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研究課題名(和文) Philosophical theories of mixture from Greek to Syriac and Arabic

研究課題名(英文) Philosophical theories of mixture from Greek to Syriac and Arabic

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研究成果の概要(和文)：古代ギリシャ哲学で「混合」という概念が様々な説で取り扱われた。複数の要素が統一され、ひとつのものになるという過程はいろいろな問いを解決するために利用された。古代末期から中世初期にかけてギリシャ哲学がシリア語に、そしてアラビア語に翻訳された際に、どのように「混合」の概念が新しい思想的な文脈に伝えられたか、本研究のテーマである。特に、キリスト教徒のヨハネス・フィロポノスがキリストの二重本質の神学的問題に答えるためにギリシャ哲学から受け継いだ混合の説を使った。イスラーム教徒のアル＝キンディーとアル＝バグダーディもアラブ哲学とアラブ医学の分野でギリシャ哲学の「混合」を受けながら、新しい説にも統合した。

研究成果の概要(英文)：In Ancient Greek philosophy, the concept of "mixture" was widely used in many different theories. This process according to which a plurality of elements can combine into something unified was applied to a number of theoretical problems. When between late Antiquity and the early Middle Ages, Greek philosophy was translated into Syriac, then Arabic, how were mixture theories used in these new contexts? Particularly interesting is John Philoponus' case, a Christian who used mixture theories coming from pagan Greek philosophy to solve theological problems relating to the double nature of Christ. In Arabic context too, Muslim philosophers and physicians such as Al-Kindi and Al-Baghdadi received Greek concepts of mixture and applied them in new ways.

研究分野：History of philosophy

キーワード：Translatio studiorum Mixture John Philoponus Al-Kindi Abd al-Latif al-Baghdadi Syriac theology Arabic medicine Arabic philosophy

## 1 . 研究開始当初の背景

The background of this research on the transmission of mixture theories from Greek philosophy to the Syriac and Arabic traditions was a previous investigation on mixture theories in Ancient Greek philosophy. The result of this previous investigation was a PhD dissertation on the history of the mixture problem in Greek Philosophy from Aristotle to late Ancient Neoplatonism. This PdD dissertation has been made widely available to scholars as a monograph entitled “Mixis” (Paris, Les Belles Lettres, 2016). This monograph not only tells the philosophical history of mixture theories over a chronological span of 1,000 years, but also helps understanding the internal logic of discussions about mixture by establishing how mixture theories in Ancient Greek philosophy, as different and complex as they are, evolved within the limited frame of three main patterns, which can be summed up as juxtaposition, mediation, and accumulation: in juxtaposition, components do not lose their distinction and plurality since they are just juxtaposed to each other in small bits; in mediation, on the contrary, they are really unified into an intermediate product, but at the expense of losing their initial properties, so that in fact they are lost in the process of mixture and replaced by something new; finally, in the accumulation pattern, components are both unified and preserved in the product, which cumulates the properties and substances of the initial ingredients.

## 2 . 研究の目的

Starting from this background, the new research project led under the JSPS Start-Up Grant aimed at studying the continuation of that Greek philosophical history of “mixture” in the Eastern Mediterranean traditions of Syriac and Arabic thought. It is well-known that the intellectual inheritance of Ancient Greek philosophy and science was transmitted to the Islamic world, often with Christian Syriac translations as an intermediary step, before returning to Western Europe through Latin translations made from the Arabic, in a circular movement of studies around the Mediterranean Sea called *translatio studiorum*. The aim of focusing on mixture theories was to give a precise case study of how this process of scientific transmission was not just, precisely, “transmission”, but involved complex reworking operations due to the change of language, cultural context, and theoretical frame. More specifically, this research had to determine whether the three patterns identified in the previous research about Greek theories of mixture re-

mained as the main frame of discussion in the Syriac and Arabic traditions, or if they were replaced by new ones, and if so, which were these new conceptual frames.

## 3 . 研究の方法

This research was conducted through the philological study of a corpus comprising the three following texts:

(1) the treatise *On Parts and the Whole to the Priest Sergius*, by 6<sup>th</sup> century Neoplatonic philosopher and Christian theologian John Philoponus, a text originally written in Greek but which survives only in a Syriac translation, thus offering an insight into the reception of Greek philosophical material into the theological debates of the Christian Syriac tradition;

(2) the *Pharmacological Computus* of 9<sup>th</sup> century Arabic philosopher and physician al-Kindi, who in this treatise investigates a method to calculate the curative power of mixed drugs from the properties of their ingredients;

(3) the treatise *On mixture* by the 13<sup>th</sup> century Arabic philosopher and physician Abd al-Latif al-Baghdadi, a work entirely dedicated to the issue of mixture, mainly from a philosophical point of view with an obvious influence from the Greek tradition, most of all late Ancient Neoplatonism and the earlier Peripatetic commentator Alexander of Aphrodisias.

Although limited in its size and scope, this corpus allows to investigate how Greek notions relating to mixture were reused, or not, or re-elaborated by the Syriac and Arabic traditions in different areas such as Christian theology, Arabic medicine and pharmacology, or Arabic philosophy (*falsafa*).

## 4 . 研究成果

(1) The first result of this study was to make clear a shift of emphasis in the transmission of mixture theories from the Greek tradition to the Syriac and Arabic ones. Whereas Ancient Greek philosophers were mostly concerned with the process of mixture itself and tried to account for it through different speculative models, all 3 texts in the corpus are more focused on applying mixture to a different problem than mixture itself, whether it is theological, pharmacological, or philosophical. More specifically, the conceptual frame of the three-fold distinction between juxtaposition, mediation, and accumulation, can not be found as such in the Syriac and Arabic texts of the corpus.

This does not mean yet that there is complete discontinuity between the Greek tradition

and the Syriac or Arabic ones. On the contrary, the lack of a specific controversy on the process of mixture itself may be the result of a shared tendency to adopt one of the three models inherited from the Greek tradition, namely that of mediation. This predominance of the mediation model can probably be attributed to its Aristotelian pedigree: it is Aristotle, in his treatise *De generatione et corruptione*, who set the main features of the mixture problem in Greek philosophy and offered an influential solution through the idea of “mediation until unification”. The defendants of the other two models, namely the Atomists for juxtaposition, and the Stoics for accumulation, had much less influence than Aristotle on late Ancient and early medieval thought, whether in the Greek Byzantine world or, through Syriac and Arabic translations, outside it. Consequently, our corpus shows a kind of consensus on a Peripatetic model of mixture.

Yet this consensus does not result from one unified process of transmission in the context of the *translatio studiorum*, but rather comes from several independent sources. John Philoponus was a Neoplatonic philosopher, so the strong Peripatetic influence appearing in his work has to be understood as an instance of the harmonizing of Plato and Aristotle which is characteristic of late Ancient Neoplatonism. In al-Kindi’s case, the Peripatetic frame of the mixture model he uses to calculate the curative power of mixed drugs is probably transmitted through the 2<sup>nd</sup> century Greek physician Galenus rather than directly coming from Aristotle. And for Abd al-Latif al-Baghdadi, close connections with the work of the late 2<sup>nd</sup> century early 3<sup>rd</sup> century Peripatetic commentator and philosopher Alexander of Aphrodisias suggest that the latter’s mediation was decisive for the integration of an Aristotelian mixture model.

(2) Apart from these general results on the continuity or discontinuity between the Greek tradition and the Syriac and Arabic ones concerning theories of mixture, this research has led to the following specific results for each text of the corpus:

John Philoponus’ main goal in the treatise *On Parts and the Whole* is to demonstrate that parts exist in the whole only in potentiality, just as elements mixed in a compound do not exist in it actually, but only potentially. Philoponus’ mereological model is thus based on a physical model in which elements lose their actual existence and switch to potentiality when they are mixed into a compound. This physical model is no other than Aristotle’s theory of mixture as explained in

the *De generatione et corruptione*, a work about which Philoponus has also written an extensive commentary. While being a Neoplatonic commentator of Aristotle’s works, Philoponus was also a Christian and a theologian, and as such he was keen to use Aristotelian concepts for theological purposes. Here, as a proponent of a myaphysite theology in which Christ is both God and Man but has only one nature, Philoponus could find in Aristotle’s theory of potentiality a way to explain how Christ’s constitutive natures (human and divine) did not have to exist actually in him and could be unified into a single one. In the treatise *On the Parts and the Whole*, the theological application of the philosophical model remains implicit, but a close examination of the text shows how it has to be understood in the context of the theological controversies on Christ’s nature(s) following the Council of Chalcedon.

Al-Kindi’s *Pharmacological Computus* aims at determining a mathematical method to calculate the power of mixed drugs from the respective powers of their ingredients. The background of this theory is the Greek physician Galenus’ classification of drugs into four degrees: each basic power of a drug, e.g. heat, can be measured according to a four-degree scale of increasing heat. What al-Kindi adds to this background is a quantitative determination of these degrees and an arithmetical method to calculate them in the case of mixed drugs. First, the degree of heat in a drug has to be understood as a proportion between its respective power of heating and cooling the human body, and each degree is defined by a specific proportion; second, for mixed drugs, their degree cannot be calculated as a mere average between the ingredients’ degrees, but it has to be recalculated from scratch by adding up all ingredients’ powers of heating or cooling, and then comparing the ratio heat/coldness to the scale of proportions characteristic of each degree. Al-Kindi’s originality lies not only in the introduction of quantitative calculation in an originally qualitative theory, but also in the way it refines the Peripatetic scheme of mediation by both retaining the idea of an intermediate result and denying that this intermediate is just an average.

Although Abd al-Latif al-Baghdadi’s treatise *On mixture* has been written at a much later date than the two others works in the corpus, it paradoxically appeared as the most “Greek” of all three texts as it consists in a synthetic exposition and discussion of Aristotle’s theory of elements and theory of mixture in the *De generatione et corruptione*. So, the

method is clearly that of Greek philosophy as practiced in the medieval Islamic world (*falsafa*), even if al-Baghdadi, being also a physician, may have had in mind issues related to medicine. This continuity with the Greek, and mostly Peripatetic, tradition of natural philosophy was confirmed by the discovery of close textual links between al-Baghdadi's treatise and Alexander of Aphrodisias' *Question I 6* about the nature of water and its changes into the other elements. These links are so close that they must indicate direct textual dependency: concretely, al-Baghdadi probably had access to a manuscript of translated works by Alexander of Aphrodisias, which brings new material to our knowledge of the reception of Alexander of Aphrodisias in Arabic philosophy. Yet Al-Baghdadi's philosophical writings are still insufficiently known and much research remains to be done to assess the context of his treatise *On mixture* both within his whole work and within the history of Arabic philosophy.

(3) Most of the results outlined above are still in the course of preparation for publication and will hopefully soon be made available to other scholars of history of philosophy, history of medicine, history of Christian theology, Western Classics, Syriac studies and Arabic studies, through articles and editions with translation and commentary. The only published result at the present time is a research on mixture in the context of the creation and destruction of the world from and into its elements.

## 5 . 主な発表論文等

[ 雑誌論文 ] ( 計 1 件 )

Jocelyn Groisard, “Catastrophe and cyclical time in Ancient thought”, 『首都大学東京人文学報』, No. 514-15, 2018, pp. 183-198, not peer-reviewed.

[ 学会発表 ] ( 計 1 件 )

Jocelyn Groisard, “Catastrophe and cyclical time in Ancient thought”, International Symposium “Creation and Destruction of the World”, Sofia University, Bulgaria, 2017 November 3<sup>rd</sup>

## 6 . 研究組織

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