

AL-KINDĪ ON THE NATURAL PHILOSOPHY

It is the duty of the one who searches for the truth to seek it from whatever source it emanates from, even if it were to come from distant races and nations different from us. (Al-Kindī: Rasā'il al-Kindī al-falsafiya)

Introduction

In the treatises dedicated to al-Kindī's natural philosophy (al-falsafa al-tabī'īyya) there is no need to dwell on the meaning of nature. My aim in this paper is to seek how this key concept functions and works when applied by al-Kindī to the first steps of Arabic-Islamic philosophy. The natural philosophy or Physics haunted al-Kindī throughout his philosophical and creative life, and occupied a more central place in his thought than is usually recognized.

First, a few methodological remarks: (1) my interest focuses on al-Kindī's thought on the natural philosophy, not of his various realms such as metaphysics and morality and the like (although these are of great interest and importance when studying Arabic-Islamic philosophy. (2) I am addressing al-Kindī as a philosopher. I consider his view of the natural philosophy in relation to the rest of his thinking, rather than as a fleeting or occasional reflection that any intellectual, artist, writer, or scientist might have framed about the natural realm. (3) While examining al-Kindī's words in their philosophical context, attention should also be given to their rhetorical context and to others. (4) Al-Kindī is commonly known as 'ambivalent' about the natural philosophy (but the term itself is left ambiguous). I shall try to explicate the structure of that ambivalence and clearly bring about its precise

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components. (5) Finally, it is my purpose in the present paper to highlight the most prominent aspect of al-Kindī's natural philosophy and to answer the following question: does al-Kindī have a complete natural philosophy? Can we reconstruct this philosophy from what has come down to us from al-Kindī's extant writings?

To do so we shall have to make it clear from the beginning that al-Kindī does not devote a separate treatise to tackling the fundamental principles of the natural body, i.e., matter (al-mādda) and form (sūra) or discussing opposite views such as the atomic doctrine as Avicenna and Aristotle did as is well-known in writings on natural sciences since the ancient period. Al-Kindī clearly deviates from that in his treatise 'on the five substances'; however, apart from that we find out that he scatters his views on this issue in different places of his treatises. Here, I will present a systematic review of every mention of these principles in the writings of western commentators. By so doing, I divide al-Kindī's view in two parts: (1) the definitions of the natural fundamental elements of al-Kindī's natural philosophy; and (2) the explanation of the principle of the natural body.

(1) The major conception of al-Kindī's natural philosophy

To begin, al-Kindī defines matter as 'a potentiality that contains forms separately', whereas form is defined as 'a thing by which the existent becomes what it is'⁽²⁾. Side by side with the foregoing contention, form represents the dimension, and the body is composed of matter and form. While matter is the element ('unsur'), the form, on the other hand, are the dimensions of the body⁽³⁾. The latter may be defined as a substance (Jawhar) which has three dimensions i.e., length, width and depth. In other words, body is composed of a substance which is its own genus (al-janis) and the dimensions which are its own differentia (al-fasl). It is also composed of matter and form.

When one considers al-Kindī's natural system, one finds that matter is not the dimension, and the latter is explicitly the form of the body. Elsewhere, he claims 'a thing by which the existent becomes what it is, is indeed the form of a thing, whether it was sensible or intelligible'. Within al-Kindī's perspective, however, both matter and form are substances, and the body, which is composed of them, is also a substance.

To a large extent the interest in the role of form was a highly important subject-matter for al-Kindī. Form has various senses, for instance, in the sensible realm it is called material form; while in the intelligible realm it is called specific form. Further, in comparing it with matter, it equals the dimension. To use al-Kindī's terminology, however, form is not accidents of the body, whether they are particular or universal accidents.⁽⁴⁾ Now, in order to understand fully the essential character of the relation between matter

and form, al-Kindī defines matter as ‘it is recipient [of forms] or it is not, and it is a catch factuality and it is not’ in his treatise ‘on the five substances’. If matter is removed, then the things which are other than matter would also be removed; while if the things which are other than matter were removed, matter then would not be removed. Everything, in the world emerges from matter: it is the recipient of contraries without any kind of corruption, it absolutely has no definition, and since it is the genus of all genera it is not determined by any definition.

In the analysis of the notion of form, al-Kindī defines it by saying: it is the differentia or the distinctive property by which the existent distinguished itself from other existents through the character of dimension, in the sense that the latter works as an instrument, thereby we perceive the existent.⁽⁵⁾ It was within this context that one can argue that form, in al-Kindī’s view, is indeed equal to dimension or the figure, or to all that lies under the realm of sensible things, which lies in turn under the species, or it is the differentia in a logical sense.

Let us turn our attention next to the conception of ‘element’. The introduction of the element conception led to a good deal of explanation in al-Kindī’s view. By this he means either matter or formless matter (hayula or al-tīna). He proceeds further to say that ‘the body is composed of two simple substances, i.e., form and matter, for it is said that substances are divided into three types: two simple elements, that is, matter and form and

that compound of them, the formed element, namely the body’.⁽⁶⁾ However, what al-Kindī means by element, in various places of his treatises, is the singular of the ‘four elements’ (ustugsat) which are well-known in the Arabic-Islamic philosophical tradition. From this position one may conclude that elements are not the final principles of things, rather they are the principles of compounds. They have principles which are matter and form, and accordingly the element here is meant to be the compound, body or the simple body.⁽⁷⁾ From this view one can understand that each element retains its own real particularity, though some of its own parts might change to other element. However, unlike Aristotle, who holds that element is eternal, al-Kindī explicitly argues that element as a whole remains unchangeable merely according to the period that is determined by God for it. A different but not unrelated view is his final definition of element when he states ‘it is a body of similar parts that moves in a rectilinear motion’.

It is most important for understanding al-Kindī’s natural philosophy that we consider the following conceptions: ‘body’ (al-jism), ‘compound’ (al-murakab), ‘substance’ and ‘four causes’, since they constitute the backbone of his view in this realm. Let us start with the body. By body al-Kindī denotes that which has three dimensions,⁽⁸⁾ it is a magnitude, yet not every magnitude is a body, for the latter has three types: (1) ‘either it has only length, i.e., the line; (2) or it has length and width, i.e., the surface; (3) or it has length, width and depth’.⁽⁹⁾ Elsewhere, he mentions body is a substance which

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has three dimensions, namely length, width and depth, in the sense that it is composed of a substance which is its own genus and dimensions which are its own differentia. Further, it is compound of matter and form, i.e., it is compound of matter and dimension or the formed element.

One of the most important characteristics of the body in addition to the extension, according to al-Kindī, is that it is not living (hay). This view has a great appeal to the ontological proof that is based on motion which briefly states that a living thing, particularly a man, is characterised by life and cognition.⁽¹⁰⁾ In fact, not every body has those two characteristics, for they merely belong to the soul in the living body. In this specific point, al-Kindī says 'every motion, it is either essential or accidental'. He meant by the essential motion that which exists in the essence of a thing, while by an accidental motion that which does not exist in the essence of a thing.⁽¹¹⁾ Further, he meant by that exists in the essence of a thing everything that is not separate from the thing only by its corruption, just as the life of the living thing which is not separated from it only by the corruption of its own substance and transmits it into a non-living thing. Whilst, he meant by that which does not exist in the essence of a thing that which might be separated from a thing without corrupting its own substance. For instance, the life in the body, thus the life might separate of the living body while the corporeality remains as it is and not corrupted.

With this in mind, al-Kindī repeats this sense again until ending up with the point that

living bodies are divided into two types: either their life is essential in the sense that if it were

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separated from a thing it would be corrupted; or their life is accidental in the sense that if it were separated from a thing it would not be corrupted.

Having established the precise meaning of the concept of body, al-Kindī then proceeds to explain that every body is compound and not the other way round. The compound is that which is made of two simple elements or more. The simple thing is opposite to the compound in the sense it is not dissolved in itself into something simpler than it, such as the oneness, matter and form.⁽¹²⁾ Regarding the element of water, it is compound since it is made of matter and form. The body, as has been mentioned, is composed of two substances: matter and form. For this reason, it is called a substance. However the matter, from which the substance is made of, cannot be called by the compound or the body.⁽¹³⁾ Here, a similar point can be made about the number, whose essential foundation number is one, while number two is a compound, i.e., it is composed of units. Yet one is not a number, while two is a number and the one which is compound of units is a number. Every compound, in addition, possesses parts,

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and it is the whole for its own parts; every composition is also the alteration of states and motion.

Let us turn our attention next to various uses of the conception of substance. Before giving a definition of substance, we affirm al-Kindī divided substance into two types: (1) the corporeal substances or bodily substances; (2) the non-corporeal substances. The first type encompasses matter and form and the body which is made of them. In his treatise 'on the five substances' al-Kindī asserts that the corporeal substance should have five things: matter, form, place, motion and time.⁽¹⁴⁾ It would be tempting to argue, however, that he does denote to say that place, time and motion are not substances; rather, they are characteristics or concomitants of the material substance (body) which is composed of the two fundamental principles: matter and form. It has to be acknowledged that what al-Kindī is saying is not far from what Aristotle and his followers said, by whom we mean Avicenna, al-Fārābī and Averroes, who considered place, time and motion as concomitants of the natural body, and form and matter and non-existence as principles of the natural body.⁽¹⁵⁾

Nonetheless, al-Kindī clearly declares that place; time and motion are substances, where

he speaks openly about the existence of these five substances mentioned above in every body. In order to understand al-Kindī's position accurately it must be explained, however, the significations of these five substances in relation to the artificial things, for the latter are the significations of substances or bodies like them in the sense that we can say that these five substances, for instance, exist in the ship.

Yet, what we can say with some degree of certainty is that al-Kindī's definition of substance, 'that which exists by itself', cannot be applied to place, time and motion. Here, on the basis of this thesis, al-Kindī divides motion into generation and corruption that exists merely in a substance which brings about a man out of heat and cold or corrupting him into earth. Whilst, the other types of motion, such as, locomotion, growth and alteration exist only in quantity, quality and place in a symmetrical sense.⁽¹⁶⁾ We know, however, that the quantity, quality and place are categories that exist in a substance according to al-Kindī and Aristotle's logical opinion.⁽¹⁷⁾ It is clear from what has been said above that al-Kindī's sense of substance is different, and we have to draw a distinction between a substance in its original, ontological and logical definition on the one hand and a substance as an attribute or essential category on the other hand.

Having explained the nature and the quality of corporeal substance, al-Kindī proceeds to explain the non-corporeal substance. Here, he enters the realm of the human soul, celestial souls and God. Before discussing the issue of the human soul, we will state al-Kindī's most important two definitions of the soul. He says soul is a substance that exists by itself. It is a bearer of accidents that do not change its essence. It is described and

not the descriptor. It is neither generated nor corrupted; it does not receive the changeable accidental predicates.⁽¹⁸⁾ As for the second

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definition, it is stated as follows: it is that which exists by itself. It does not need others for its permanence; it is a bearer of the difference, and it exists eternally unchangeable'. It is described by all categories; or it is described either univocally or equivocally'.⁽¹⁹⁾ As for the univocal description, it imparts its described thing its own name and definition together, the equivocal description, on the other hand, does not impart its described thing neither its name nor its definition.

This interpretation explains that things are different either by their particulars or their names. If the definition of two particulars or more is one and as well as their name, they have one nature. For instance, Zayd and Amr, for the definition of each one of them is that he is a rational man and their names are one, namely man, thus their nature is one which is the humanity. Thus, if we say Zayd is a man, we find out that a man is a description of Zayd that imparts him his name and definition, and man is the same as the nature of Zayd.⁽²⁰⁾ Hence, in this case the thing which describes the other thing by giving its definition and name is indeed from a described nature, and if the described thing was a substance then it is a substance; and since Zayd is a substance the man as a species is also a substance.⁽²¹⁾ As for

the describer of thing which does not impart its name and definition, it is not a described nature, rather is an accident, for instance, a living body, for not all body is living since life does not impart body neither its name nor its definition, simply because the nature of the body is the extension and not the living.

After dividing universal things into essential and non-essential, al-Kindī defines the essential by saying it is that by which the subsistence and permanence of a thing is established, and it is called a substance, for it constitutes the substance of the thing. In a similar manner, he considers the genus, species and differentia as substantial things, while the property and accident are incidental.

Much of what al-Kindī has to say about the concept of 'cause' (sabab) seems both intrinsically important and part of great tradition. He holds that cause is explained by the fact that it is either formal or material or an efficient or final cause. To put it more simply, it is the beginning of motion; or it is a final cause for the sake of which the action is done.⁽²²⁾ The material cause, with its various connotations ranging from prime matter in relation to form in general, to the unit in relation to number, or wood in relation to the bed, is reducible to the principle of potentiality or receptivity, proximate or ultimate. The formal cause, on the other hand, corresponds to the principle of actuality or fulfilment. Material forms are inherent in matter and impart actual being to it. Immaterial forms are entirely deprived of matter. Accidents, motions, species, genera, differentiae and the figures are designated as forms as well.⁽²³⁾ Al-Kindī defines the final cause as that for the sake of which the action is done. As such, it might be predicated of the agent, the patient, or something different from

both. He observes that some have denied the reality of final causes, either on the ground that every such cause must have a cause, or that what happens in the world happens purely fortuitously. Chance events, however, are not fully undetermined and capricious.

Involuntary actions involve purpose, which may identify either with the imagined or rational good toward which the will of the agent tends, or with something objective outside the agent. Although analogous to the other three causes, the final cause, in al-Kindī's view, enjoys a certain pre-eminence. In the conception of the agent, it is prior in point of definition, since it enters into the definition of the other causes.

(2) The fundamental principles of the natural body

Having explained the following conception of matter, form, substance, body, compound and the four causes, one might ask: does al-Kindī believe in the inseparability of matter and form? Does the potentiality and non-existent have any role besides matter and form in constituting the existing thing?⁽²⁴⁾ Before deciding the principle of the natural body in his treatise 'on the five substances' al-Kindī holds that existing things are divided into three parts: (1) the immaterial existents which are totally separate from matter, i.e., the divine existents; (2) the mathematical existents which are mixed in their existence with matter and are not in the mind; (3) the material sensible existents whose forms are inseparable from their matter.⁽²⁵⁾

Seen in this light, al-Kindī names the material sensible existents by substances, that is, the material substance. Accordingly, he divides them into (a) the celestial material

substance, such as the celestial spheres and stars and so on; and (b) the existents which are receptive of generation and corruption. However, both types share five things that exist in all material substances: matter, form, place, motion and time.⁽²⁶⁾ In other words, every material substance exists in a matter from which it is made; a form by which it can be distinguished from other existents; a place occupied by it; and it has both motion and time, for those latter are inseparable, simply because time is a number of motion.⁽²⁷⁾ To illustrate his view al-Kindī gives the following example about the ship which is made of five substances. The first substance is its wood by

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which it is made; the second substance is the form which represents the corners and angles and by which it is distinguished from other things; and the third substance is the place it occupies as it moves (fourth substance) in time (fifth substance). Just as the five substances are compound, so is the situation with every sensible substance.

Of these five substances, al-Kindī explains, matter and form are those which compose the body. As for the remaining three substances, they serve as concomitants of compound things, and depend on their existence upon the existence of the substances of matter and

form. Thus, like the other Muslim philosophers, al-Kindī considers place, time and motion as concomitants or predicates of the natural body. The following quoted passage helps to clarify al-Kindī's view: 'we must begin [our explanation of the natural body] by stating those two substances, i.e., matter and form before the remaining other three [: place and time and motion], for knowing any entity depends upon the principles form which it is made.'⁽²⁸⁾ In the context where the passage quoted appears, al-Kindī holds that matter and form are principles for the natural substance. As for the place, time and motion, they are substantial predicates or substantial characteristics of these two substances (matter and form), or the material substance.

Al-Kindī maintains that the four elements (hot, cold, moist and dry) do not serve as principles of natural bodies, for each one of them is composed of two simple principles, i.e., matter and form. In other words, the four elements are the principles of composed things, while form and matter are principles of the four elements.⁽²⁹⁾ The four elements, which are the compounds, are the principles of animals and planets and every generated and corrupted thing.⁽³⁰⁾ If we compare matter and form and the four elements, we find that while the former are simple in the sense that there is nothing prior to them and they are not bodies, the latter are bodies. Matter and form are not bodies; rather they compose bodies, and the thing which is not a body, according to al-Kindī, is not a compound thing. Another point is that while the four elements are made of something, matter and form are made of nothing.

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It is advisable, according to al-Kindī, to begin your discussion in physics with matter, simply because it is a receptive of form. Matter may be defined as the genus of genera, and has no definition in the sense that it is merely explained by species and not by genus, i.e., by the characteristics. Form; on the other hand, it is a common term for various senses, such as the extension and figure which are sensed by seeing. It is also a genus and species.⁽³¹⁾ Moreover, it is divided into two types, the immaterial and material forms; and the latter is the material form or the form which always exists in matter. One can infer that forms, in al-Kindī's view, are not separated from matter; rather they cannot be conceived merely in matter. Form, in the natural existent, cannot be known as a self-subsisting thing in the sense that in the simple matter there is a potentiality by which— with matter of course— things come into being.⁽³²⁾ From what has been said so far it appears that form exists in a potential state, for example, if the heat and dry were combined fire would take place. Thus, while heat and dry represent matter fire represents form. We find that the notion of the form in a potential state is the same as the notion of potentiality; and the latter notion is closely followed by most of Muslim philosophers later.

(3)The nature and quality of the soul

Having discussed al-Kindī's natural c o n c e p t i o n s extensively in our previous pages, we shall do no more than note those points that are remarkably important to the nature

of the soul. The discussion of the soul takes up a large portion of al-Kindī's physics. He gives three definitions of soul. First of all, it is "the perfection of a natural body that possesses an instrument which is capable of life"; secondly, "soul is the primary perfection of a natural body that possesses life potentially"; and thirdly: "it is a substance of a moving intellect essentially and a composed number".⁽³³⁾ What al-Kindī meant by the term 'perfection' is that it completes the species essentially, that is, the living species whether it was a human or an animal or a planet. For example, the primary perfection of the vegetable soul is that by its virtue the natural body becomes developing, generating and nourishing; while the animal perfection is that by virtue of which the living thing conceives the particular things and moves by the will; while the human perfection is that by virtue of which it would be able to percept the universal things and exercise the intellectual actions.⁽³⁴⁾ Regarding the term 'natural body' or organic body in this definition, it denotes that its functions act thereby the instruments and the organs of the body, i.e., it is a living in potentiality and has a disposition. For instance, we say that unlike the stone, which has no disposition of life, the animal soul has. We must bear in mind that al-Kindī's first two definitions of the soul encompass within them a term of 'capable of life' which contains the characteristics of vegetable, animal and human soul.

One notable aspect of al-Kindī's explanation of the soul here is that he tends to give a perfect definition of the three types of soul. The vegetable soul is the first perfection of an organic body insofar as it generates, grows and nourishes. As for the animal soul, it is the first perfection of an organic body insofar as it precepts the particular things and moves by

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will. The human soul, then, is the perfection of an organic body insofar as it precepts the universal things and exercises the intellectual actions.

If we peruse carefully the third definition, which says that soul is a substance of a moving intellect essentially, it bears, in contrast to the first two definitions, which contain Aristotelian elements, a Platonic or Neo-Platonic character. The soul, according to this definition, is an intellectual thing, or to be more precise, essentially a moving intellect.⁽³⁵⁾ It has been mentioned for its connection to the body, which is in total contrast with the Aristotelian conception of the soul that considers it as a natural thing or it is the form of the body and it has a matter or has something live that potentially receives it.

Let us return to the third definition and more specifically to the phrase of 'composed number'. It is quite difficult to understand what al-Kindī means by it; did he mean that soul is composed of faculties, namely the Platonic division of the soul into concupiscent, irascible and rational faculties? However, the opinion is that al-Kindī meant by it the motion of thought in the sense that soul contains an intellectual motion which translates itself by transmitting from some forms of things to others, and another motion includes various ethical attitudes such as pain, sadness,

happiness and anger.⁽³⁶⁾ And this are precisely the accidents of the soul, thus it is one and multiple. Moreover, al-Kindī explains that the soul basically exists in a potential state and translating in actuality by virtue of the combination of genera and species or the universal things in soul, thus it becomes an intellectual thing in actuality.

To demonstrate that soul is not a body, al-Kindī begins by explaining the senses of the body and substance. He explicitly says that animated bodies are divided into two categories: those for whom the attribute of life is an essential principle in themselves and those for whom the attribute of life is an accident in themselves.⁽³⁷⁾ The former cannot be separated from the body, for if they did, the body would be corrupted; whereas in the latter the accident can separate from the thing without causing its corruption. Thus, al-Kindī argues that what expresses the essence of life in the animated thing is what we call the 'soul'. However, the question that arises in this stage is: is soul a substance and an accident? Al-Kindī clearly answers that it is a substance, for the animated species is one, and the characteristic of Life is inseparable from the animated thing inasmuch as it remains an animated thing.⁽³⁸⁾ And since the animated thing is a substance, for the sense of substance is that by which a thing is what it is, and it is the form of a thing, and it has been obvious that the prescriber and prescribed thing are both of one nature, hence the soul, by virtue of which the thing becomes animated, is also a substance and it is the substance of species or the essence of species. The soul, therefore, is a substance. However the question now is: is the soul a corporeal or non-corporeal substance? The answer is it is a non-corporeal substance, simply because every species is

not a body and soul is species, therefore, soul is not body. According to al-Kindī, the soul and every species cannot be a body, for if they were a body, we would not be able to explain how this species exist in its individual things. However, al-Kindī did not explain the legality of the proof that soul and any species must not exist in a body. The problem, however, remains unsolved: how does the species exist in its individual things? Does it exist in its whole or in its parts?

In what follows we shall notice that al-Kindī holds that soul is a simple entity that possesses a great nobility and perfection. Its own substance is the same as the substance of God. It differs and separates from the body, and it has a divine and spiritual substance according to the nobility of its nature which in a total contrast to the accidental occurrences that happen to the body, such as desires and anger.⁽³⁹⁾ Here, it is quite clear that al-Kindī speaks about the rational soul, for it is directly followed by his attempt to present two proofs

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that soul has a concupiscent and irascible faculty. This proof is based upon the point that the soul, which derives its own light from God, prevents the irascible faculty from anger and likewise the concupiscent from achieving its target. Hence, there are two types of faculties which differ from the rational faculty; one that

always works against them, for the inhibitor is different from the forbidden thing, because one thing cannot be contrary to itself. This explains that the faculties by virtue of which man becomes angry and desires things are indeed utterly different from the faculty that prevents anger and desire.

To further corroborate his view of soul, al-Kindī argues that if the soul were separated from the body, it would learn all that occurs in the world in the sense that nothing would become secret and invisible for it.⁽⁴⁰⁾ To support his view, following Plato, he argues that many ancient philosophers freed themselves from the sensible and desirable things and devote themselves totally only to the task of thinking about things until they find out their particular realities and know what people hide in their souls. And if the case was so, as the soul remains connected with the body, then you can imagine how great it would be if it were totally separated from it and became to live in the true ideal world that is completely covered by the light of God. In other words, people who are indulgent in the concupiscence of the sensible world will never ever have found their way to the noble things, and as a result they will never be able to imitate God.⁽⁴¹⁾ Al-Kindī goes on to assimilate the concupiscent faculty to the pig and the irascible faculty to the dog and the rational faculty to the king. He proceeds: a person that is dominated by the concupiscent faculty, in the sense that it becomes his ultimate goal, would be measured by the pig; whereas the one dominated by the irascible faculty would be measured by the dog; and the one who is dominated by the rational faculty, and his or her ultimate purpose is the knowledge of the particular realities of things would indeed be very close to God, for one of the most remarkable characteristics of God

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is wisdom, power, justice, good, beauty and truth.

It is important not to lose sight of al-Kindī's fundamental point that soul derives its existence from God's light. It is for this reason that the human soul, whose substance is the same as God's substance, will remain knowing everything just as God does but in a lesser rank. Accordingly, it becomes identical to the world of permanence and views by virtue of the light of God, thus it seems to have been inevitable for it to see every apparent and hidden things.

He then proceeds to cast a light on Pythagoras' view on soul, who argues that if the soul, which is correlated with the body, was cleansed of any association with matter and devoted all its efforts to philosophical contemplation, it would be united with the light of God. Then images of all things would reflect on it just as the images of all sensible things reflect on a polished mirror.⁽⁴²⁾ This is the case with soul, for just as if the mirror was rusty then it would not reflect absolutely the image of a thing, and if the rust was removed then all images will appear clearly on it, so is the case with the rational soul. In other words, if it was rusty and impure it would be very ignorant and images of things would not appear on it.

In a similar manner, al-Kindī proceeds that

if the rational soul reached the ultimate stage of purification and saw in his sleep wonders of dreams, and it has been addressed by souls that have already separated for their bodies and the light and the mercy of God has emanated to them, then this soul would have the ultimate amount of permanent pleasure which surpasses all the pleasures of eating, drinking, sexual intercourse and all pleasures of senses. For, while the latter are impure sensible pleasures followed by harm, the former is a divine pleasure followed the greatest honour.⁽⁴³⁾ Further, he considers this world, no matter how long we would stay in it, as merely a bridge to the other world, for the latter is our higher, noble final abode, where the soul would be close to God and be able to see Him intellectually.

Taking up Plato's view on soul, which he highly appreciated, al-Kindī states the abode of rational souls, if they are abstracted from all material attachments, is beyond the celestial sphere in the divine realm, where the light of God covers everything.⁽⁴⁴⁾ Not every soul that is separated from its body, however, will direct to the divine realm, for despite the fact that some souls are separated from their bodies they still have pollution and malicious things from the sensible world. Thus, some of them would reside in the celestial sphere for a period of time in order to purify themselves, then after doing so they would transfer to the sphere of Mercury, so they would reside for a period of time in it, and if they were purified they would transfer to a higher sphere, and they would reside in each sphere for a period of time, and if they reached the highest sphere and purified themselves in an absolute sense they would end up in the intellectual world where they can be identified with the light of God and thus they would know everything.

Attributing this view to Aristotle wrongly, al-Kindī holds that soul is a simple substance whose actions take place by virtue of its body. On the one hand, Plato, according to al-Kindī, says soul is united with the body but it acts through it. He thought that there is no difference between the views of both philosophers, for both of them hold that soul is a simple substance which has neither length

According to al-Kindī, the soul and every species cannot be a body, for if they were a body, we would not be able to explain how this species exist in its individual things

nor width nor depth, and both of them show the sense of connection with the body insofar as the actions of the soul that appear by virtue of the body.⁽⁴⁵⁾ In addition, both views agree that the actions of soul in the lower spheres occur by the intermediary of the sphere. Al-Kindī wards off those who said that Plato meant that the connection of the soul with the body is the connection of the body with the other, for the soul uses the body, in this connection, to manage its actions.

From this point of view, which is clearly also Avicenna's point of view, al-Kindī holds that the actions of the soul, in the animated bodies of plants, animals and man, depend upon the temperaments of bodies and the latter are related ontologically with the environment and the motion of the celestial bodies and their cause of the four seasons and heat, cold and rain. In his definition of the soul, namely that "it is the first perfection of an organic body",

al-Kindī tries to say that despite the fact that soul is neither a body nor it has a material nature; it acts by virtue of the body and its organs.⁽⁴⁶⁾ Yet, the body, according to al-Kindī, remains no more than a veil that

covers the soul from seeing and knowing its noble substance. It is only by separating from the bondage of the body that occurs through death that the soul would be able to fulfil its own functions that involve the knowledge and contemplation of God without a body or an instrument.⁽⁴⁷⁾ Concerning the existence of the soul in this current life, where it manages the affairs of the body, it would be influenced by the temperaments of bodies, the impact of the environment including heat and cold and the motion of the celestial spheres. The latter do not merely influence the characteristics of the man, such as colour, length and his structure, but also his ethical attitude, i.e., in the soul, thus they make it either sad and bleak or happy. Al-Kindī affirms that the actions of the soul depend upon the mixture of bodies, and the latter differ according to the difference of people in place, time, motion and character.

Equally important is the fact that al-Kindī does not merely declare that the states and mixture of bodies, and the psychological and ethical states of man are influenced by sun and motion and the remaining stars according to quantitative and mathematical proportion. But he also traces back the existence of man and every corrupted thing to the impact of the higher celestial spheres whose functions are no more than the translation of the order of God.⁽⁴⁸⁾ In support of this view, al-Kindī does not merely trace back our temperance, ethical

One notable aspect of al-Kindī's explanation of the soul here is that he tends to give a perfect definition of the three types of soul

and biological existence and all that occurs in the world of generation and corruption to the impact of the heavenly spheres, but also finding in it an explanation of the appearance of the

nations and the change of their states and the difference of their habits, laws and their morality due to the difference of the impact of heavenly spheres according to the states which are the cause of the difference of time, place and the qualitative motions as well as the difference in the mood of each individual and consequently the difference of their ability to receive the influence of the heavenly spheres.

In pursuance of such a view, al-Kindī's aim is to affirm that there is a causal link between the animated creatures and the environment and the heavenly spheres which are created and determined in a purposive way. In other words, God manages the existence of every single existing thing and imparts the spheres and stars their powers, life and management.

⁽⁴⁹⁾ These higher heavenly spheres impact on the animated creatures by way of knowledge and intellection and previously arranged engineering. In fact, after a careful study of the proof of management in al-Kindī's natural philosophy we find that it plays a crucial role in al-Kindī's understanding of the natural phenomenon, particularly the inclination of the axis of the sun and what results from it: the four seasons and planting, or the motion of the moon and its influence on the tides and what results of it.⁽⁵⁰⁾ He goes as far as to demonstrate his teleological proof by saying that in the process of adaptation we find that the inhabitants of this climate or another, in

their appearance of the bodily characteristics such as length, the colour of the skin, the size of noses and curly hair, are subject to the influence of the heavenly spheres that act according to the teleological proof which is designed by God.

Al-Kindī holds the independence of matter, as well as the certain quality of things in nature and the law of natural causality, and therefore he totally differs from the Ash'arite. However, he declares the existence of matter⁽⁵¹⁾ after God created it with its laws and inner action which

It is important not to lose sight of al-Kindī's fundamental point that soul derives its existence from God's light. It is for this reason that the human soul, whose substance is the same as God's substance, will remain knowing everything just as God does but in a lesser rank

are defined by Him through the intermediary of the heavenly spheres. On the other hand, he considers genera and species and the heavenly spheres all eternally permanent.

All in all, bodies are a mixture that has a life potentially, i.e., it has a disposition to receive the soul by virtue of the action of the heavenly spheres.

What remains to be shown is that al-Kindī did not answer the question of whether the soul has various faculties, namely concupiscent, irascible and rational faculties, or they are separated from each other. He speaks openly, however, about the rational soul as though it is the only one which perpetuates in heaven in

a life hereafter and has its own independence, particularly he characterises it as a light coming from God.⁽⁵²⁾ As for the concupiscent, irascible souls, they bestow the animate being in compensating what it lost in its body. In addition, they are accidents, for they are the appearance of life, and the latter is imparted to the animated being by the heavenly spheres.⁽⁵³⁾ He goes on to say that the heavenly spheres have a soul; however, they have no concupiscent, irascible faculties, because they are ingenerated and incorruptible, rather they are a rational faculty. In this point, he argues that the sphere has only a rational faculty, and what lacks these three faculties has no life, and the sphere is a living existent, therefore, it has the rational faculty.

At the close of his discussion of the soul, al-Kindī speaks about the moral virtues according to the three faculties of the soul. Wisdom, for example, is the virtue of the rational faculty, which is the knowledge of reality or the nature of the universal things and they are used in the practical management of life; help is the virtue of the dominant faculty, which is manifested by the underestimation of death; and chastity is a typical way to bodily education. The rational faculty has two functions, i.e., imagination and intellection.

(4)The concomitants of the natural body

Certain important points are made by al-Kindī in the issue of the concomitants of the natural body. He considers place (al-makan), time (al-zaman) and motion (al-haraka) as the necessary concomitants of the natural body. Place is supposed by some to be a body, but it is rather the surface which surrounds the body.⁽⁵⁴⁾ When the body is taken away, according to al-Kindī, the place does not cease to exist;

the vacant place is instantly filled up by some other body, for instance, air, water, etc., which has the same surrounding surface.⁽⁵⁵⁾ In addition, he affirms that place, in relation to the world as a whole, has external limitations, and it is a surface and not a line or a body. Departing from this physical interpretation, al-Kindī repudiates the existence of a vacuum and plenum outside the world. Accordingly, there is no place without a body occupying it, and as a result he generalises this notion to reject categorically the existence of the absolute vacuum.

For al-Kindī place is a magnitude, it is either body or surface or line. Place is a surface, because it has only two dimensions, namely length and width; whilst the body has three dimensions: length, width and depth; while the line has only length.⁽⁵⁶⁾ For this reason, it is not possible to divide the body into surfaces or into lines. Likewise we cannot divide the surface into bodies or lines.⁽⁵⁷⁾ Rather, each genus or species divides into its own like. It is no possible, therefore, to say that one surface is similar or bigger than a line or body or time or place, nor is it possible to say that one body is similar or bigger than a surface.

Concerning the particular reality of place, philosophers are divided among themselves due to its ambiguity. Some of them, for instance, hold that there is no such thing called place; whilst others, such as Plato, considered it as a body; while others hold it exists but it is not a body. Aristotle, on the other hand, holds that place exists and it is self-evident.⁽⁵⁸⁾ Al-Kindī explains the latter opinion by saying that in order for the body to increase or decrease or move, this should occur in a thing which is bigger than the body and that

contains it. He goes further to say that we call the thing which contains the body a place. For this reason, we find air where there is a vacuum, and we find water where there is air, for if the water enters the glass the air goes out. However, in all these cases, the place remains the same, untouchable.

Having established the existence of place, the question arising is what is precisely place? In order to answer this question al-Kindī, firstly, tries to refute the view of those who held that place is a body. He argues that if place were a body, then the body would receive another body and the latter would receive another and this would go on ad infinitum, and this is absurd.⁽⁵⁹⁾ He goes as far as to say that place is not a body; rather, it is a surface that lies outside the body which is contained by the place.⁽⁶⁰⁾ To explain this point, he argues that if the simple formless matter had length, width and depth, then it would be called body; and if formless matter was considered as having length, and width without depth, it would be called surface; and if formless matter had only length without width and depth it would be called a line. Regarding place, it is not matter which has length, width and depth, but some matter, indeed, has length, and width without depth.

Let us now move to a discussion relevant to certain points of motion as an indispensable of the concomitants of a natural thing. The physical

**Al-Kindī goes on to assimilate the
concupiscent faculty to the pig and the
irascible faculty to the dog and the rational
faculty to the king**

he considers this world, no matter how long we would stay in it, as merely a bridge to the other world, for the latter is our higher, noble final abode, where the soul would be close to God and be able to see Him intellectually

notion of motion, in al-Kindī's view, represents the key element of knowing nature and natural existents.⁽⁶¹⁾ For it is an essential component in the process of division of existents into those which are above and under the sphere of the moon, namely, according to the circular motion of the heavenly spheres and the rectilinear motion of the existents in the world of the generation and corruption. In addition, motion is a critical part, in al-Kindī's view, not merely in understanding time and place, and the notion of natural place and dividing bodies according to motion and its contrary, but also in understanding the sense of potentiality and actuality, and it is a fundamental part in the temporality and eternity of the world.⁽⁶²⁾ The notion of motion constitutes also an important part in dividing theoretical sciences into three types: (1) natural motion; (2) mathematical motion; (3) metaphysical motion, according to their subject-matter insofar as it moves or not. The division of the intellect into potential intellect, acquired intellect, active intellect and actual intellect is actually based, in al-Kindī's view, upon the notion of motion, alteration and potentiality and actuality.

Several definitions of the motion have been given by al-Kindī: motion may be defined as "the change in the state of the essence" or "the change that takes place in the state

of affairs" or "it is some kind of change". It is clear from what has been said that any type of accidental or substantial change is indeed a motion according to these above-mentioned definitions. However, like Aristotle, al-Kindī defines motion as the action of the potentiality insofar as potentiality.

A large part of the natural philosophy of al-Kindī deals with motion, matter and nature which are the chief distinguishing characteristics of natural entities. He presents two definitions for nature: (1) it is "the inception of motion and the rest that occurs due to a motion and it is also the first faculty of the soul"; and (2) "it is a primary cause for every moving static thing". In the same way, he notices that each natural existent must have matter, and the latter is a subject-matter of passivity, thus every matter is movable. What I hope will be clear from all of that has been said above is that al-Kindī profoundly considers that since "the natural thing is every movable thing, thus the natural science is the science of every movable thing, and therefore, the metaphysical science, on the other hand, is the science of immovable things". Here, al-Kindī relates motion with nature or vice versa, and regards it as the main subject-matter of natural science.

To support this view, he says "the knowledge of natural sciences is the knowledge of the movable things, for God made nature the cause of all movable and movable static things, and the greatest demonstration of the certain nature of movable things is their motion".⁽⁶³⁾ Elsewhere, he says "the contrary things by virtue of motion are the contrary things by virtue of nature; nature, as we have already defined, is the cause of motion and rest.

This following point is well worth keeping in mind, given the simplistic manner in which the view expressed by al-Kindī's stand is frequently taken to represent al-Kindī's philosophical view of nature. He goes as far as possible to state various senses of nature: He says, for instance, philosophers name matter by nature, and they name form by nature, and they also call every essence of everything by nature, and they call the rest by nature, and they also call the managing power of bodies by nature. Further, he says the term 'nature' is predicated of four senses:

(1) it is predicated of the body of the man; (2) it is predicated of the figuration of the human body; (3) it is predicated of the power that manages the body; and (4) it is predicated of the motion of the soul.

Motion, which is a fundamental notion of nature, on the other hand, according to al-Kindī, is of six types. Two are variations in substance, i.e., generation and corruption; two are variations in quantity, i.e., increase or decrease; one is a variation in quality and another one is a variation in position.

What al-Kindī perhaps means here is that the motion of generation occurs only in a substance just as the generation of man out of heat and cold. Likewise, corruption also occurs in substance as man is transferred into earth.⁽⁶⁴⁾ As for the motions of increase and decrease, they occur only in quantity, namely, the increase in the part of bodies. For instance, if you see a body whose length is ten meters and then it becomes nine meters, we call this motion a decrease. And if you see a body whose length was ten meters

This is the case with soul, for just as if the mirror was rusty then it would not reflect absolutely the image of a thing, and if the rust was removed then all images will appear clearly on it, so is the case with the rational soul. In other words, if it was rusty and impure it would be very ignorant and images of things would not appear on it

and it then becomes eleven meters, we call this motion an increase.⁽⁶⁵⁾ You must keep in mind that this kind of motion is nothing but the quantity that exists in substance which increases and decreases, for the body whose length is ten meters and the other one which is eleven meters are both the substance. Further, unlike most Islamic philosophers who followed closely Aristotle, al-Kindī regards change in substance as a motion. However, they draw a distinction between change and motion, in the sense that the substantial alteration occurs from the contrary to the other and not from one quantity to the other or from one place to other or from quality to the other.

It is therefore important that we begin to understand how al-Kindī himself understood, interpreted and presented the nature and the quality of motion. He considers the process

Al-Kindī affirms that the actions of the soul depend upon the mixture of bodies, and the latter differ according to the difference of people in place, time, motion and character

of generation and corruption as no more than an alteration. However, this alteration occurs from one contrary to other contrary subsumed under one genus. For instance, heat and cold are two contraries are that subsumed under one genus which is quantity, and the change or the corruption occurs by transferring from the state of heat to the state of cold and not from heat to dryness, for the contrary of dryness is moist. In this point, al-Kindī says that the corruption is the alteration of predicable rather than the substratum, concerning the primary substratum, which is the existence, and it is not subjected to any kind of change. Further, every changeable thing changes to its approximate contrary, namely, that which

Attributing this view to Aristotle wrongly, al-Kindī holds that soul is a simple substance whose actions take place by virtue of its body. On the one hand, Plato, according to al-Kindī, says soul is united with the body but it acts through it

is in its genus, such as the heat that changed to cold.

According to al-Kindī, motion thus is either essential or accidental. He means by the former that whose motion comes from the essence of a thing, while the latter is that whose motion does not come from the essence of a thing. What he meant by 'coming from the essence of a thing' is what is inseparable from a thing in which it exists only in the case of the corruption of its substance.⁽⁶⁶⁾ For instance, the life of the animated existent which is inseparable

Certain important points are made by al-Kindī in the issue of the concomitants of the natural body. He considers place (al-makan), time (al-zaman) and motion (al-ḥaraka) as the necessary concomitants of the natural body

from it only in the case of its corruption and transferring into an unanimated body. What he meant by that which is not coming from the essence of a thing is that it is separable from a thing without the corruption of its substance; for instance, life in the celestial sphere, thus life might be separated from it, however it remains unchangeable and incorruptible.

The local motion is said to be divided into circular and rectilinear. The former is the motion of the biggest bodies, so to speak, the motion of the sphere of the whole, and the motion of all existents which have no contrary, which are simple and are not subjected to the generation and corruption due to the fact that it has no contrary.⁽⁶⁷⁾ As for the rectilinear motion or the contrary motion, it is what begins from a definite position and ends in a definite different position or vice versa. Further, the rectilinear motion in turn can also be divided into two types, namely it either takes place towards the middle, such as the motion of water and earth, or from the middle, such as the motion of air and fire.⁽⁶⁸⁾ Regarding the parts of the rectilinear motion, they are the left and right, forward and backward, above and below. All these motions are changeable in quality, and are related to the notion of natural place and the characters of bodies according to motion and its contrary.

The general impression one gathers from al-Kindī's view is that time is like motion; but it differs from motion in one important respect: time always proceeds in one direction only, whereas motion has more than one direction. He adds that time exists in states of potentiality and actuality, and it is also concomitant to body and motion. He draws a distinction between time and al-Waqt in the following way: he says time may be defined as "a period accounted by motion whose parts are not constant"; whereas, he defines al-Waqt by saying "it is the end of the time which is specified to the supposed work".

Equally important in Al-Kindī's view is that time is indeed the time of the sphere of the whole, i.e., its own period, for time is the number of the motion.⁽⁶⁹⁾ Every change numbers the period of the body, thus every change occurs in time, in the sense that there is no change without time and vice versa. Moreover, like Aristotle, al-Kindī says that time is a number of the motion of the sphere, or it is a number that accounts the motion.

In support of this view, al-Kindī argues that time is a quantity; it is either a discrete or continuous quantity. It divides into past and future, and into the separation between them called by an instant, which represents the last end of the past time and the primary end of the coming time.⁽⁷⁰⁾ Despite the fact that time is a continuous quantity, its own parts do not combine, and thus there is no apparent quantity made of it, for no line of time seems to appear clearly. Although time is one and a continuous quantity, it is divided and multiplied by instants. Time is also multiplied by its endings, which are the instants of time, such as the limits of the endings of the line.

Next, al-Kindī affirms the fact that time is

not a motion, rather its number. He does not differentiate between time and motion, but also emphasizes the relation of instant with past and future, which according to him cannot be endured; rather, it is always becoming in the sense that time is not constant and the instant is not time.⁽⁷¹⁾ Here, we have found two types of instant, the first of which is the ending of the past and the beginning of the future which is the past and it is always part of transit time and its totality forms time. The second of which is that the instant is not part of time; rather, it is the act of reason which is called stops (al-Waqfat) or the indivisible instant. And since time is divided into past and future, then it necessarily follows that it is not part of time.

In his account of the nature of time, al-Kindī states that philosophers were divided among themselves about the nature of time. Some of them said it is the same as motion; whilst others said it is not the same as motion.⁽⁷²⁾ It is so important to draw a distinction between wrong and right in these two views by saying that when motion exists in a thing it actually exists in the characteristics of this moved thing. Concerning time, it exists in everything

Concerning the particular reality of place, philosophers are divided among themselves due to its ambiguity. Some of them, for instance, hold that there is no such thing called place; whilst others, such as Plato, considered it as a body; while others hold it exists but it is not a body

in one kind and its variation is not taking place according to the variation of things. It has thus become clear that time is essentially not the motion, and rapidity and slowness, which exist in motion, cannot be known only by time, for the slow thing is that which moves in a long time, while the rapid thing is that which moves in a short time.

This would strengthen the supposition that time in al-Kindī's view is known only in relation to before and after, thus it is not other than the number. Hence, time is a number that belongs to motion. The numbered thing can be divided into two types: (1) the discrete numbered thing and (2) the continuous numbered thing. Time has nothing, however, to do with discrete number; rather it belongs to the continuous number.

Like Aristotle, al-Kindī holds that time is a continuous quantity, and divides the instants into two types, and time is not constant and its parts are not combined; likewise in relating time with body and motion. However, unlike Aristotle, he holds that time has a beginning, and that there is no time before the existence of the world. As for his saying that God does not exist in time and He is unmovable and time is predicated only of the movable and constant thing, they clearly carry Aristotelian aspects. In considering time as the period of existence or the measurement of thing, whether it is moveable or unmovable, one can conclude that al-Kindī holds that time is the measurement of existence.

All in all, al-Kindī believes that time has

a beginning and it is temporal. Further, the period is neither an essence nor is it a self-subsisting substance; rather, it belongs to the continuation of the existence of the existing thing, and since the instant is imaginable and non-constant, then the time has no existence in itself.

Time, according to al-Kindī, is neither an essence nor a self-subsisting substance; rather, it is one of the ten categories, i.e., the category of quantity. It is an additional thing or a characteristic or it is an accident or appearance of motion and the moved thing. This can be proved in al-Kindī's view which holds the concomitance of time, motion and body.

Finally, in al-Kindī's view, time is the measurement of existence. This explains the movable and unmovable thing, and not that which is non-moving or moving such as God. For if it was assumed that time is the measurement of existence, then it would necessarily follow that God exists also in time. Whereas al-Kindī, who holds that time is measurement, says

explicitly that God is not in time.

A large part of the natural philosophy of al-Kindī deals with motion, matter and nature which are the chief distinguishing characteristics of natural entities

Conclusion

The task remains to sort out the following question posed at the beginning of this paper: does al-Kindī have a complete natural philosophy? The answer is undoubtedly, yes. Obviously, the natural philosophy in al-Kindī's view is concerned with certain principles and of things that are attached to natural bodies. The fundamental principles governing the physical world are named essences by al-Kindī. They are the matter, form, motion, time and place that constitute the backbone of the natural philosophy in the Arabic-Islamic philosophy which was developed later.

In al-Kindī's natural philosophy, every natural body is said to have a natural place and a natural shape. All natural motions lead to a creative, circular motion that is not subject to generation and corruption. This circular motion belongs to the heavenly bodies, which are followed by the bodies that are subjected to generation and corruption. According to al-Kindī's stance, the first of the latter type of bodies in existence is the four elements: water, air, fire and earth. These elements are subjected to the celestial influences. When the four elements come together, their mixtures vary in temperament owing to the influence of the celestial bodies. This variation in temperament results in the composition of these elements: minerals, plants and animals (the last and the highest of whom are human beings). The closer their

temperament is to equilibrium, the higher the form of the natural body. For this reason, there is a gradation, in al-Kindī's natural philosophy view, in being from minerals to plants to animals, as well as a gradation of the various kinds subsumed under every level of these three types of beings. The closest temperament to equilibrium causes the existence of human bodies, which have the highest form in the terrestrial realm—this form being the human soul. This kind of soul is defined as “a primary perfection of an organic, natural body to which it belongs to perform acts of life”. Primary perfection is what gives actuality to the species of a thing, as shape gives actuality to the sword. This is to be contrasted with secondary perfection, which is what gives actuality to the action and reaction that follow upon the species, as does cutting for the sword. But there is another side to a

natural coin which must not be ignored here, and which al-Kindī in his treatises himself does not ignore: the human soul.

The discussion of the soul takes up a large portion of al-Kindī's natural philosophy. We are told that if the function of the soul is

limited to nutrition, growth and reproduction, it is a mere plant soul. If sensation and movement are added to these, then it is a mere animal soul. The soul of a human being includes these, but has an additional part, namely the human or rational, which is divided into the practical and the theoretical faculties or intellects. When this rational part occurs to a being, that being becomes a human being.

Several definitions of the motion have been given by al-Kindī: motion may be defined as “the change in the state of the essence” or “the change that takes place in the state of affairs” or “it is some kind of change”

Through conjunction with the agent intellect that contains the intelligibles, the theoretical part of the rational soul receives its proper perfection, the perfection that makes it what it is. The perfection is the best thing a human being can achieve, as it is for any being, which completes its nature merely in the ultimate stage of natural philosophy.

Footnotes

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