The article is dedicated to the ideas of aristotelian neothomism representative Charles De Koninck, who was well-known philosopher and theoretician of science in neothomistIt is grounded on quite a popular idea that philosophy itself has nothing to offer when it comes to questions regarding the Universe. As S. Hawking mentions in his "The Grand Design": "Where did all this come from? Did the Universe need a creator? (...) Traditionally, these are the questions for philosophy but philosophy is dead. Philosophy has not kept up with modern developments in science, particularly physics" (Годер, Молоднов, 2018; Koninck, 1960). However, some thinkers have been suggesting approaches to creating a link between different areas of work or even making a great compound. Aristotelian neothomism is a good example proving this thought since adherents of this movement searched for ways to justify the necessity of combining methodologies of two areas. Charles de Koninck as a pioneer of the movement, for instance, tried to prove that all efforts to replace philosophy of nature with experimental science, are rather inconsistent.

Aristotelian neothomism itself has not been sufficiently examined yet, specifically in comparison with existential and transcendental ones, even in those countries where it was mostly spread - the USA and Canada. However, Koninck's works are still being printed and distributed so as to encourage additional research, whereas Koninck's archive consists of more than 150 documents, most of which still need to be analyzed. Thesis papers written under his supervision are also of special interest, as these papers sometimes reflect Koninck's ideas of different philosophical issues.

Among studies on Koninck's notion of philosophy of nature, L. Armour's works are worth mentioning, as his enquiry was rather focused on understanding the peripatetic teaching on four causes as a source of Koninck's natural philosophy. E. Trott, an author of several encyclopedic articles, dedicated to Koninck, and a few works aiming to explain Koninck's views of the deficiency of biological understanding of human nature and the theory of abstraction, is also a good scientific basis to become familiar with Koninck's ideas. The same time, articles by M. Szatkowski are also a proper source of information about the philosopher's ideas of mathematical physics and its linking role for natural philosophy and science. Still, R. McNerny remains the greatest popularizer and the most prominent student of De Koninck, who wrote his thesis under Koninck's supervision and was engaged in a scientific dialog with the philosopher throughout his life.
This article aims to discover a connection between Thomas Aquinas' and De Koninck's teachings through the notion of matter as a bridge linking different areas of knowledge.

**Aristotelian Neothomism. First Steps**

Though Aristotelian neothomism is a movement, which participants have ideas that are strongly different from those of representatives of other movements of neothomistic thought, it is still quite neglected as a subject of scientific interest. Neothomistic movements are rather focused on the synthesis of Thomistic philosophy with modern philosophical ideas (existentialism, personalism, transcendentism etc.), whereas Aristotelian neothomism has always been focused on natural science, beginning with quantum physics issues and ending with evolution theory. The major aim of this movement is to demonstrate (or establish, where needed) a strong connectedness of philosophy and science. This movement is also of interest as it is beneficial to understanding tendencies in American Catholic tradition of the 20th century.

Aristotelian neothomism can nominally be divided into two branches: philosophy of Laval (Ch. De Koninck, B. Mullahay), which originated in Canada, and later philosophy of the River Forest School (B. Ashley, W. Wallace, M. Adler) (Саковская, 2015: 40).

As mentioned, Charles De Koninck (29.07.1906-13.02.1965) can be regarded as the Laval branch founder. Native of Torhout, Flanders, De Koninck migrated with his family to the United States in 1913, where he studied in the University of Detroit and also in Leuven, Belgium, where he successfully presented his thesis on Edington's philosophy of science. Later on De Koninck continued his studies by working on Mariology in the Laval University (Quebec, Canada). In 1939-1963 he worked as the Dean of the Philosophical Faculty at Laval, still delivering lectures in various universities of Northern America, including the University of Notre Dame in Indiana. Koninck's popularity and wide spread of his teaching were to some extent promoted by his use of both English and French in his works (McInerny, 1965: 491).

Further, De Koninck tried his hand in working as an advisor of Cardinal Roy of Canada, founded the popular Laval Théologique et Philosophique Journal, known for its deep studies into scholasticism and theology, and was rewarded an Aquinas' medal by the American Catholic Philosophical Association (Shock, 2005: 602).

There were 47 dissertations written under the supervision of De Koninck, 3 of which belonging to subsequently known philosophers: Bernard Mullahay ("Thomism and Mathematical Physics", 1960), Joseph Taylor ("Aristotelian Concept of Natural Philosophy", 1947) and Ralph McInerny ("Existential Dialectic of Soren Kierkegaard", 1952). De Koninck himself is an author of 163 scientific papers which cover different fields of science but mostly philosophy of nature and epistemology ("Le cosmos", "Natural Science as Philosophy", "The Unity and Diversity of Natural Science", "Abstraction from Matter") as well as ethics and politics. Specifically, well-known are De Koninck's long discussions in letters with Y. Simon and J. Maritain after De Koninck's "On the Primacy of the Common Good: Against Personalism" was published.

According to M. Szatkowski, De Koninck was mostly interested in the following issues:

1) What caused a growing gap between a scientific picture of the world and the world as it represents itself in our senses?

2) How can we understand and accept today's scientific belief and yet have faith?

3) What are the ways to justify responsibility and dignity of a person while avoiding to neglect community and science at the same time? (Szatkowski, 2018: 118).

To answer the above, De Koninck equipped himself with philosophy of nature and natural science, vehemently opposing both to metaphysics. His disciples continued the development of that approach.

**Saint Thomas. A Tradition Begins**

It is a fact of common knowledge that Aquinas' approach to differentiation of sciences mostly reflects the stand of Aristotle. However, the way philosophers sometimes describe the hierarchy of sciences (specifically in Aquinas STh. I, 1, 1 ad 2 or in Boethius (Boeuiüi, 2007: 7)) may make a false impression that sciences are totally isolated from each other and limited by their own subjects. It looks as if metaphysics deals with first causes and being as it is, physics works on nature, and mathematics cares about nonmaterial magnitudes, and all these areas of knowledge go strictly parallel.

However, commenting on Aristotle's "Physics", Aquinas points out that though metaphysics is focused on four causes as its own research subject, it doesn't yet offer a broad picture of the former. Mathematics deals with a formal cause, metaphysics is more focused on formal and final causes while also representing ideas of the agent, but it is only physics which can explicitly explain all the four causes (De Phys. I, 1, 1, 5).

According to Boethius' "On Trinity" (Boeuiüi, 2007: 11) (and Aquinas also uses these arguments), three major scientific areas differentiate due to the following aspects of a subject:

1) Subjects of physics exist on their own but can be in motion.

2) Subjects of mathematics cannot exist without matter but are in motion.

3) Subjects of metaphysics exist on their own and cannot be in motion.

Thus, all three areas are dissimilar due to their subjects' distance from matter and motion. So, it really looks as if the boundaries of one area start where the boundaries of the other end.

A. Baumeister points out that the main criteria for proper differentiation are the following: a) a level of connection to matter; b) a level of necessity; c) an ability / disability to take part in motion (Baumeister, 1998: 86-88).

The level of connection to matter is an important criterion as real scientific knowledge in peripateticism means knowledge of the general, since matter imposes some limitations in understanding objects. Knowing the specific is not sufficient for being real knowledge as some additional generalization is needed to make conclusions on other object of at least the same species.

Necessity is also important as it is multilevel itself. Things are different indeed, depending on the level of necessity of their existence. Existence of a human is more essential than existence of a green color in a singular object. The same applies to existence of angels - in Thomistic philosophy it is more important than existence of metals, trees or many other beings. A possibility of making a hierarchy of beings in accordance with necessity of their esse means that each object has its own proper place in the universe.

An ability to take part in motion is also connected to the level of perfection of objects: some objects can move or
otherwise of their own accord; the other can participate in different kinds of motion. This ability also reflects the order of perfection and hence the openness for human intellect. Thus, Aquinas draws a conclusion that the areas of knowledge differentiate, depending on their connection to matter and ability to participate in motion (De Trinitate q. 5, a. 1), and a level of abstraction from matter and motion is a key to make a proper order of theoretical knowledge.

In this case Aquinas takes into account both ontological and epistemological aspects of abstraction. If an object is completely independent of matter (as God or angels) or is to some extent dependent in the concept (as substance, quality, being etc.), it is subject of theology or metaphysics. If a thing is dependent only through its existence, matter not included in its definition, it is a part of a mathematical area, since mathematical objects cannot exist without matter but require abstraction from matter in their definition. When it comes to dependency on matter through existence and capability of being known, it is an area of physics or natural science.

**Charles De Koninck: Modernization of the Tradition**

According to L. Armour, since Ch. De Koninck was Thomistically focused, his goal was to demonstrate the unity of science, religion and experience rather than "save" the universe from science or deepen a gap between the world of experience and that of mathematical abstraction (Armour, 1991: 247). The above aim can be traced in each of Koninck's texts but his approach to proving this idea changed in different periods of his philosophical work. In the 1930s De Koninck was highly interested in Maritain's teaching on science differentiation on the basis of the ability to change (Trott, 2008: 249). It means De Koninck was very close to the views of Aristotle and Aquinas. Apparently, unchangeable things can be no subject for experimental sciences as their representatives rather examine accidental and contingent properties of species, namely mass, density, weight, temperature etc. Based on such examination of separate individual objects, scientists can make descriptions of other individuals of these species or even make predictions. Since one and the same contingent being can be described twofold (as a being itself and as a contingent being due to its variability), we can define two kinds of disciplines - philosophy of nature and natural science, the former drawing its conclusions on the basis of data provided by the latter. On the one hand, this is a case of a tight cooperation of sciences through the use of different methodologies. On the other hand, both disciplines have the same purpose which underpins this cooperation. Such approach should have therefore returned philosophy of nature to its proper place - a scientific domain.

In his subsequent works, specifically "Abstraction from Matter", which was written during 1958-1960, De Koninck shows a rather different tendency. He tries to demonstrate the openness of the world to human experience and sense, and prove that human language (particularly by analogy and equivocation) is a mirror of this experience. According to De Koninck, the fact that our words represent things doesn't mean that this representation is perfectly true and detailed enough, but still this is the way things become understandable present in thinking (Koninck, 1957: 149). Polysemy and language richness are a key indicator of the progress and growth of knowledge (Koninck, 1957: 150). This is why the philosopher considers matter the most essential reason for differentiation of sciences. De Koninck's approach of that period is also in line with Aquinas' ideas of matter, the level of abstraction from the latter being the basis for considering mathematics, physics and metaphysics as separate areas of knowledge. However, De Koninck expects metaphysics to disappear from that list, since it is not primary in the cognitive process.

De Koninck examines matter in the context of its connection to a real definition of a thing as well as its capability to take part in individuation. Though a thing has a level of intelligibility due to its abstraction from matter (Koninck, 1957: 156), a human being in his/her world experience comes to know individuals at first and only then species after perception of individuals. The way towards understanding nature lies in data of sensual perception of individuals. Therefore, matter shaped in a body is a source of information we obtain by means of sensory organs or through experiment. On the other hand, matter is a reason of individuation, numerical difference i.e. it plays a differential role as a principle which separates one singular thing from the other of the same species (Koninck, 1957: 156). It makes matter a decisive factor for the cognition process. Saying that, De Koninck warns that paying attention only to numerical difference will not be beneficial to a growth of knowledge, because, firstly, a singular object relates to a subject of science as potency does to an act (Koninck, 1957: 164), and, secondly, an individual is contingent compared to the species he/she belongs to.

Moreover, matter is also a part of a real definition of a thing, which implies an indication of the closest genus and differentia. And it is a real definition which can provide certain knowledge of a thing as opposed, for example, to a descriptive definition that only describes contingent properties of being, dissimilar in different individuals.

Thus, the notion of matter is an aspect which unites different areas of knowledge. Both metaphysical and physical dimensions of the notion of matter are focused on the same thing - a growth of knowledge. From the viewpoint of metaphysics, pure matter is unknowable until it acquires its shape, and even if it is intelligible than only to some small extent and via negation is. In terms of physics, matter is unchangeable substratum and is useful in recognition of things after they have changed. For instance, we can tell apart an oak seedling and an oak, yet we know that both are oaks, the former being in potency and the latter in act.

However, appealing to the a posteriori approach in cognition, which was widely used by Aquinas himself, specifically in his proves of God's existence, De Koninck is very cautious when it comes to metaphysics. When describing the order of knowledge on the basis of abstraction from matter, De Koninck assumes this area to be the last in priority. In the philosopher's opinion, this area should be distant from the others, since its knowledge cannot be used in practice. Moreover, metaphysical knowledge is even impossible to properly verify, which makes it lose its position as a "science". Therefore, sciences of nature logically take priority of metaphysics and this approach development was continued by other Aristotelian neothomism representatives. It has become a differentia of Aristotelian neothomism among the rest neothomistic movements (Сакоевская, 2015: 40).

In respect to other sciences dealing with nature, de
Koninck suggests a way of unification: philosophy of nature and natural science should be regarded as parts of the same science, whereas their methods are the basis of its further differentiation. Thus, there will be one science from the whole system of matter abstraction - the one which will help look on things exclusively in terms of sensory matter features. And the methods for nature examination will rather depend on the usage level of mathematics as our knowledge of the natural world is to some extent based on measurements and experiments. However, since mathematics is not enough for this purpose, there is also some space for philosophy which is needed for data generalization and enrichment of our understanding of the world.

Conclusion

Summing up, Aristotelian neothomism is a movement in Catholic philosophy, which major aim is to establish a link between Christian tradition and a modern scientific picture of the world. Charles De Koninck, who founded the movement, was a follower of Thomism tradition in his teaching, though A. Edington’s ideas were also very influential on his approach. De Koninck strove to enrich scientific knowledge with philosophy which, in his opinion, lost its position in the scientific world. To prove the necessity of forming a union of science and philosophy, De Koninck used Aquinas’ approach towards differentiation of sciences on the basis of two ideas: changeability of contingent being and abstraction from matter. In his earlier period De Koninck considered that philosophy of nature and natural science were different sciences to be cooperated for the common purpose, but later De Koninck defended an idea that both sciences were the same, the only small difference between them being the use of mathematics. His view of metaphysics however remained unchanged: any knowledge obtained through metaphysics is almost impossible to verify, therefore it is no science in a proper sense.

As universities of the USA and Canada, adhering to Aristotelian neothomism, started to widely publish De Koninck’s works, it is expected that the number of studies, dealing with Aristotelian neothomism, will shortly grow. And this tendency is quite essential as representatives of this movement, having rather creationistic views, are good opponents in a dialog with modern science.

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АРИСТОТЕЛІЧНИЙ НЕОТОМІЗМ В ХХ ст.:
ШАРЛЬ ДЕ КОНІНК ТА ДИФЕРЕНЦІАЦІЯ НАУК ПРО ПРИРОДУ

Статтю присвячено неотомістичній філософії на матеріалі робіт представника аристотелічного неотомізму Шарля де Конінка, а також його вченню про розмежування наук з урахуванням підходу св. Томи Аквінського щодо розподілу дисциплін на підставі абстрагування від матерії як основного принципу нумеричної індивідуації тілесного сущого та з точки зору мінливості тілесного сущого. Чарльз Де Конінк зініціював новий неотомістичний рух, який представляли школи Лаваль (Квебек, Канада) і Рівер-Форест (Чикаго, США). Автор статті ставить задачу продемонструвати тісні зв'язки між середньовічною та сучасною філософіями в рамках томізму, а також роз'яснює ідеї де Конінка щодо диференціації наукових дисциплін, які базуються на вченні Аквінського. Методом порівняння було доведено, що де Конінк використовує такі ж аргументи для пояснення відмінностей нумеричної математики, метафізичної та природознавчої, як і Тома Аквінський у XIII столітті. Виявлено, що головне протиріччя між двома підходами мислителів полягає в тому, що у Томи Аквінського ці три дисципліни представлені в ієрархії, де метафізика є найвищою. Ш. де Конінк, натомість, розглядає метафізiku як менш надійне знання, а використовує фізику. У статті роз'яснюється підхід Ш. де Конінка щодо поняття абстракції матерії, який, на думку автора є найважливішою причиною для розуміння єдності та поділу наук. Автор статті висновує, що головною метою Ш. де Конінка було повернути філософію природи до науки і довести, що розвиток реального знання не можливий тільки на підставі експериментів і контингентних даних матеріальної світової колекції. Такий підхід залишався незмінним для всього аристотелевого неотомізму, так само, як ідея, що природні науки перевершують метафізiku, особливо в порядку отримання знань. Вчення де Конінка стало досить впливовим серед його учнів і дуже корисним для католицької філософії Північної Америки.

Ключові слова: аристотелічний неотомізм; де Конінк; Тома Аквінський; матерія; форма; філософія природи.

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