correction of this volume we have received the happy news that Aurora Panzica's contribution included in this volume has been honoured with the SIEPM Junior Scholar Award 2022. Congratulations to the author for this important achievement!

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<sup>2</sup> The volume and the conference related to it were a part of my project "Integration und Transformation in der spätmittelalterlichen Naturphilosophie: Jacques Legrands aristotelisches *Compendium utriusque philosophie*" (DFG, Projektnummer 282682744. For further details see <https://gepris.dfg.de/gepris/projekt/282682744>).