

Part 6: The Immutable And The Changing

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Lesson 51: The Immutable and the Changing

Introduction

Among the primary divisions which can be made for existence is that between the immutable and the changing. The immutable includes the Necessary Existent and completely immaterial beings. The changing includes all material existents and souls that are attached to matter.

Changes may be divided into two kinds: sudden and gradual. The gradual is that which is called ‘motion’ in philosophical terminology, and opposed to this is the concept of being stationary, which is its relative complement (‘adam malikah’); that is, it is not the case that everything which lacks motion necessarily has the attribute of being stationary, but those things which have the capacity for motion but in actuality are not in a state of motion will be stationary.

Therefore, completely immaterial existents cannot be called stationary. From this, the difference between

the concept of being stationary and that of being immutable is clear: the former is the relative complement of motion, while the latter is the contradictory of change.

In this part, we will first give an explanation of the immutable and the changing and the types of change and alteration, and then we will discuss motion, prove the existence of motion, and present the implications and kinds of motion. Along the way we shall explain the concepts of potentiality and actuality, and the relation between these and change and motion. Finally, this part, which is the last part on first philosophy, will be brought to an end with a discussion of substantial motion.

An Explanation Regarding Change and Immutability

In Arabic, the word for change, taghayyur, is derived from the word for other, ghayr, and means becoming another, or becoming different. Change is a concept whose abstraction requires the consideration of two things or states, or two parts of one thing, one of which vanishes and is replaced by the other.

Even the obliteration of something may be called a change since its existence changes to nonexistence, that is, it becomes annihilated, although nonexistence has no reality, and temporal coming into existence (huduth) also can be called change, for the previous nonexistence is changed into existence.

Alteration and change in state (tahawwul) are also close to change, but since tahawwul is derived from hall (state), it is more suitable to confine its use to changes in state. From this it may be observed that the concept of change is not a whatish concept for which genus and difference may be given, and it is only with difficulty that a clearer intellectual concept may be found which could be used to explain it, and for this reason it must be considered a self-evident concept.

Likewise, the concept of immutability, which is the contradictory of change, does not need any definition or explanation, and since it is abstracted from a single entified existence, it may be considered a positive concept and change a negative one. Perhaps for this sort of opposite abstracted concepts, either of them may be considered positive and the other negative.

The existence of the changing is also self-evident, and at the very least every person finds changes within his own internal states by presentational knowledge. However, immutable existence, which is not the object of any sort of change or alteration, must be established by proof. And in the previous part we became acquainted with some such proofs.

Types of Change

Given the breadth of the concept of change, various kinds of change may be posited:

1. The appearance of a substantial existent without previous matter, and in technical terms, creation (ibda'i). Instances of this posit is the first material existent, for those who accept the temporal beginning

of the material universe.

2. The complete destruction of a substantial existent and an instance of it is the last material existent, according to the position of those who believe that the material universe will have a temporal end.
3. The complete destruction of a substantial existent and the appearance of a new substantial existent in its place. The occurrences of this posit is considered impossible by most philosophers, and at the very least it may be said that among ordinary phenomena no instances of this sort of change are to be found.
4. The appearance of a substantial existent as an actual part of another substantial existent. A clear instance of this is vegetable forms, according to the position of those who consider vegetable forms to be substantial, and their materials to be actual existents.
5. The destruction of a part of a substantial existent without being replaced by another part, such as the death of a plant and its decomposition, according to the above-mentioned position.
6. The destruction of an actual part of a substantial existent and the appearance of another part in place of it, a clear instance of which is 'generation and corruption' such as the transformation of one component into another.
7. The destruction of a potential part of a substance and the appearance of another potential part in place of it. An instance of this posit is the substantial motion of bodies, which incessantly occurs with the destruction of one part and its replacement by another, parts which become existent by fluid existence and in which no actual part is to be found. In future lessons this will be further explained.
8. The coming about of a new accident in a substantial subject, of which there are numerous instances.
9. The destruction of an accident without another accident taking its place, such as the fading of the color of a body and its becoming colorless.
10. The destruction of an accident and the appearance of a different accident in its place, an instance of which is the succession of contrary accidents, such as the colors black and white.
11. The destruction of an actual part of an accident. An instance of this is the reduction of the number of something, according to those who consider number to be a real accident possessing actual parts.
12. The addition of an actual part to an accident, such as the augmentation of the number of something according to the above-mentioned view.
13. The destruction of a potential part of an accident and the appearance of another potential part, such as all accidental motion.
14. The attachment of one substantial existent to another, such as the attachment of the soul to the body and its coming to life.

15. The detachment of one substantial existent from another, such as the death of an animal or human being.

Observing the features of the above-mentioned types of change, it is clear that only the seventh and the thirteenth types are gradual and are examples of motion. The other types must be considered instantaneous changes, for between the prior and latter conditions there is a specific boundary, and there is no temporal gap between them, although it is possible for each of the above-mentioned conditions to possess a kind of gradualness.

For example, a change in the temperature of water occurs gradually, although the transformation of water into steam occurs in a single moment, or a zygote gradually becomes complete, but a spirit becomes attached to it in a single moment. Given this point, changes can be divided into two general types: instantaneous and gradual.

Another point is that for every kind of gradual change (types seven and thirteen) three subtypes can be considered: one is that in which the earlier parts are like the later parts, such a motion at a constant speed without acceleration; the second subtype is that in which the later parts are more intense and stronger than the earlier parts, such as intensifying motion and speeding up; and the third subtype is that in which the later parts are weaker than the earlier parts as in decelerating motion and slowing down. However, there is some controversy about this which will be indicated later.

The Positions of the Philosophers Regarding the Types of Change

A review of the statements of the philosophers regarding each of the mentioned types of change would take too long; however, five positions in this area may be indicated.

1. The well-known position of the philosophers who consider the appearance of every material phenomenon to be necessarily preceded by matter and time, and as for the material world, they hold that it does not have a temporal beginning or end, and for this reason they deny the first three types of change.
2. The position of those who hold that numbers are respectival is naturally that changes in number are not real changes, and this position was previously confirmed. Therefore, changes of types eleven and twelve must be considered respectival.
3. The position of those who do not consider motion to be gradual, and who imagine all changes to be instantaneous. Accordingly they deny the seventh and thirteenth types. Since the concept of change is an abstract concept, and has no example other than prior and later existence and nonexistence, and nonexistence is pure nullity, for this reason they considered existence to be equal to immutability, such as some of the Eleatics of ancient Greece.

4. The position of those who accept the existence of motion but would restrict it to accidents and as a result they deny the seventh type of motion.

5. The position of Sadr al-Muta'allihin and others who believe in substantial motion.

Given that which was stated in Lesson Forty-Seven about number, where it was proved that number is respectival, there is no further need for discussion of changes in number. However, regarding the other positions, several problems should be discussed.

The first problem is that of whether material phenomena must necessarily originate in previously existing matter, so that it would follow that the chain of material events stretches from pre-eternity infinitely and without beginning, or whether they must originate in an existent which is at the head of a chain of material phenomena so that the chain of material events has a temporal beginning.

The second problem is whether motion, as a continuous gradual thing, exists in the external world or whether that which is called motion is a collection of fixed things which are brought about in succession and destroyed, so that the mind of man abstracts the concept of motion from their collection. In other words, are all changes instantaneous, or are there also gradual changes?

The third problem, after establishing that there is motion, is whether gradual change occurs only in accidents, or whether there can also be motion, or motions, in substance itself.

Lesson 52: The Potential and the Actual

Introduction

Man has always been a witness to changes and alterations in bodies and in souls attached to matter, so that it may be claimed that there is no material existent nor existent attached to matter which is not subject to some kind of change or alteration. In the appropriate place the necessity of substantial motion will be proved for all material things, implying that changes in their accidents are subordinate to substantial motion.

On the other hand, the scope of the alteration of an existent into another existent such that each of them possesses an independent whatness becomes so broad that it may be supposed that each material existent can change into another material existent.

Hence, from the earliest times it has been held that there is a single principle for the world which changes into different things with the transformations which occur in this principle. Many philosophers have held that the only exceptions to this doctrine are the celestial bodies. In other words, the subjects

to which this doctrine applies are limited to elemental bodies.

Aside from the invalidity of the assumption of unchangeable celestial spheres (aflak), by rational proof one cannot deny the possibility that there might be a kind of material existent in some unknown corner of the world which cannot be changed into another material existent, although this possibility seems extremely weak and farfetched. We know that in modern physics the commonly accepted theory is that matter and energy and even types of energy can change into one another.

Despite the generality of alteration in relation to all material things, and the breadth of the scope of changes, practical experience shows that not every thing may be directly changed into anything else. Even if all material existents could be changed into one another, this could never be accomplished directly and without mediation.

For example, a stone cannot directly change into a plant or an animal. In order to be transformed into a plant or animal it must go through several stages and alterations must take place until it is prepared for such transformations.

Such thoughts have led philosophers to think that only an existent can change into another existent when it possesses the potentiality of the existence of the other. In this way the term potential and actual appeared in philosophy, and change came to be interpreted as emergence from potentiality to actuality. If this occurs instantaneously without a temporal gap it is called 'generation and corruption.' If it occurs gradually and with temporal gaps, it is called motion.

An Explanation of the Concepts of the Potential and the Actual

The word potential (quwwah), whose literal meaning is power and ability, has various technical meanings in the sciences, and in philosophy it is used in several senses. The first is the potentiality of an agent who is the source of the production of an action. It seems that this is the first sense which was noticed by philosophers and whose relation to 'action' is clear.

It was then imagined that just as prior to performing a deed the agent has the ability to accomplish it, matter must also possess ability, readiness for acceptance and passivity in advance. In this way a second meaning appeared for potential. This can be called passive potential (quwwah infi'ali), and in this discussion it is this sense which is intended.

The third meaning of potential is resistance to an external factor, such as the resistance of the body to disease, and the opposite of this is called lack of potential (la quwwah), and these are two kinds of dispositional qualities.

It should be noted that the use of 'potential' by philosophers is more general than disposition (isti'dad), for the term potential is also applicable to substance, contrary to disposition which is a kind of accident. However, it was previously mentioned that substantial potential (prime matter) is not provable, and

disposition is also an abstract concept, not an essential concept.

Likewise, the concept of passive potential is abstracted by the comparison of two existents, prior and posterior, since the prior existent lacks the posterior existent and it is possible for the prior to possess the later. Therefore, at the very least a part of the prior existent must remain and have a kind of composition and union with the posterior existent.

Contrary to this, the expression 'actuality' is used as a result of abstraction from occurrence of the posterior existent. Hence, potentiality and actuality are two abstracted concepts neither of which is to be considered an essential concept.

Sometimes the expression actual (bil-fi'l) is used in a broader sense to include even existents which have no previous potentiality, and it is in this sense that complete immaterial existents are called actual existents.

We should remind the reader that in some philosophical discussions, the existence of something shared between the potential and actual existents is neglected, and, for example, the earlier parts of time and motion are called potential in relation to the later parts, and it seems that this usage is not free from imprecision.

The Division of Existents into the Actual and the Potential

If the expression 'actual' is taken in its general sense which includes immaterial existents, then another primary division of existents may be considered between actual existents and potential existents. The potential existents are to be found among materials, while actual existence embraces immaterial existents and the actual aspects of material things.

However, it must be observed that this division is similar in some respects to the division of existents into causes and effects or objective existents and mental existents, and not like the division of existence into the immaterial and the material.

This is explained by the fact that sometimes a division is made by adding two or more absolute (nafsi, i.e., not relative) concepts to that which is divided so that the subdivisions do not overlap, as in the division of existents into the immaterial and material; that is, a material existent can never in any way be considered an immaterial existent and the immaterial can never be viewed as material.

In other cases, a division is made through the use of relative concepts, and therefore it is possible for some things in one subdivision to be considered as being in the other, as in the division between cause and effect, that is, an existent may be considered a cause with respect to one thing and with respect to another an effect. The same is the case for mental concepts which are called mental existents with regard to the standard of objectivity, but are considered objective existents in so far as they exist in the realm of the mind.

The division of existents into the actual and the potential is of the same sort, for a potential existent in relation to an actuality which it can possess is called potential, even though with respect to the actuality which it possesses at present it will be an actual existent.

Hence, the aspects of potentiality and actuality are not entified aspects, and their concepts are not to be considered absolute (nafsi). Rather they are relational concepts which refer to intellectual and comparative aspects. This is an important point which we indicated in our criticism of the proof of the Aristotelians for prime matter.

Another issue is that there is a difference between the division of existence into cause and effect and the division into the mental and the objective, for in the division of cause and effect, a cause may be considered which is in no way any sort of an effect, such as the Sacred Divine Essence, and one can also imagine an effect which is completely free of causal agency.

However, other than these, existents will be causes in one respect and effects in another. This is contrary to the case for the division of existents into the objective and the mental, for no existent can be found which has no kind of objectivity whatsoever, but rather all mental existents, aside from the fact that they refer to other things, are objective existents.

Now the question will be raised as to which of these two sorts of divisions is that between actual and potential existents. The answer is that the Aristotelians assumed that this division was like that between cause and effect, for they viewed complete immaterial existents to be actual without any potentiality, prime matter as potentiality without any actuality, and bodies as possessing aspects of both potentiality and actuality.

However, those who do not accept a matter which lacks all actuality, as is required by the principle of 'the equivalence of actuality and existence,' will therefore view the division as entirely similar to that between the mental and the objective.

The Relation between the Potential and the Actual

As we have learned, the concepts of potentiality and actuality are abstracted concepts, and aside from the sources from which they are abstracted, they have no other entified instances. Hence, the relation between the potential and the actual is really a relation between two existents which are the sources of the abstraction of these concepts. In other words, what should be considered is the relation between the potential and actual existents.

This relation occurs in one of two forms: first, when a potential existent remains completely within the actual existent, and in this case, the actual existent will be more perfect than the potential one, as the plant is more perfect than the soil of which it is brought into existence; second, when only a part of a potential existent remains within the actual existent, in which case it is possible that the destroyed part is

replaced by another part which regarding its level of existence is equal to, less perfect than, or more perfect than the previous one, and as a result, in some changes, the actual existent will be less perfect, or equal to the potential existent.

To be more precise, a potential existent is really the same part that remains, and therefore, the actual existent is always more perfect than or equal to the part that is really the potential existent. Some have imagined that the potential existent is always less perfect than the actual existent, because the potential aspect is an aspect of lacking or absence while the aspect of actuality is the aspect of possession and presence.

When a potential existent is transformed into an actual existent it comes to possess something existent which it previously lacked. On this basis they have denied equivalent and declining motions. On the other hand, the return from actuality to potentiality has been considered impossible, because return is a kind of change, and all change is a transformation of earlier potential into later actuality, but not the reverse.

From this it has been concluded that if a spirit obtains all its perfections so that it is not potential with respect to any further perfection, it will leave the body, and in other words, natural death will occur, and the spirit will never return to the body, for the return of such a spirit to the body would be a return from actuality to potentiality.

Given the explanation of the relation between the potential and the actual existent, it is clear that the aspects of potentiality and actuality are not two entified aspects between which a comparison can be made.

However, the actual existent, that is, the collection of that which remains of the previous existent plus the actuality which is newly obtained, will be more perfect than the part which remains. But it is not necessary that the totality of the actual existent will always be more perfect than the totality of the potential existent, just as one cannot consider water or steam to be more perfect than the other, although they are alternatively transformed into each other.

Regarding equivalent and declining motions, these will be discussed in the appropriate place.^{[1](#)} Regarding the return of the spirit to the body, this has no relation to the return from actuality to potentiality, because the potential has temporal priority to the actual, and with the passage of time it too passes and does not return, regardless of whether the past existence was more perfect, less perfect, or equal to the later existence. In reality, body has the potentiality for the renewed acceptance of the spirit, and with attachment to it, it obtains a new actuality.

Indeed, this mistake originates in the assumption that the aspect of potentiality is the whatness of or a level of the previous existence, for this reason it is supposed that if the level of existence of the later existent were the same as the previous level, a return from actuality to potentiality would occur, while if the later level were weaker than the previous, a return from potentiality to potentiality would occur.

In case the source of abstraction of potentiality is the previous existent itself (and not a kind or level of its existence), the previous existence itself passes with the passage of time and has no possibility for return at all, and the source of the abstraction of the actuality is the later existent itself, regardless of whether the level of its existence and its specific whatness is equal or equivalent to, more perfect than, or less perfect than that of the previous existent.

[1.](#) Cf., Lesson Fifty–Seven.

Lesson 53: A Continuation of the Discussion of the Potential and the Actual

The Correspondence of Potentiality and Actuality in the Case of Change

Focusing on the concepts of potentiality and actuality, it is clear that three conditions are necessary for their abstraction:

1. Two existences are to be compared with one another. Therefore, nothingness cannot be considered an instance of potentiality or actuality.
2. One of the two existences must be temporally prior to the other in order for potentiality to be ascribed to it. Therefore, two simultaneous existents cannot be potential or actual with regard to each other.
3. The potential existent, or at least a part of it, must remain in the actual existent. For this reason, an existent which is completely destroyed cannot be considered to be potential in relation to a later existent.

Given these points, it is clear that the first of the types of change [mentioned in Lesson Fifty–Two] is not a kind of transformation from potentiality to actuality, because the earlier condition is nothingness while the potential is to be abstracted from existence.

Likewise, the second type of change is irrelevant to potentiality and actuality because the earlier condition is nothingness and actuality is not abstracted from nothingness.

In the third type, although one existent replaces another, since there is no common factor between them; one cannot be considered potential with regard to the other.

In the fourth type, the earlier existent is entirely potential with respect to the later existent and remains within it; hence, the actual existent is more perfect than the potential existent.

In the fifth type, the actual existent is less perfect than the potential existent, because only part of the earlier existent remains and nothing is added to it.

In the sixth type, the superiority, inferiority or equality in perfection of the actual existent in comparison to the potential existent depends upon whether the part which is substituted for the destroyed part is more, less, or equally perfect in its level of existence.

However, in the seventh type, potentiality and actuality are the beginning and end of motion and motion is this gradual progression from potentiality to actuality, and in the context of motion, actual parts do not exist so that some may be considered potential with respect to others.

However, regarding the fact that motion is continuous, and whatever is continuous may be infinitely divided into parts, potential parts of it may be taken into consideration in the sense that if, for example, a single motion were divided into two halves, in such a way that a specific midway point appeared, the amount of each of the two parts of the motion would be equal to one half of the amount of the entire motion.

Particular attention should be paid to the fact that this way of viewing potential existence for the parts of motion, is other than the way the potentiality of an earlier part was viewed with respect to a later part.

The same point applies to type thirteen (accidental motion), although normally the expressions 'actual' and 'potential' are applied to substantial existents, even though potentiality as a dispositional quality (kayf isti'dadi) is considered to be a kind of accident.

Types eight, nine and ten may be considered like types one, two and three, with the difference that in types eight, nine and ten substantial subjects may be considered to be potential with regard to the attribution of accidents. Likewise types eleven and twelve as well as fourteen and fifteen may be considered analogous to types four and five.

It may be concluded that for all the types of change except for the first three, the changed thing may be considered potential and that into which it changes may be considered actual. Indeed, the basis of the position of those who deny the existence of these three types is that they consider change to be equal to a transfer from the potential to the actual. Therefore it is necessary to investigate this problem to see whether instances can be found for the three above- mentioned posits.

Infinite Regresses of Material Events

In the language of philosophy, it is well known that every material phenomenon is preceded by matter and time. A general requirement of this principle is that the appearance of a material existent from pure nothingness is considered to be impossible. Accordingly, the first and third of the fifteen types of change will be denied.

Since prime matter is considered to possess infinite potentiality, an infinite regress of events extending into the future is considered to be possible, the occurrence of which is proven on the basis of absolute divine grace and the absence of stinginess in the higher sources (mabadi 'aliyah), which imply the denial of the second type of change.

On the other hand, the mutakallimin and some of the philosophers, such as Mir Damad, hold that the material world has a temporal beginning. In order to refute the hypothesis of an infinite regress of events into the past they rely on the claim that an infinite regress is invalid. Likewise, the above-mentioned claim is used to prove the temporal end of the material world.

Accordingly, this problem is related to the problem of the temporal creation of the world, even though there is no implication between them, and it is possible that one might hold that the world has no temporal beginning while at the same time holding that it is not impossible for a material existent to appear without a preexistent matter.

It is also possible for one to hold that the material world will exist eternally, without considering it impossible for a material phenomenon to be destroyed entirely, positing the infinite series of events from pre-eternity to post-eternity on the basis of constant divine generosity.

Here we will first investigate the principle of 'the necessity of the priority of matter for every material phenomenon' and then we will refer to the problem of the temporal eternity and creation of the world.

The Principle of the Necessity of the Priority of Matter to Material Events

It was previously indicated that on the basis of innumerable observations, various transformations are always taking place in material things, and new phenomena replace the previous phenomena, so that the relation of potentiality and actuality occurs among them.

However, complete induction with regard to all material events is not possible, for no human being has existed from the beginning of the world and no one has yet experienced the end of the world. One cannot discover the definite cause of the priority of matter from the cases which have been observed and consider this principle to be an empirical one. For this reason, philosophers have sought to establish this principle rationally, as with the following proof.

Prior to becoming an existent, every material phenomenon has a possibility for existence; if there were not such a possibility the assumed phenomenon would be either a necessary or an impossible existent. Since this possibility is not substantial, there must be a substance to which the possibility is attributed, and this is what is called 'matter.' So, the priority of matter for every material phenomenon is necessary.

Several aspects of this explanation are debatable.

1. In this explanation it is assumed that for every material phenomenon there is a previous time for which the possibility of the existence of the assumed phenomenon is proved, while time is one of the dimensions of material existence and does not have an existence separate from that of material existents. If the series of events had a temporal beginning, there would be no time prior to it.

2. With the denial that a material event can be a necessary or an impossible existent, its contingency is established, and this is an essential contingency which is abstracted from the whatness of a thing. It is not something entified which could be the subject of predication.

3. In Lesson Forty-Eight it was proved that dispositional possibility is also something abstracted from the availability of conditions of existence and nonexistence prior to the occurrence of the phenomenon.

However, for the first material phenomenon no prior conditions can be considered; and in the discussions of cause and effect it was shown that material causes and conditions can only be established through experience, and we do not have sufficient experience to establish the necessity of prior conditions for all phenomena.

The Temporal Creation of the Material World

The problem of the temporal creation of the material world is one of the most controversial problems of philosophy, which has always been a topic of conflict and debate. The mutakallimin were especially insistent on proving it and considered it to be implied by the principle of causality. As was indicated in the discussions of cause and effect, they considered newness (huduth) to be the criterion for needing a cause.

On the other hand, most of the philosophers believed in the temporal pre- eternity of the material world, and have given reasons for their own views, including reliance on the above-mentioned principle whose inadequacy has become clear.

Another reason given by them is based on the pre-eternity of divine grace and the absence of stinginess in the higher sources. However, this reason will be useful only in case the possibility of the pre-eternity of the world is proved and its occurrence dependent on divine grace. Hence, those who believe in the temporal creation of the world have tried to prove the impossibility of the pre- eternity of the world, and they have tried to reject the possibility of an infinite series of events extending into the past by means of the invalidity of infinite regresses.

Philosophers accept the proofs for the impossibility of infinite regresses only in cases in which the links of the regresses exist simultaneously together and a true ordering exists among them. Therefore, they allow the infinity of successive events and exclude simultaneous events which are not truly ordered from the proofs of the impossibility of infinite regresses.

With the acceptance of these two conditions, Mir Damad considered the collection of successive events

in the [meta-temporal] realm of perpetuity (dahr) to be sufficient for an infinite regress proof. For this reason, he has denied the possibility of a series of events extending infinitely into the past. If the collection of the links of the regress in perpetuity is sufficient, then one can also deny a series of events extending infinitely into the future.

But the main point is that there is controversy about proofs for the impossibility of infinite regresses produced with links other than true causes, but this is not the occasion to pursue the matter further. For this reason, it is extremely difficult to set up a proof either for the possibility or impossibility of an infinite regress of events, whether extending into the past or the future.

It may be concluded that although divine effusion (faydh, grace) does not require any sort of limitation, the bestowal of divine effusion hinges on the capability and possibility of receiving it. Perhaps the material world does not have the capability for receiving pre-eternal and post-eternal effusion. But just as philosophers have not considered limitations on the volume of the world to be incompatible with the extension of divine effusion, its temporal finitude must not be considered incompatible with the constancy of divine effusion.

In truth, we have not found a rational proof neither for the temporal nor the spatial finitude of the world, nor have we found one for the absence of temporal or spatial finitude. For this reason, we place this problem in the ‘court of probable possibility’¹ until we see a definitive reason in favor of one side or the other.

¹. An allusion to the advice of Ibn Sina at the end of his Isharat: “Beware that your smartness and detachment from the vulgar do not make you go on denying everything, for that is rashness and weakness. Your strong rejection of that whose clarity is not yet made evident to you is no less a mistake than your strong belief in that whose evidence does not lie in your hands.

Rather you must hold on to the line of suspending judgment—even if you are disturbed by the denial of what your hearing recognizes as true—as long as its impossibility is not demonstrable for you. Thus, it is appropriate that you relegate such a thing to the court of possibility, unless you have firm proof otherwise.” Cf., Shams Inati, *Ibn Sina and Mysticism* (London: Kegan Paul International, 1996), p. 107.

Lesson 54: Generation and Corruption

Introduction

Among the fifteen kinds of change which we assumed, there were three of them (kinds one through three) whose existence is doubtful. We were unable to offer a definite opinion about them. Two other kinds (the eleventh and twelfth) depend on the increasing and decreasing of number, and these were considered to be respectival, and not in need of any further discussion.

Of the ten remaining kinds, two of them (the seventh and the thirteenth) are gradual changes, and must be taken up in the discussion of motion. However, the other eight kinds are instantaneous changes in which the potential existent is transformed into the actual existent instantaneously, without any temporal gap. The expression 'generation and corruption' is more or less used with regard to these changes. There is, however, some ambiguity about them which must be explained.

Therefore, this lesson is devoted to a discussion of these eight kinds of instantaneous change and applicability of the term 'generation and corruption' to them.

The Concepts of Generation and Corruption

The expression 'kawn' in Arabic has the meaning of being, and in philosophical terminology it is used to mean coming about and is approximately synonymous to 'huduth' (newness, coming into existence in time), and the expression 'fasad' (corruption) is used as its opposite, meaning the destruction of a phenomenon. In this way, the term 'generation' is more specific than 'existence,' because it is not used for immutable existents.

These two expressions are usually used together, and a clear example of it is the sixth of the mentioned kinds of change, that is, the destruction of a part of a substantial existent and appearance of another part. However, it can be generalized to some other types. If an instance can be found for the third kind, the expressions generation and corruption may be applied there. Likewise, the succession of opposites (which is the tenth kind of change) can be considered generation and corruption in accidents, although this terminology is usually associated with substances.

However, the fourth kind, that is, the addition of a substantial part without the destruction of another part, can be called 'generation without corruption.' And the reverse may be said of the fifth type, that is, the destruction of a substantial part without the appearance of a part to replace it, can be called 'corruption without generation.'

Likewise, the eighth kind, the appearance of new accidents, can be considered 'generation without corruption' and the ninth kind, the destruction of accidents, can be considered 'corruption without generation.'

The attachment of the soul to the body can also be considered a kind of generation, in view of the fact that the attribute of life thereby appears in the body. The reverse, dying, can be considered a kind of corruption, in view of the fact that the life of the body is destroyed, though not in the sense that the spirit is destroyed, for the spirit is indestructible.

Whether or not generation without corruption can be imagined in types four and fourteen, and corruption without generation in types five and fifteen, hinges on whether the presence of two forms in a single matter is considered permissible and on whether it is held that the prior form remains when a new

substantial form appears, and in the case of the destruction of a higher form, whether the lower form existed together with the higher form and continues.

If we hold that two forms cannot be present in a single thing, then we will be compelled to hold, in types four and fourteen, that the earlier form is destroyed, and in types five and fifteen that a new form is freshly brought about. In this case these types will also be considered types of generation and corruption, not as cases of mere generation and mere corruption.

Therefore, the problem which must be investigated is whether the presence of two forms in a single thing is permitted so that the assumption of the occurrence of two actual substantial forms in a potential existent and the continuation of one of them in an actual existent is allowed in cases five and fifteen, and the presence of two substantial forms in an actual existent and the persistence of the earlier form in types four and fourteen may be correct.

The Presence of Two Forms in a Single Matter

In types four and fourteen of the assumed types of change, the whole potential existent remains in the actual existent, and another substance is added as a new part to it, and a kind of union between them obtains, with this difference that in type four the form is incarnated in the matter, and the matter is the locus of this form. But in type fourteen, the soul is attached to the body, and the body is not considered its locus.

Now the question arises as to whether the form of the earlier existent vanishes and is corrupted and in place of it a more perfect form is brought about which possesses the perfections of the previous form, or in the new circumstances there really exist two forms, one of which is above the other vertically, not that the earlier form is destroyed.

For example, when a vegetable form comes into existence in a collection of elements, do these elements remain in the vegetable with their own actualities? Can it be said that in this plant oxygen, hydrogen, nitrogen, carbon, etc., actually exist, and that the vegetable form has become unified with the collection of them? Or should one say that the only form which exists in it is the vegetable form, and the mentioned elements exist only potentially?

Can it be said that when an animal soul attaches to specific materials, they preserve their specific existences and that they have actual existence within the animal existence, or should it be said that what has actuality is the form (soul) of the animal and that its body exists potentially? Do the materials which compose the human body and each of its millions of living cells have a specific form and actuality, and does the human soul attach to them as a higher form, or is that which is actual in a living human only his spirit, and does his body only exist potentially?

Likewise, in the case of the fifth and fifteenth types in which a part of the previous existent is destroyed

or is separated from it, is it the case that from the beginning there were two substantial actualities and that later one of them leaves while the other remains with its previous actuality, or is it the case that at the beginning there exists a complete form, and with its detachment a less perfect form appears?

For example, when a plant withers and turns to dust, does the form of dust actually exist in the form of the plant and remain with that same actuality, or in the earlier circumstances was there only a complete vegetable form and with its passing does the form of dust newly appear?

Regarding the case of the detachment of the animal or human spirit from the animal or human body, do the materials actually exist previously, and after separation of the spirit do they remain with the same previous actuality, or in the previous circumstances is actuality restricted to the spirit and after its detachment new forms freshly appear?

Therefore, that which these discussions pivot upon regarding these types of change is whether the presence of two forms in a single existent is allowed or not. That is, if the presence of two forms in the later existent is allowed, types four and fourteen are considered to be a kind of generation without corruption, and if the presence of two forms in the earlier existent is allowed, then types five and fifteen will be considered cases of corruption without generation. However, if the presence of two forms is impossible, all of these types will be cases of generation and corruption.

Some philosophers do not allow the presence of two forms in a single thing and have reasoned that the form is the very actuality and thingness of a thing, and that the numerical identity of the form implies the numerical identity of the thing, while their unity is assumed.

This reasoning is unsatisfactory, for, firstly, the unity of a composite existent, as was indicated in Lesson Twenty-Nine, is an accidental unity because of the unity of the higher form, and, in fact, the composite existent is the existents which are somehow united with each other, not that they are really a single existent.

Secondly, the problem can be posed as follows: Is the presence of two forms in a single matter permissible or not, as noted in the title of the discussion. It is obvious that the real issues here cannot be resolved on the basis of terminology and language.

In any case, the question is whether the composing materials of vegetables, animals, and humans have an actual form other than vegetable form, and animal and human souls, or do the earlier materials lose their own forms and actualities when the vegetable form comes into existence in the previous materials, or the animal or human soul attaches to a body, and in technical terms, are their forms corrupted and do new forms come about for the materials after the death of a plant, animal or man, and its transformation into elemental materials?

It seems that there should not be any doubt that the earlier forms remain, and that the new forms come about vertically, and are somehow unified with them, and then after corruption or detachment the earlier

actualities remain and no other new form appears for them.

This is confirmed by the fact that many elemental particles and organic and mineral materials are separately visible by optical devices, and billions of living existents, including white and red blood cells can be observed in man's body, and they can be removed from the body and preserved under certain conditions, and hence, not only minerals and organic materials exist with their own actualities and specific forms within the existence of the vegetable, animal or human, but there also actually exist innumerable vegetable and animal existents within a higher animal or man. The animal and human spirit occurs as higher forms at a higher vertical level.

Is it acceptable to say that the bodies of man and animals have no actual existence apart from the existence of the spirit while the spirit is attached to the body and that when the animal or man dies and the spirit is separated from its body, the body obtains an actual existence and a new form appears in it?!

Therefore, there should be no doubt about the possibility of coexistence of two or more vertical forms in a single matter, for, indeed, this occurs frequently. That which is not possible is the coexistence of two contrary forms in a single matter which are in a horizontal position with respect to one another.

Here the question will be raised as to how one can distinguish vertical from horizontal forms.

The answer is that vertical and horizontal forms can only be distinguished by means of experience; that is, any form which experience proves to be incapable of coexisting with another form is horizontal, and any form which is capable of coexisting with another will be vertical.

Some examples of horizontal forms which are contrary to each other are the forms of water and steam and the forms of the various elements. However, the forms of the elements can coexist with vegetable, animal or human forms, and therefore they are considered to be vertical forms. Likewise, the lower forms of life, such as cells and corpuscles, can coexist with higher forms, such as the forms of higher animals and humans. For this reason, the forms of higher animals and of man are in a vertical relation to other forms.

Given this difference between forms, they can be divided into two groups: those forms which are successive, contrary to one another, and horizontal, and those which are superimposed or vertical. It is clear that this is a relative and relational division, and therefore it is possible for a form to be successive in relation to a certain form, but to be considered superimposing relative to another.

The Relation of Generation and Corruption to Motion

It is clear that generation and corruption is specific to instantaneous changes and motion is a feature of gradual changes. Therefore, in this respect one cannot include both of them in a single kind of change.

However, the absence of coexistence between generation and corruption and motion does not mean that there is no room for generation and corruption anywhere that motion exists. Rather it is possible for

a moving thing to be characterized by generation or corruption from another angle.

To explain: it is possible for an existent to possess motion which ends in a single instant and at that very moment for another motion to appear in it. For example, the motion of an airplane which moves by the power of an engine is the effect of that power, and so, with the shutting down of that engine, the motion produced by it sooner or later comes to an end, and when a second engine starts working, another power is produced which causes a new motion for the plane.

Now, if it is supposed that the second motion begins the very moment that the first motion ends, although the motion of the plane is not interrupted there will actually be two motions, one of which is the effect of the power of the first engine and another which is the effect of the power of the second. Here, in addition to gradual change there is also an instantaneous change, which is the ending of the first motion and its transformation into the second motion. This change can be called generation and corruption.

Likewise, when two successive forms appear in a matter and one of them is corrupted and the other takes its place, the substantial motion of the earlier form ends, and at that very moment the substantial motion of the later form begins. This transformation of forms and succession of substantial motions also should be considered a kind of generation and corruption, for it is accomplished in one instant and without any temporal gap.

Therefore, the assumption of the continuation of motion in a single existent is compatible with the occurrence of generation and corruption in it, because it is in fact possible for two alternating motions to have occurred in it which superficially are considered to be a single motion.

The only case in which generation and corruption is incompatible with motion is under the assumption of a single real motion. If the material world possessed a single unitary existence and it were supposed that it had a single substantial motion, then there would be no room for generation or corruption. However, this assumption is not correct, as will be explained in the appropriate place.

Lesson 55: Motion

The Concept of Motion

During the previous discussions the concept of motion became clear, and a simple definition of it was obtained: gradual change.

Other definitions of motion have been given, some of which were mentioned in the course of the preceding discussions, including 'the gradual emergence of a thing from potentiality to actuality,' and

another definition ascribed to Aristotle, that is, 'the first perfection of a potential existent qua potential,' which was mentioned in Lesson Forty and which means that an existent which possesses the potentiality and capacity for a perfection but lacks it at present, will advance toward it under certain conditions, and this advancing is preparatory to the achievement of the sought perfection.

And the phrase 'qua potential' is added in order to exclude the specific form of the moving existent, because every potential existent has a specific form anyway, which may be considered its first perfection, but this first perfection is with respect to its actuality rather than its potentiality, and is irrelevant to motion. The perfection of motion for a body pertains to its potentiality, and its being 'first' pertains to its priority for attaining its end.

However, the first definition is to be preferred because it is more concise and conceptually clear, although none of them may be considered what in logical terminology is called a 'complete definition' (hadd-e tamm), because a complete definition is specific to whatnesses, which possess a genus and difference, while the concept of motion is a secondary philosophical intelligible abstracted from the manner of the moving existent, and in the external world there is no substance nor accident called motion; rather motion is the being gradual of the existence of a substance or accident and its flowing through the extension of time.

Even according to Shaykh al-Ishraq, who considered motion to be of the category of accidents, a complete definition cannot be given for it, because its category is a highest genus and does not possess genus and difference.

Another point we should mention is that instantaneous changes are abstracted from two existences, or at the least from the existence and nonexistence of a single thing, while motion is abstracted from a single existent and its extension through time. Numerical difference between something which changes and that into which it changes pertains only to its potential parts which continually become existent and nonexistent, although none of them has actual existence.

In other words, motion is not a collection of existents which come into existence one after the other, rather it is abstracted from the extension of a single existent and it is infinitely divisible, although the division of it in the external world involves the appearance of rest and the destruction of its unity.

The Existence of Motion

In Lesson Fifty-One it was mentioned that a group of ancient Greek philosophers, such as Parmenides and Zeno of Elea denied that there was gradual change or motion. This position seems strange at first, and the question immediately arises in the mind of the reader or hearer as to whether they did not observe all these various motions?!

Did they not themselves move around?! But by examining their words more carefully it becomes clear

that the matter is not quite so simple. Even the positions of some of those who believe in motion and stubbornly defend it (such as some Marxists) originate with the Eleatics!

The secret of the matter is that they considered the changes called motion to be a collection of successive instantaneous changes. For example, the motion of a body from one point to another was considered to be the successive resting of the body at the points between the two assumed points. In other words, they did not accept motion as something gradual and continuous, but rather as a collection of successive rests. Therefore, if someone else holds that motion has actual parts, in reality he has joined the ranks of those who deny motion.

The truth is that the existence of motion as a single gradual thing is undeniable. Even some instances of it, such as the gradual changes of psychic qualities, can be perceived by infallible presentational knowledge. The source of the error of the Eleatics are doubts that run counter to consciousness and self-evidence, and no uncertainty remains once these doubts are dispelled.

Problems Raised by those who deny the existence of motion and their solution

Those who have denied the existence of motion in the external world and who have considered it to be a mental concept which refers to a succession of rests have resorted to dubious notions the most important of which are the following two:

1. If motion exists as a single continuous thing in the external world, it must be considered as having parts, and since each of its parts possesses extension, each of these in turn will be divisible into other parts, and this division will continue infinitely. This implies that finite motion must be infinite.

Aristotle responded to this difficulty by claiming that motion does not have actual parts which could be finite or infinite, but rather that it can be divided into two parts, for example, in which case there will be two motions, not a single motion. Likewise, each part may be divided into two or more parts, and with each division performed in the external world a number of actual existents will come about.

These divisions may be continued without end, and hence the supposed motion itself will be finite, although its potential parts will be infinite. No contradiction exists between these two propositions, because one of the conditions for a contradiction is the unity of the actual and the potential which does not obtain in this case, for being finite is the attribute of the motion as a whole, while being infinite is the attribute of its potential parts.

But it is better to ask one who reasons in this way what do you mean by finite motion being infinite? If what is meant by being infinite is the number of its parts, this number does not actually exist in any motion, and the appearance of any number, whether finite or infinite, in motion is due to its objective division, in which case a single motion will not exist.

Likewise, everything which is divisible into two halves is presently a unit, but whenever it is divided, it

becomes two units, but this divisibility does not imply that it is both one and two!

If what is meant is that the infinite divisibility of motion implies that the continuous amount and quantity (rather than number) is finite from one side and infinite from another, because every part of its infinite parts will have a quantity, and the collection of these amounts will be infinite, the answer to this is that even if every extension is divisible into an infinite number of parts, the amount of any extension will still be a fraction of the amount of the whole. Hence, the sum of the quantities of the infinite fractions of motion will be the finite amount of the motion itself: $(1/n \times n = 1)$.

It must be mentioned that this problem is not specific to motion, but covers all extensions, such as line and time. For this reason, those who raise these doubts consider every limited line to be composed of a limited number of extensionless points, and every limited portion of time to be composed of a determinate number of instants.

They believe that although the points are not extended, a collection of several points could bring a line into existence: though an instant has no length or extension, a set of several of them brings about a portion of time; likewise, a collection of rests brings about motion; in reality, that which has objective existence are points, instants and rests. Line, time and motion are concepts abstracted from their collections.

In other words, they believe in 'indivisible parts' (juz' la yatajazza), that is, every extension is capable of being divided into limited parts, and they believe that the last division leads to parts which are no longer divisible.

This is a problem about which philosophers have spoken much, and they have given numerous reasons for the invalidity of the notion of 'indivisible parts,' but this is not the place to review them.

2. The other problem is that when a body moves from point A towards point C, for example, at the first instant it is at point A, and at the third instant it is at point C, so, there is no other alternative but that at the second instant it must pass some point B which is between the other two, otherwise there could be no motion.

Now, if it is assumed that the above-mentioned body is at point B at the second instant, this would imply that its motion is a collection of three rests, for rest is nothing but the residence of a body in a place, and if it did not reside there this would imply that there was no motion, for motion without passing the second point is impossible. Therefore, motion implies a contradiction (being and not being at an intermediate point).

The answer is that in this example three corresponding extensions are assumed: time, space and motion. If we consider three extended parts for each of them, it can be said that in the first part of time, the moving body has been in the first part of the space and that the first part of its motion corresponds to them, and likewise for the second and third parts. However, the occurrence of every part of the motion in

the corresponding parts of time and space does not mean that the body is ever at rest.

However, if we take points and moments in their real meaning, as lacking extension, it would have to be said that actual instants and points do not exist in time and space, and the assumption of an actual point in a line means its division into two line segments, such that the said point is the end of one segment and the beginning of another. It is the same for the assumption of an instant in time and the assumption of a rest in motion. What it means for a body to be at a certain instant at a point in space is that if the extensions of time, space and motion were cut, their points of division would correspond to each other.

This does not imply the existence of rest in the midst of motion, just as it does not imply the existence of points in a line or the existence of instants in time. In reality, the source of this problem is that, on the one hand, being is considered to be equivalent to fixation, rest and residence, while on the other hand, time is assumed to be composed of instants and line composed of points.

They attempted to present the extension of motion as a composition of atoms of rest by means of a comparison to the extensions of time and space, while being includes both fixed and flowing beings. Moments and points are ends of extensions of time and line, and are not considered to be parts of them. Likewise, rest appears as the stopping of motion, not as something that exists in the midst of a single motion so as to be considered a part of it.

Lesson 56: Properties of Motion

The Constituent Factors of Motion

Noting that which has already been discussed regarding motion, it becomes clear that the occurrence of motion hinges on three things which may be called the constituents of motion:

1. The unity of the source of abstraction of motion. Contrary to other types of change, motion is abstracted from a single existent. Hence, every motion is a single entity in which no actual parts are to be found.
2. The fluidity and extension of motion in the expanse of time. Since that which is gradual does not occur without a correspondence to time, motion is not abstracted from instantaneous things and fixed existents, which are outside the realm of time, and it is not attributed to them.
3. Infinite divisibility. Just as every extension is infinitely divisible, so is motion. Each potential part of motion is the changing predecessor (mutaghayyir) in relation to the potential part which follows it, and the part which follows, with respect to the part which precedes it, is its changed successor

(mutaghayyirun ilayh).

The Features of Motion

In addition to the three things mentioned above, which are grasped through meditation on the essence of motion, and which are necessary for all motions, there are other things which may be called the features of motion. Noting the differences among them, specific kinds of motion may be considered, the most important of which are the following:

1. **The channel of motion.** It is possible for an existent to have numerous aspects of capacity for change. For example, it is possible for an apple to fall from a tree with a spatial or translative motion, and likewise it is possible for it to rotate or to gradually change color. However, each of these motions has its own specific 'channel' (bastar) which distinguishes it from other motions.

For example, the channel for the motion of the apple toward the ground is space, and this motion is spatial or one of displacement, or motion in the category of where ('ayn). The channel for the gradual change in its hue is color, and this is considered to be a change in the category of quality. The channel for its rotation is position, and it is taken to be a change in the category of position.

2. **The course of motion.** It is possible for something to move in various ways through a single channel. For example, the spatial movement or displacement of a star is possible in either a circular or an elliptical shape, or the motion of a ball from one point to another may be in a straight or a curved line. In this way another concept may be obtained which is more specific than the previous one, and this may be called the course (madar; literally, orbit, here used in the sense of the course of motion) of motion.

However, it must be noted that the expression madar has a broader meaning here than its literal meaning, the place of circling, just as the expression 'curve' has a broader meaning in mathematics than in ordinary usage, and it is possible for the curve which shows the course of a given change to be a straight line.

3. **The direction of motion.** It is also possible for motion in a single course to take place in various ways. For example, the motion of a top rotating on its axis may be from left to right or from right to left. Therefore, another feature must be considered for motion, and this is called the direction of motion.

4. **The speed of motion.** Speed is a concept which is obtained from the relation between the time and displacement of motion. For example, it is possible for a body to travel a certain distance in one minute or in two minutes. The distinguishing aspect between these two motions is speed.

5. **Acceleration.** It is possible for the speed of motion to gradually increase or decrease, as it is possible for the speed to remain constant. In the first case, the motion is becoming faster, or possesses a positive acceleration. In the second case it is becoming slower or possesses a negative acceleration, while in the third case it is said to be constant, or without acceleration, or as possessing zero acceleration.

6. **The agent of motion.** Among the things which differentiate types of motion is difference in the type of agent of motion. For example, there is a difference in kind between motions which have voluntary agents and those with natural agents, although there may be no difference externally.

Likewise, multiple individual agents cause multiple individual motions, just as the multiple forces which successively come about by the two engines of an airplane causes the multiplicity of its motions, even if the two above mentioned motions are contiguous and without any temporal gap, and from a superficial point of view there seems to be but a single motion.

The Requirements of Motion

Philosophers have considered six things to be requirements of motion: origin (mabda'), end (muntaha), time, distance, subject (mutaharrak) and agent (muharrik).

1 & 2. **Origin and end.** Some of the definitions of motion suffice to warrant the requirement of an origin and end for every motion. For example, 'the gradual emergence of actuality from potentiality' implies that at the beginning a potentiality should exist and at the end of the motion and actuality. Hence, potentiality and actuality may be considered the origin and end of motion.

It appears that motion does not essentially require a relation to an origin or end, and hence, the assumption of infinite motion without beginning or end is not an irrational one. Accordingly, some ancient philosophers considered the motions of the celestial spheres to be without beginning or end in time, and so they had to take quite some pains to associate some origin and end with them.

It may be said that origin or end are specific to limited motions, and that origin or end are implied by their limits, not implied by the motion itself, as every limited extension has an origin or end. Perhaps the source of the plausibility of considering motion to have an origin or end is that a means is thereby sought to determine the direction of motion.

Anyway, origin or end cannot be considered requirements of all motions. It is necessary to mention that those who consider motion to require an origin or end do not take them to be within the motion itself, because every part of motion is extended, and no matter how small a part is imagined, it will be divisible, and again it will have to have a beginning part. If a part of motion is called the origin or end of motion, this will be a relative attribution to the motion itself.

Taking potentiality and actuality as the origin and end of motion involves a certain laxity, for the terms origin and end are abstracted from the limits of motion, like point for line and moment for time, and they are considered to have an aspect of non-being. This is contrary to potentiality and actuality (especially the latter) which cannot be considered cases in which there are aspects of non-being.

Furthermore, the requirement of potentiality and actuality has not been established for motion, and it may be said that in order to abstract the concept of motion it is not necessary to take into account

anything more than the gradual existence of a substance or accident. Therefore, another distinctive aspect of the first definition of motion (gradual change) is established.

3. **Time.** It was previously indicated that it is impossible for a thing to be gradual without a correspondence to time. For this reason, the corresponding extension in time was considered to be one of the fundamentals of motion. Since time and motion are analytic accidents of fluid existence, they may be considered to be two sides of the same coin.

4. **Distance.** By the 'distance' of motion philosophers mean a category to which the motion is related, such as the relation of rotation to the category of position, and the relation of translative motion to the category of space.

Distance is like a canal through which a moving thing flows. If it is assumed that the extension of motion is cut, and it comes to rest, then it may be said that the mentioned body is in the canal.

Therefore, distance corresponds to the channel of motion. However, a subtle distinction may be drawn between distance and the channel of motion, namely, that the channel of motion is also applied to the specific whatness, such that every supposed part of motion can be considered to be an individual of that species. However, distance is commonly used as a term for the highest genus or category, and it is like an extended canal which embraces partial canals.

To explain further, motion as we know it is obtained from the extension of the existence of a substance or accident through the expanse of time, and it is possible that the existent which is the source of the abstraction of motion is perfected through the process of motion, such that from a part of it a specific whatness is abstracted, and from another part, another whatness.

For example, if it is assumed that the color of an apple gradually changes from green to red, from a part of this motion the accidental whatness of green will be abstracted, while from another part the accidental whatness of red is abstracted, both of which are considered kinds of color. Color in turn is considered a sensory quality, and sensory quality belongs to the category of 'quality.' The distance of this motion is the very category of quality. But the channel of the motion is also applied in the case of the transformation of an individual of one specific quality to another individual.

For example, the motion of a body from one place to another does not require the occurrence of kinds within the category of place, rather, one individual is constantly transformed into another individual, regardless of the laxity in the use of 'individual' for the potential parts of motion, and likewise the laxity in the use of 'category' for the abstracted concept of place.

In any case, observing that changes from one kind to another in the process of motion are not permissible, philosophers considered categories to be channels of a general sort for motion, for motion never violates the limits of the categories, and they called the channels 'distance.'

It should not be left unsaid that some philosophers considered specific difference between potential parts of motion to be not only permissible but necessary. However, it seems that specific difference can only be taken to obtain at the beginning or end of motion, because the abstraction of several whatnesses from the potential parts of motion implies the ability to consider a definite boundary for each of them.

This indicates that the given motion is really a composite of several motions, however much it may seem superficially to be a single motion. For example, although the transformation of the color of an apple from green to yellow and from yellow to red seems to be a single process, if these colors and perhaps other colors which are intermediaries between them were different in kind, certain cut-off points in the motion would be abstracted, and the assumption of numerous cut-off points is like the assumption of the appearance of points in a line and implies numerous cuts even if no temporal separation between the cut-off points is assumed.

5. **Subject:** Another thing that philosophers have considered to be necessary for motion is the subject of motion or the object moved (mutaharrik). However, it must be noted that the expression 'subject' (mawdhu') is employed in the intellectual sciences in various senses, the most well known of which are indicated by the logical term, which is usually contrasted with 'predicate,' and the philosophical term, which is used in the case of substance insofar as it is the locus of accidents.

The first term is a secondary logical intelligible, and is applied to the first part of every predicative proposition, and even the concept of 'contradiction' in the proposition 'contradictions are impossible' is the subject of the proposition. It is clear that 'subject' in this sense is not relevant to the present discussion.

The second term is specific to the subjects of accidents, and if motion is also an objective accident, as was imagined by Shaykh Ishraq, it will be in need of a subject. However, we have come to know that motion is not a kind of objective accident, but a kind of analytic accident of flowing existence.

Hence, the establishment of a subject for all motions will only be correct in a third sense, which includes the source of the abstraction of analytical accidents. According to a famous expression in philosophy, a subject is only needed in the case of accidental motion in the respect in which it is an accident and not in the respect in which it possesses motion.

6. **The Agent or Mover:** The sixth thing which philosophers have considered to be necessary for motion is a mover or agent of motion. However, it must be borne in mind that the agent, meaning the generative cause ('illat-e hasti bakhsh, literally, 'existence granting cause') is not specific to motion. Every existent which is an effect needs a generative cause.

Basically, motion has no entified specific referent beyond the existence of the substance or accident abstracted from it, and it is the existence of the substance or accident which requires a generative cause. The concept of motion is abstracted from the manner of its existence, and 'composite making' (ja'l ta'lifi) does not apply to it.

In other words, the creation of a flowing substance or accident is the very creation of substantial or accidental motion. However, a natural agent, who is not a producer or creator, and is considered in another sense to be a preparatory cause, is specific to material phenomena all of which possess a kind of change, alteration or motion. But such an agent can only be assumed in the case of accidental motions, and in the appropriate place it will be explained that substantial motion does not need this sort of agent.

Lesson 57: Divisions of Motion

Introduction

We have learned that the constituents of motion exist in all motions and are invariable, and there is no difference on the basis of which different types of motion may be conceived. However, the characteristics and implications of motion are more or less different, and on the basis of these various kinds of motion can be differentiated.

For example, differences in the course of transfer are completely sensible and the different forms for it which may be imagined cause differences in the related motions. But, on the one hand, the differences in courses are not limited to a certain number of types, and on the other hand, no specific philosophical conclusions are to be obtained on the basis of such differences. Hence, a categorization of motions on the basis of differences in their courses will not be of much benefit.

Likewise, the directions of motion, even if they are generally divided into six main well known directions [will not provide for a useful categorization]. First, this division is conventional; second, the division of motion on the basis of these differences yields no philosophical fruit. Also the speeds of motion are innumerable, but these differences are inconsequential for philosophical analysis.

The division of motion on the basis of differences among its agents is really subordinate to the types of agents which have been indicated in Lesson Thirty– Eight. In general, motions may be divided into two kinds, natural and voluntary, for every intentional agent (fa'il bil-qasd), providential agent (fa'il bil-'inayah), agent by agreement (fa'il bil-ridha) and agent by self-disclosure (fa'il bil-tajalli) is a voluntary agent.

Compelled agents (fa'il bil-jabr) and subordinate agents (fa'il bil-taskhir) are also considered to be particular states of voluntary agents, just as the constrained agent (fa'il qasri) is considered to be a specific state of the natural agent.

Among all the properties of motion, the most important thing about which the philosophical discussions

of the categories of motion turn are the channel and the distance of motion. However, prior to the presentation of these discussions, it would be worthwhile to have a short discussion of a division of motion on the basis of differences in acceleration and at the same time to review the problem of the evolutionary nature of motion and its relation to acceleration.

Divisions of Motion on the Basis of Acceleration

Consider an automobile the needle of whose speedometer gradually increases from zero to one hundred kilometers per hour. It goes up, then stays there for a while, and then gradually returns to zero. This automobile is transferred during the period of its motion from point A to point B, and this motion is translative and occurs in the channel of space. However, in this process, two other gradual changes are observed.

One is the change of the speed from zero to one hundred kph, and the other is the change from one hundred to zero. From a philosophical point of view, this change is also to be included in the definition of motion. It may be considered a kind of motion in quality, since acceleration and deceleration are two qualities specific to motion which are also accidents of the quantities of the speeds.

The same can be said for other types of changes or motions, so that one motion in quality may be attributed to another motion in quality from a different point of view. For example, suppose that a colorless body gradually becomes black and retains that state of blackness for a while, then its color gradually fades and it becomes colorless again.

Undoubtedly, a change in the color of a body is a motion in the category of quality. It is possible that the degree of blackening or fading is not uniform through all parts of time. For example, the speed of blackening might gradually increase and then decrease in the same manner.

This change in speed is different from the change itself in color, and for this reason it may be considered a motion which rides upon the other motion. Likewise, one may consider a constant motion to lack this sort of change, and its speed will be fixed.

Therefore, from the perspective of constancy or change in speed, motion can be divided into three kinds:

1. Constant motion without acceleration and a fixed speed.
2. Motion with increasing speed or positive acceleration.
3. Motion with decreasing speed or negative acceleration.

The existence of motion with increasing speed and of motion with decreasing speed and likewise of motion with constant speed are observed by the senses and are undeniable. One can even find instances of them by means of presentational knowledge such as changes in subjective qualities and

states which gradually increase and decrease in speed or are constant. Without a doubt, one may consider the decrease in the speed of a motion as a kind of decline, gradual weakness and imperfection in the motion.

In this way a kind of weakening and declining motion is established. It is at this point that we confront the question of whether the existence of slowing motion conflicts with some of the definitions of motion, such as, 'the gradual emergence of a thing from potentiality to actuality' or 'the first perfection of a potential existent insofar as it is potential.'

In order to answer this question, two aspects of the discussion must be distinguished, one is the perfection of the motion and the other is the perfection of the moving existent. It is possible that the moving object obtains new perfections through the course of its motion, while there are differences in the speed of these attainments. That is, in some times the speed of perfection may increase while at other times it decreases and at yet a third time this speed may be constant.

The constancy or even the decrease in the speed of attaining perfection in no way detracts from the fact that the moving object is becoming perfected. For example, a body whose rate of blackening decreases will still be ever blacker from one moment to the next, although the change in color will occur more slowly. Hence, there is no contradiction between the assumption that motion leads to the greater perfection of the moving existent and the assumption of a negative acceleration for the speed of perfection.

If someone were to claim that every motion becomes more perfect insofar as it is motion, this claim will not be compatible with the acceptance of constant motion and motion without acceleration, and it is clear that such a claim will be contrary to introspection and self-evidence. Recourse to some definitions of motion will not enable one to prove such a claim.

Furthermore, the mentioned definitions do not prove such a claim because at most what can be concluded from them is the fact that the moving existent under the influence of motion obtains new perfection and actuality, and as was indicated, the perfection of a moving thing does not conflict with the decrease of the speed of its motion.

The next question we shall take up is that of whether every motion leads to the perfection of the moving thing or not.

The Evolution of the Moved due to Motion

We have learned that the perfecting of motion, in the sense of acceleration and increasing intensity, is not universal. None of the definitions of motion indicate this. However, in the sense of the perfection of the moved under the influence of motion, it is possible to infer from the two mentioned definitions that since the moved achieves a new actuality and perfection by means of motion, it is necessary that every

motion will be an intensification and lead to the perfection of the moved.

One who reasons in this way must confront a great problem: many things gradually weaken, wilt and perish. Their gradual change and motion not only fail to increase their perfections but constantly decrease their perfections, and bring them close to death and destruction. Plants and animals, after passing through the periods of growth and flourishing, enter the stage of old age and decrepitude, and their withering and declining motion begins.

In order to escape this difficulty they have sought to find an alternative in the claim that these kinds of declining and decaying motions are accompanied by the motions of other existents which are growing. For example, while an apple rots due to affliction by a worm, the worm grows in it, and the real motion is the perfecting motion of the worm, which brings about the decrease in perfection of the apple, and its wilting and rotting are its accidental motions.

Not only is there no way to prove that in all cases the declining motion of a moving thing is accompanied by the intensifying motion of another moving thing, but also one cannot ignore the gradual declining change of an existent and dismiss it as 'accidental.' Finally, this question remains, what is the philosophical significance of this gradual declining process in the wilting existent?

Reliance on the mentioned definitions in order to deny non-perfecting motions cannot explain their undeniable existence. Assuming that the purport of the definitions is not compatible with declining motion, one must raise doubts about the correctness and universality of the definitions, instead of relying on the authority of the definitions to justify something which is unacceptable. At the same time, however, it is possible to interpret these definitions in such a way that they do not imply a denial of non-perfecting motions.

As was explained in Lesson Fifty-Two, actual and potential are two concepts which are abstracted by comparing the priority of one existent to another and the inclusion in the second existent of the whole or part of the first existent. This by no means implies that the second whole is more perfect than the first.

Likewise, considering the motion to be a preparatory perfection for the attainment of a major perfection does not imply the perseverance of all of the previous perfections in the present existent, for it is possible that a requirement for motion and the attainment of a perfection whose conclusion is being considered is that the moving object must lose some of its other perfections. The perfection which is obtained as a result of motion may be equivalent to or even less than the lost perfection.

Therefore, the correspondence of Aristotle's definition to various types of motions does not imply that the perfection which is obtained through motion is ontologically superior to the perfection lost by the moving object. It cannot be concluded that the moving existent necessarily becomes more perfect, comparing its present station with its previous condition.

It is not basically necessary to depend on the concepts of actuality and potentiality and the concept of

perfection in the definition of motion, for these concepts, which themselves are in need of explanation and interpretation, cannot remove any ambiguity from the concept of motion.

Is it really acceptable to say that everything which moves from one place to another thereby becomes more perfect and attains new perfections superior to those it had possessed? Can it really be proved that the wilting and declining processes of every vegetable and animal are the results of the perfection of another existent? Perhaps it will be asked, if motion does not bring about the perfection of the moved, then why does the moved undertake the motion? What motivation could it have?

The answer is that, first, not every motion arises from the consciousness and motivation of the moved, as was mentioned regarding natural and constrained motions. Second, it is possible for a conscious existent to perform a motion in order to attain a real or imaginary pleasure, but out of negligence for the natural consequences or due to the intensity of the desire for the mentioned pleasure, this motion leads to the loss of more valuable perfections. Anyway, the irrationality and imprudence of such a motion does not imply that it is impossible.

It is possible to say that if the resultant of the motions of the world is not positive and that the result of the collection of all their motions is not the obtaining of more perfection for existents in this world, then the creation of such a world would be vain and useless.

The answer is that on the basis of divine wisdom we can prove that the creation of the world is not vain and useless and its results are wise. However, the positive character of the resultant of the motions does not imply that every motion necessarily is perfecting and causes more perfection for the moved itself.

It may be concluded that there is no reason to hold that every moving thing under the influence of motion achieves a perfection superior to its previous perfection, regarding its ontological level. Innumerable experiences show that not only is there constant motion, but also declining and weakening motion exist, in the sense that the moved gradually loses its present perfections or possesses perfections which are not superior to those it has lost.

If some definitions of motion are not compatible with such motions, they must be considered to lack universality. The perfecting character of every motion can be accepted only in the sense that the existence of the moving thing attains to something existing, which it previously lacked, although it previously may have possessed something similar or more perfect, as was mentioned regarding the relation between the potential and the actual.

Lesson 58: Motion in Accidents

Introduction

The motion which is familiar to ordinary people is motion in space and position, such as the motions of the earth's revolution about the sun and its rotation about its axis. However, philosophers have expanded the concept of motion to include any kind of gradual change, and they have established two other kinds of motion: one is qualitative motion, such as the gradual change of states and qualities of the soul, and the changes in color and shape of bodies.

The other is quantitative motion, such as the gradual growth of a tree and the increase in its height. As a result, motion has been divided into four groups in accordance with the related category. All of these are related to accidental categories: motion in space, motion in position, qualitative motion and quantitative motion.

The ancient philosophers did not allow motion in substance. There are only a few ancient Greek philosophers from whom some claims have been reported which are comparable to substantial motion. Among the Islamic philosophers, Sadr al-Muta'allihin developed and gave numerous reasons in support of the existence of substantial motion. From this time, the problem of substantial motion became famous among Islamic philosophers. Here, we shall first review the four types of accidental motion, and then we will discuss substantial motion independently.

Spatial Motion

As was indicated, the most sensible type of motion is spatial motion, whose channel is the space of bodies. Philosophers have introduced the category of where ('ayn) as pertaining to its distance. However, as was previously mentioned, the category of where, like the other relative categories, is not a whatness of species or genus. Instead, it is a relational and relative concept, which is abstracted from the relation between a thing and its location

Space is also an analytic accident of bodies which does not have a entified object. In reality, the location of every thing is a part of the volume of the whole material universe which is considered separately, though it does not possess a separate existence.

Anyway, motion in space is either intentional, as when a man transfers himself from one place to another of his own will, or non-intentional, like the spatial movements of non-living bodies. Non-intentional motion, in turn, is divided into natural and unnatural motion, for it is either required by the nature of the thing, or it is under the influence of a constraining force.

Intentional motion, which is based on the soul of the willing agent, is really a subordinative (taskhiri) action which would not occur without the intermediary of the soul. The souls of animals and men use a natural agent to move their bodies or other objects, so the direct and proximate agent of intentional motion is nature.

On the other hand, constrained motion, whether it derives from that which constrains (qasir), as asserted by us, or from that which is constrained (maqsur), as most philosophers have held, is ultimately produced by the nature of the body. Hence, every motion derives from nature, and for this reason, nature is introduced as the agent source (mabda' fa'ili) of the motion of bodies. In other words, every motion has a source of its tendency (mabda' mayli) which is either a property of the body's nature or appears by means of the influence of the nature of another thing.

The ancient philosophers presented views about the source of motion in moving bodies, some of which were discussed in Lesson Thirty-Eight. However, their explanations were based on the assumptions of the then current natural sciences and do not correspond to contemporary scientific theories.

But, in general, it can be said that corporeal motion does not lie beyond these two alternatives: either it is required by the nature of the moving existent—and in this case the motion continues until it confronts an obstacle—or the essence of the moving existent does not require motion, but it occurs under the influence of a foreign factor. If this foreign factor itself does not require motion essentially, another factor will have to exist, until it culminates in a material factor that essentially requires motion.

This factor corresponds to the thing which in modern physics is called 'energy.' It is the transference of energy to bodies which causes their motion. But it must be noted that the validity of this correspondence depends on the validity of the related scientific theory. However, the existence of a natural factor that essentially requires motion is a philosophical theory to which the correctness or incorrectness of scientific theories makes no difference.

Motion in Position

Just about everything that has been said about spatial motion applies to motion in position as well. Basically, motion in position may be reduced to spatial motion because although in motion in position the place of the entire body does not change the parts of the moving thing gradually change location, so that, for example, the part which was to the right moves to the left, or the part which was above moves below.

The discussion of whether position is really a category is similar to that about the category of where ('ayn). The division of motion in position into intentional and the non-intentional is similar to the corresponding division in spatial motion.

A notable point is that philosophers do not consider circular motion to be required by nature, and in this

regard modern physics says that motion which is not in a straight line must be the resultant of several forces. The final judgment about this kind of problem is the responsibility of the empirical sciences.

Motion in Quality

The third category in which motion occurs is the category of quality. It may be further subdivided by attending to its kinds, such as motion in mental quality, motion in sensible quality, motion in qualities specific to quantity and motion in dispositional qualities (kayf isti'dadi).

The most indubitable among the types of motion in quality, is motion in mental quality, for it is perceived by infallible presentational knowledge.

For example, everyone finds within themselves an affection or love for someone or something, and gradually this attraction becomes intense. Or one feels a dislike toward someone or something which gradually changes into an intense loathing, or the opposite, a state of intense anger appears and gradually is mollified, or a state of intense joy appears and gradually vanishes. From a philosophical point of view, these gradual changes are considered motion.

Motions such as these may be considered to be like sensible qualities, such as color, but we know that the reality of color and the qualities of their intensity and weakness are still subjects of discussion among physicists. Therefore, the existence of this type of motion in quality is not as certain as the previous type.

The third type of motion in quality is motion in shape. If two ends of a string which are extended to form a straight line are gradually brought together in such a way that a curve is formed, then the plane surface and its straight line (if the line it possesses is actual) gradually becomes curved. However, if this transformation is really gradual, it will be subordinate to motion in the position of the string itself or to the spatial motion of its parts.

Another example of this kind of motion in quality may be found in the speeding up or slowing down of any motion, because it is a quality specific to the quantity of its speed, as was explained in the previous lesson.

The fourth kind of motion in quality is motion in dispositional qualities and their gradual intensification and weakening. However, in Lesson Forty-Eight it became clear that the concept of disposition is a kind of concept which is abstracted from the decrease and increase in the conditions for the occurrence of a phenomenon.

Therefore, if the occurrence of the conditions is really gradual, the motion in the disposition of quality can be considered a concept abstracted from several motions. If it is assumed that the occurrence of a phenomenon depends on only one condition, and that this condition really comes about gradually, then in this case, motion in dispositional quality can be considered a concept abstracted from the motion of the mentioned condition.

Motion in Quantity

Motion in the category of quantity for a moving body is assumed either in disjoint quantity and number, or in continuous quantities and amount. But in addition to the fact that number does not have real existence, it makes no sense to speak of numbers changing gradually, for change in number is obtained only by means of increase or decrease in units, and these increases and decreases occur instantaneously, although it may be based on gradually fulfilled prerequisites or spatial motion.

If motion in continuous quantity is supposed in a line, its changes depend on the changes in the surface [on which the line exists], and the changes in a surface in turn depend on the changes in volume, and until the volume of something increases or decreases the amount of its surface or lines will not increase or decrease.

An increase in volume will be obtained either as an effect of the attachment of another body or as an effect of the expansion and extension of its own parts. Likewise, a decrease in the volume of a body will occur either as an effect of the removal of a section from it, or as an effect of pressure on its existing parts.

Change which is obtained as a result of composition and decomposition, attachment and detachment, is usually instantaneous, although the prerequisites for it might be fulfilled gradually. However, a case of gradual composition and decomposition may be imagined, for example, such that two liquids each of which is assumed to possess a true individual unity are gradually poured into one another so that they are mixed and a third liquid with its own individual unity results.

Regarding the fact that every compound liquid is composed of uncountable molecules the proof of individual unity for each of the two assumed liquids and for the mixture of the two is exceedingly difficult. In reality, this kind of analysis and synthesis are sets of instantaneous connections and disconnections which appear following the spatial motion of the parts.

Decrease or increase in the volume of a body as a result of the expansion or compression of its parts is in fact another way of describing motion in space and position of its molecules and atoms. For example, when water boils and turns into steam its volume increases, but this increase in volume, according to that established by physicists, is nothing but the increase in the distance of the molecules of water. Likewise the transformation of steam into water and gas into liquid is nothing but the decrease in the distance of these molecules and atoms.

Therefore, the growth of plants and animals has been considered a clear instance of motion in quantity, and although it is obtained by addition of other bodies such as water and nutrients, it is assumed that each of them possesses a single specific form whose amount gradually increases.

It seems that the establishment of true motion in quantity is also difficult in these cases because

undoubtedly vegetable growth is under the influence of the addition of foreign materials which are transferred into them by spatial motion, and the connections and disconnections of their parts take place instantaneously.

Likewise, when two bodies move toward each other, or one of them moves toward the other, although they gradually approach each other, their attachment takes place at a single instant and without any duration. After their new parts are put in their places, although their chemical and physiological actions and reactions take place gradually, there is no reason that the specific form of a tree or an animal also develop gradually to include the new part. It is possible that the change of the prior quantity to the new quantity occurs instantaneously, and is a kind of generation or corruption, not something gradual and a kind of motion in quantity.

It is to be concluded that demonstrating that there is motion in quantity is more difficult than demonstrating the other kinds of motion. It is possible that what is called motion in quantity is really a set of spatial motions, instantaneous connections and disconnections, or instantaneous generation and corruption.

Lesson 59: Motion in Substance

Introduction

As was indicated, philosophers of the past, including Aristotelians and Illuminationists, considered motion to be specific to accidents. Not only did they fail to establish substantial motion, but they imagined it to be impossible. Also, among the ancient Greek philosophers none are to be found who explicitly discuss substantial motion or establish it. The only position which is comparable to substantial motion is that reported to have been held by Heraclitus (540–470 B.C.).

Other than those Islamic and non-Islamic philosophers and theologians who believed in constant renewing creation, none are found to whom a tendency toward substantial motion can be ascribed. However, contrary to the famous philosophers of the world, the one who explicitly established substantial motion and boldly insisted on it was the great Islamic philosopher, Sadr al-Muta'allihin Shirazi.

Here, we shall first present the objections raised by those who deny substantial motion and answer them, then we shall explain the theory of Sadr al-Muta'allihin and the arguments he has put forth to prove it.

Objections to Substantial Motion

The discussions of those who imagine substantial motion to be impossible turn on the notion that one of the prerequisites or rather one of the constituents, of every motion, is the existence of the moved, or in technical terms, the subject of motion.

When we say that the earth rotates on its axis and revolves around the sun, or that an apple turns from green to yellow and then to red, or that a sapling or a baby animal or human grows and develops, in each of these cases we have a fixed essence whose attributes and states gradually change.

However, if it is said that the essence itself is not fixed, and just as its attributes and accidents change, its substance also is transformed, then to what are we to relate this change? In other words, substantial motion will be a motion without a thing moved and an attribute without a thing to which attribution is made. This is not rational.

Answers to the Objections

The origin of this objection is a defect in the analysis of motion. As a result, some philosophers, such as al-Shaykh al-Ishraq, have consciously considered motion to belong to the category of extraneous accidents, while others have unconsciously considered it so. Hence, they considered it necessary for there to be a entified independent subject of motion and attribution which remains fixed through the process of motion, and to which motion and change are related as accidents and attributes.

However, as was previously made clear, motion is that very flowing of the existence of substances and accidents, not an accident alongside other accidents. In other words, the concept of motion is not a whatish concept, rather it is a secondary philosophical intelligible. To put it still differently, motion is an analytic accident of existence, not an extraneous accident of existents.

These sorts of concepts do not need a subject in the sense which has been established for accidents. The only thing that can be considered as the source of abstraction of motion is the flowing substantial or accidental existence itself, in the sense of a subject related to analytic accidents, that is, a subject whose objective existence is identical with an accident, and any distinction between them is impossible except in the realm of mental analysis.

Therefore, when we say, 'A substance has changed,' it is as if we were to say, 'the color of the apple (and not the apple itself) has changed.' It is clear that in the process of a transformation in color, there is no fixed color to which the transformation is attributed. Even an independent subject is related to accidental motions only because of its being an accident, not because it is motion.

Therefore, even if the accident pertaining to the motion were to remain unchanged, it would still need a subject, as the apple itself is needed whether its color is fixed or changing.

It is to be concluded that motion and immutability are two analytic attributions for flowing and immutable existence, and such attributions do not require entified subjects of attribution independent of the attribution itself.

In the same way as immutability is not an accident of an existent in external reality in such a way that it would lack immutability without that accident, likewise, the attribute of motion is not is not an extraneous accident of a particular existent so that without it, it should be characterized with immutability and lack of motion. In technical terms, analytic accidents do not require independent subjects; rather their existence is identical with the existence of their subjects.

It is worth noting the subtle point that according to the fundamentality of existence, motion must be related to existence as an analytic accident, and the relating of it to the whatness of a substance or accident is an accidental relation.

Arguments for the Existence of Substantial Motion

Sadr al-Muta'allihin offered three lines of argument to establish substantial motion.

1. The first argument for substantial motion has two premises. One is that accidental changes in a thing are the effects of the substantial nature of that thing. The second premise is that the natural cause of motion must be a moving thing. From this it is concluded that a substance which is the cause of motion in accidents must be a moving thing.

As for the first premise, this is the famous principle indicated in the previous lesson, that is, the proximate and immediate agent of all motions is nature, and no motion can be directly related to an immaterial agent.

As for the second premise, it may be further explained that if the proximate and immediate cause of an effect were a stationary object, its result would also be a stationary.

In order to make this easier to understand, the following example may be used: if a lamp were in a fixed place the light which radiates from it would illuminate all within a specific radius, but if the lamp were in motion, the extent of its illumination would gradually advance. Hence, the process of moving accidents which advance in the realm of time shows that their cause also is in process along with them.

Perhaps it will be asked, if the nature of a substance is essentially in motion, then why are its effects, which are accidents, sometimes without motion? And why cannot the immobility of accidents be reason for the immobility of the nature of a substance?

These question can be answered as follows. The nature of a substance is not a complete cause of motion, rather, its effectiveness depends on specific conditions whose satisfaction brings about motions in accidents, and motion is an action which requires a natural agent, even if the agent is not the

complete cause of its occurrence. Immobility, to the contrary, is a negative thing (the absence of motion), and cannot be considered to be an action in need of an agent.

On the other hand, it may be asked whether the proponents of substantial motion are not forced to relate substantial motion to immaterial agents, which are fixed, unchangeable and devoid of motion. Why do they not accept accidental motion for fixed substances as valid?

The answer is that substantial motion is the very existence of the substance, and is merely in need of a divine generative agent, and the granting of existence to the substance is the same as the granting of existence to the substantial motion. However, the granting of existence to the substance is not the same as the granting of existence to accidents and to motion in accidents.

For this reason, the motion in accidents is related to substantial nature, and is considered an action for it. Such an action is in need of a natural agent whose transformation shows a transformation in its agent.

Another very precise objection can also be raised against this argument, the answer to which is not as easy as the answer to the previous two objections. According to Sadr al-Muta'allihin's own explanation, motion is not a entified object independent of its source of abstraction, the flowing existence of a substance or accident. Hence, whether it is assumed to be in a substance or in an accident, motion will be the same as the existence of that substance or accident, and its cause will be the cause of the existence of that substance or accident.

Therefore, what prevents us from relating the flowing existence of an accident directly to a divine or metaphysical agent and to consider the role of substance in its occurrence as the role of matter for the occurrence of form rather than as the efficient cause ('illat fa'ili)? If this assumption is correct, there will be no way to infer substantial motion from the agency of substance for its accidents and their motions. In fact, this objection arises from doubts about the first premise.

But, in any case, this argument at most will be of benefit to those who consider the agency of substantial nature for their accidents and motions to be debatable.

2. The second argument also has two premises. One is that accidents do not have existence independent of their subjects, but rather they are really aspects of the existence of substance. The second premise is that every kind of change that occurs in an aspect of an existent, is a change in the existent itself, and indicates its own internal and essential change. It is concluded that motions in accidents indicate changes in the existence of a substance.

In explaining this argument, Sadr al-Muta'allihin says that every corporeal existent has a single existence which is in itself determinate and individual (as was explained in Lesson Twenty-Five). The accidents of every substance are appearances or rays of its existence, which may be considered signs of individuation ('alamat tashakhkhus) for it and not as causes of its individuation. Therefore, a change in these signs indicates a change in that which bears the sign; hence, motion in accidents indicates motion

in the existence of a substance.

This argument does not depend on the assumption that motion in accidents is an effect of substantial nature, but rather accidents are introduced as appearances and aspects of the existence of a substance. This position is acceptable in the case of continuous quantities because the dimensions and extensions of corporeal existents are nothing but their visages, as was explained in Lesson Forty–Seven.

It can also be applied in the case of qualities specific to quantity, such as geometrical shapes. However, relative categories, as was mentioned repeatedly, are abstract concepts and only the source of abstraction of some of them, such as time and space, can be considered to be aspects of the existence of substance, which reduce to continuous quantities.

The existence of psychic (nafsani) qualities (which in a precise sense are objective accidents, although in a sense they may be considered to be appearances and aspects of the psyche) is not the same as the existence of the psyche. Rather, there is a sort of union (not unity) between these qualities and the psyche, and for this reason, the application of this argument for such accidents is difficult.

3. The third argument given by Sadr al-Muta'allihin for substantial motion is obtained from knowledge of the reality of time as a flowing and passing dimension of material existents, and the logical form of this argument is as follows.

All material existents are in time and have a temporal dimension. Every existent which has a temporal dimension has gradual existence. In conclusion, the existence of a material substance will be gradual, that is, possessing motion.

The first premise was made clear in Forty–Three, from which it may be concluded that time is the passing extension of corporeal existence, not an independent vessel in which they are contained. If material phenomena did not have such a passing extension, they could not be measured with temporal scales, such as clocks, days, months and years.

Likewise, if they did not have spatial extensions and geometrical dimensions, they could not be measured by length, area and volume. Basically, the measurement of everything by a specific scale shows the homogeneity between them. Therefore, the weight of something can never be measured by the scale of length or vice versa.

It is for this reason that completely immaterial things do not have a temporal duration, and they cannot be considered temporally prior to or posterior to an event, for their immutable existences are not homogeneous with the passing and renewing extension of time.

The second premise can be explained as follows. Time is passing so that its potential parts are brought about successively. One part of it does not occur until another part passes, while the entirety of its supposed parts has a single existence.

It we understand the nature (haqiqat) of time; we will readily discover that every existent which possesses this sort of extension in its essence will have a gradual existence and will have parts spread out in the channel of time. Its temporal extension is divisible into successive potential parts no two of which can be brought together. Until one of them passes and is annihilated another part will not be brought into existence.

Given these two premises, it can be concluded that the existence of a corporeal substance is gradual, passing, and constantly renewed, and this is the meaning of substantial motion.

In explaining this argument, Sadr al-Muta'allihin says that just as a material substance has geometrical and spatial dimensions, it also has another continuous quantity called time (which constitutes its fourth dimension), and just as its instantaneous extension is an essential attribute of its existence, and has no existence separate from that of the material substance, likewise its gradual extension is an inseparable and essential attribute for it.

And just as the individual ipseity of a corporeal substance is never brought about without geometrical dimensions, likewise it cannot occur without the temporal dimension. No corporeal substance can be imagined to be fixed and detached from time, and therefore as related equally to all times. So, time is a constituent of the existence of every corporeal substance. This implies that the existence of every corporeal substance is gradual and that its supposed parts are brought into existence successively and by constant renewal.

This argument is the firmest of the arguments for substantial motion, and there appear to be no problems with it.

Lesson 60: Further Discussion of Substantial Motion

A Reminder of Some Points

An important problem regarding substantial motion has been raised which will be reviewed at the end of this section, but prior to this, there are several points which should be borne in mind.

1. Substantial motion is really the instant to instant renewal of the existence of a substance, and bears no relation to the motion of the stars, galaxies and nebula, or to the motions of atoms and molecules or the motion of particles around the nuclei of atoms.

Even if motion within the nucleus is assumed, this will have no relation to substantial motion, because these motions are spatial and accidental, while substantial motion is basically a philosophical and intellectual notion and not a scientific or empirical one.

2. Accidents which appear to be stationary and motionless have constant imperceptible motion, for their existences are also extended in the channel of time, and until one of their temporal parts is annihilated, another part will not appear.

Therefore, the entire material world is continuously being annihilated and renewed. No stationary and immobile existent is to be found. In other words, the existence of immobility is relative and absolute immobility does not exist.

3. It is possible for a material existent to possess numerous motions at a single time, as the planet earth, like all material substances, has substantial motion, and on that basis, its existence is constantly being renewed and likewise all its attributes and accidents are continuously being renewed in existence. Furthermore, it rotates on its axis while it revolves around the sun, and it also has other motions which have been established by astrophysicists.

Likewise, it is possible for a body subordinate to another moving body to possess one or more subordinate motions. For example, as the existents on the earth are subordinate to it, they possess motion subordinate to it, even if they do not move independently, just as the earth itself has a motion subordinate to that of the solar system in the galaxy, it also has a motion in space subordinate to that of the galaxy.

Therefore, the unity of a moving thing is no reason for the unity of motion, although the individual unity of motion would be meaningless without the unity of the moving object.

4. Sometimes, numerous motions are directly attributed to a moving object, but sometimes, motion occurs in a moving object by means of another motion, without which it could not occur, as in the serpentine motion of the earth which is obtained by means of its revolutions, which is in fact an attribute of this motion, or the motion of an automobile which is attributed to the gradual increase or decrease of its speed (acceleration), or the substantial motion of bodies, which are attributed with intensity and perfection. These sorts of motions are called motions superimposed on motions.

5. As was previously said, the concept of speed is obtained through the relation between time and distance. Hence, speed is not attributed to time itself, and naturally, acceleration or the increase and decrease in speed will also have no meaning for time.

Therefore, when it is said that time has passed quickly or slowly, this is called 'psychological time' and is a loose way of speaking, and it depends on the quality of the perception of the passage of time. Such ideas may also be applied to physical time.

Types of Substantial Motion

Substantial motion, like other kinds of motion does not by itself necessitate perfection and intensity, and the arguments for its existence do not prove anything more than gradual change and renewal of the existence of a substance. Therefore, as in the case of accidental motion, three states may be posited for it, or it may be divided into three types:

1. Constant motion in which all the potential parts of the substance are equal with respect to perfection and level of existence.
2. Intensifying motion in which every assumed part is more perfect than the previous part.
3. Weakening or declining motion in which every part is weaker and more defective than its predecessor.

Intensifying and weakening motions can be considered to be composed of two motions: (1) one which occurs to the moving thing by means of another; (2) motion without an intermediary, which represents the persistence of a substance, whereas the mediated motion represents its perfection or decline.

It is like accelerating motion, whose increase or decrease in speed is considered an ascending or declining motion over spatial or another kind of motion. A motion that begins with positive acceleration and then has negative acceleration can be represented in the form of a straight line over which from the beginning a curve rises and then falls back to meet the straight line at its end point. The ascending curve represents positive acceleration, and the descending curve represents negative acceleration.

This picture has a clearer instance in the case of substances which possess two compound forms, in such a way that the underlying form possesses a constant substantial motion, whose level of existence does not become more perfect nor decline, while the higher form possesses rising and declining motion.

For example, the component elements of a plant remain in the same condition in which they began, while the vegetable form gradually becomes more perfect, and then enters the state of withering and decaying, and at last it rots and is destroyed. This is the point at which the descending curve joins the straight line.

Those who rely on some other definitions of motion have inferred the necessity of its becoming perfect, and so, in the case of substantial motion, they have also held that its intensification and becoming more perfect are necessary, even if our senses are not able to perceive this intensification. In the same way, they have considered declining or weakening motions to be accidental. In Lesson Fifty–Seven, this inference was criticized and its weakness was made clear. There is no reason to repeat it again.

The Relation between Substantial Motion and Actuality and Potentiality

As was previously explained, the potential and the actual are two abstract concepts abstracted from the relation between two successive existents, and from the persistence of the previous existent or a part of it in the following existent.

Now, regarding the fact that all material existents are constantly in a state of renewal and coming about and passing away, the question will be raised as to how the existence of the previous existent can be imagined, and how the definition of potential and actual can apply to the beginning and end of the motion.

Sometimes the answer is given that although the previous existent does not itself remain, the perfection of its existence is preserved in the following existent. It is concluded that every motion is a becoming perfect and intensification.

However, not only does this conclusion fail to agree with entified reality, but the answer itself does not solve the basic problem, for given the annihilation of the previous existent, the preservation of its perfections can mean only that the succeeding existent is more perfect than the previous one, and this reduces to the fact that the preservation of something from a potential existent in an actual existent is not necessary.

This meaning is compatible with the assumption of the succession of numerous existents each of which is more perfect than the other, and with the interpretation of motion as a succession of actualities which is governed by the principle of 'a succession of rests.'

It might be said that according to the position of the constancy of motion, the earlier and later parts are not numerically different in actuality, but all of them are an existent with a single existence. This is contrary to the position of a succession of rests, according to which each of the temporal parts will have a specific actual existence. According to the former position, a single flowing existence is infinitely analyzable, contrary to the latter position which is based on finite unanalyzable parts.

However, the discussion is not about the potential parts of motion, but about the potential and actual as the beginnings and ends of motion which are outside the scope of the motion itself. This may be explained further by pointing out that motion has been defined as the gradual process of the emergence of the actual from the potential, such that the potential is the beginning of the motion and the actual is its end.

However, to call the earlier part of motion potential in relation to a later part is to use a specialized expression, according to which the perseverance of something from the earlier part is not considered necessary, and in this way there no longer remains room for a gradual process from potentiality to

actuality and a temporal gap between them.

It seems that the application of the above definition to substantial motion is extremely difficult. It is only in the case of the compound forms whose underlying form is a previous existent that it can be considered potential in relation to the occurrence of the higher form, which is the substantial motion itself, although this higher form is the very motion, for the perseverance of a part of its motion is sufficient during the occurrence of the higher form.

However, in the case of simple and constant substantial motion the potential and actual cannot be proven to be two existents outside the scope of motion as its beginning and end.

If we assume that there is nothing but a simple body in the world, and throughout time it remains with the same constant level of existence, and that its potential parts continuously come into existence and are annihilated, is it necessary for there to exist an existent prior to or after it as its beginning or end?

Therefore, it becomes clear why it is preferable to define motion generally as 'gradual change' rather than in the other ways proposed.

The Continuity of Substantial Motion

In Lesson Twenty-Nine, the unity of the world was discussed, and different meanings which have been assumed for it were reviewed. However, the establishment of unity in none of the mentioned senses depended on the establishment of substantial motion. Sometimes, substantial motion is used as a justification to establish the unity of the material world, and the unity of the world is even considered to be one of the conclusions of the doctrine of substantial motion.

It is said that with the establishment of substantial motion, the entire material world will be a single substantial motion, from each of whose slices a specific whatness is abstracted, and the multiplicity of material existents depends upon the numerical differences among these essences.

This subject may be interpreted to mean that the accidents and motions of a material existent are aspects and representations of the existence of a substance. In fact, their existences are derived from the existence of the substance. The material substances themselves are in fact continuous substantial motions which can be considered a single existent given their attachment to each other. On this basis it may be claimed that the entire material cosmos is a single continuous existent.

The continuity of substantial motions may be interpreted in two ways: one is the continuity of motions which are brought about successively during time, which may be called vertical continuity; and the other is the continuity of simultaneous motions which occur along with each other, which may be called horizontal continuity. Therefore, each of the two forms will be discussed separately.

Vertical Continuity

Regarding the vertical continuity of material existents and their substantial motions, it can be said that every particular material existent which may be considered is a particular substantial motion which appears in matter. For example, the existence of a plant is a substantial motion which occurs in its component elements. But its prior matter also has a substantial motion in its own turn.

Likewise, however far we go back we always reach another substantial motion, and among them there is never any gap brought about by rest. Therefore, it can be said that successive phenomena are a single substantial motion possessing numerous slices, from each of which specific whatnesses are abstracted.

This explanation is debatable in two respects. First, it is not the case that each of the particular slices possesses a single existence and a single substantial motion; rather it is possible that a compound existent may be compound in several ways and possess several substantial motions, as was established in Lesson Fifty-Four.

Second, the continuity of two successive substantial motions will have unity in a real sense when there is no distinctive boundary between them, while the transformation of one material existent to another is not like this. The reason for this is that there are various effects for each of them.

For example, vegetative effects, that is, growth and reproduction, are new effects which appear in matter, and there is no precedent for this in lifeless matter, and it begins when the vegetable form occurs in matter. Even if the vegetable form is the same as the vegetable substantial motion, it possesses a determinate boundary which separates it from the substantial motion of the previous matter. In other words, in the extension of the substantial motion of matter there are points which are boundaries between mineral and vegetable, and from these points new substantial motions appear which can be shown by a curved line which meets the underlying straight line at two points.

Therefore, successive substantial motions are continuous linear fragments which are distinguished from one another by specific points, each of which linear fragments possesses its own characteristics.

Since these points are drawn by means of the higher lines, the underlying straight line which continues through time can be considered a single line which shows the continuous unity of the prime matter of the cosmos through time. And it is only in this sense that the unity of the material cosmos can be established.

Horizontal Continuity

Regarding the horizontal continuity of material existents and their substantial motion, it may be said that since nothingness has not made any gaps between the parts of matter, and there is no pure vacuum between them, all of them possess a unity of continuity, and this unified thing possesses a single

substantial motion.

Aside from the fact that in the above explanation the continuity of substantial motion is inferred from the unity of matter, not that the unity of the cosmos is established through the unity of substantial motion, there is another problem with this view, that is, the unity of continuity for the matter of the cosmos is no reason for the unity of its forms and the unity of their substantial motions, for it is obvious that each of the forms possesses a distinctive boundary and particular effects which have no relation to the effects of the common matter. Therefore, the correctness of the doctrine of the horizontal continuity of material existents and their substantial motion is merely due to the unity and continuity of their matter.

This sort of unity and continuity is not incompatible with the multiplicity of forms and their generation and corruption.

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