CHAPTER IV

THE LIFE HISTORY OF 'HAYY IBN YAQZĀN'

Ibn Tufayl offers two versions about the birth of 'Hayy Ibn Yaqzan'. The first version is an attempt to rationally explain the spontaneous birth of a child, without father and mother, through the interaction of natural elements. ¹ The second version gives the popular account of the birth, in conformity with ordinarily laws of nature.

I. The Version of Spontaneous Birth of 'Hayy Ibn Yaqzan'.

According to the first version, there is an island amongst the Indian islands, in Indian ocean, situated under the equinoctial. ² This island enjoys the most equable and perfect temperature because it receives its light from the highest point in the heavens, ³ and the sun shines over it vertically twice a year only. For the rest of the year it declines six months to the north and six months to the south, with the result that the place is neither too hot nor too cold. ⁴
In this island, in a piece of low ground, some mass of earth got fermented in course of time. This fermented mass had a perfect equilibrium of heat, cold, moisture and dryness, so that none of them prevailed over the other. The middle part of this mass came nearest to the temper of human body and was fit to form the seminal humours. In short, all the elements which go to form the body of a human child were present. The most equable temperature of the place, the perfect equilibrium of heat, cold, moisture and dryness, the exact temperature of the fermented mass analogous to that of human body, all this resulted in the combination of these factors in the exact proportion and contributed to the formation of the body of a child, just as the foetus is formed and develops in mother's womb.

First, in the middle of the fermented mass, by reason of its viscousness, there arose a small bubble which was divided into two chambers by means of a thin partition, and was full of a spirituous and aerial substance. It had the most exact and perfect temperature imaginable. Then a soul was joined to it by the command of God. It was joined to it in such a way that it could hardly be separated from it even in thought. This
soul continually emanates from God, just as the light flows from the sun and illumines the world. This soul acts upon all creatures but its effects are more visible in some than in others. It is just like the light of the sun falling on different bodies and illumining them according to their capacities.

Now returning to our account. When the soul was joined to that receptacle all the faculties were subordinated to it by the command of God. Opposite to this receptacle there arose another bubble. It was divided into three chambers by thin membranes, with passages from one to other. It was also filled with an aerial substance which was somewhat finer than that of the first. A number of faculties were established in this receptacle also and they were all subordinated to the soul. These faculties were entrusted with the work of protecting the soul and communicating everything to it.

Near these two bubbles there arose a third bubble which was filled with aerial substance somewhat grosser than that of the first two. It contained some other faculties which were also subordinated to the soul and were appointed to serve it.
These three receptacles stood in need of one another. The first wanted the other two as its servants, and they wanted the assistance and guidance of the first as their Master.  

The first receptacle, because of the power and the flaming heat of the soul that was joined to it, was formed into a conical figure, like that of fire. This was the Heart. The second was the brain and the third was the liver. As the heat found in the heart may result in the destruction and dissolution of humours it was necessary that there should be some organ to supply for this defect. This function was entrusted to liver. The heart also needed some organ to inform it of what is useful and what is harmful for it, so that it may assimilate the former and repel the latter. This work was entrusted to the brain. The brain presided over all things relating to the sense and the liver dealt with all things pertaining to nutrition. Thus they served the heart and the heart supplied them heat to sustain them along with their faculties. A number of ducts and passages, arteries and veins were established between them. Similarly, muscles, bones, skin and other parts developed just as a phoetus develops in the womb of the mother.
At last, when the child was complete in all his parts, the coverings of the mud burst asunder and the infant opened his eyes into this world. Feeling hungry he cried for food, and a roe who had lost her fawn heard him and felt compassion for him. She suckled him and adopted him as her young one.

II. Popular Version of the Birth of 'Hayy Ibn Yaqzān'.

According to the second version of the story, there was another vast island in the neighbourhood of the first island. It was very fertile and well-populated. A prince of proud and jealous disposition ruled over it. He had a sister gifted with exquisite beauty. He would not marry her to any one as he did not consider any one worthy of her hand. At last, a relation of the prince, named Yaqzān, succeeded in winning her love, and married her privately in accordance with the customary rites. In course of time she gave birth to a child who was named 'Hayy Ibn Yaqzān', i.e. Hayy the son of Yaqzān.

The princess, being afraid of her proud and haughty brother, put the baby into an ark, closed it fast, and with the help of some of her servants and friends,
set it afloat into the sea, in the darkness of night.\footnote{31}
She did it with a heavy heart, praying to God in these words:

"O God thou formest this child out of nothing,\footnote{32} and didst sustain him in the dark recesses of my womb, till he was complete in all his parts; I fearing the cruelty of this proud and unjust king, commit him to thy goodness, hoping that thou who art infinitely merciful, will be pleased to protect him, and never leave him destitute of thy care."\footnote{33}

As it was the time of a high tide the ark was carried by the waves to the other island, and was left there in a safe and sheltered place by subsiding waters.\footnote{34} The winds blew a heap of sand together between the ark and the sea so that he was safe from the dangers of a future tide.\footnote{35} The child, feeling hungry by now, began to cry. The cries were heard by a roe who had lost her fawn. She felt pity and tender affection for him. The nails and the timbers of the ark had already been loosened by the waves. The roe, with the help of her hoofs, opened it and suckled the child. From that moment onward she protected him and nourished him like a mother.\footnote{36}
The rest of the story is common in both the versions and it is as follows:

III. Early Development of 'Hayy.

'Hayy began to develop in the company of the deer and under the loving care of the roe. There was a good and abundant pasture in the island and there was no beast of prey. The roe had plenty of milk with which she maintained the little child.  

The roe suckled him until he was two years old. Now he could walk a little and began to breed his teeth. The roe showed him the way to fruit trees and places of water. When the sun was hot she sheltered him, and when it was cold she warmed him with her body. When the night came she brought him back to his place.

When 'Hayy heard the voice of any bird or beast he tried to imitate it and came very near it in his imitation. He could imitate the voices of the deer so perfectly that there was hardly any sensible difference. He could express himself exactly as they did under the stress of various wants and emotions. This helped him to develop such a close acquaintance with the wild beasts
that they were not afraid of him, nor he of them.\footnote{42}

By this time 'Hayy began to develop the power of imagination and thinking. He could fix in his mind ideas of things when they were no more present to his senses. This led him to have desire for some of them and to have aversion against some others. Thus he passed from the stage of perception to that of concepts and conceptual thinking.\footnote{43}

With the development of thinking he began to compare himself with other animals.\footnote{44} He found that they were swift and strong and were armed with such natural weapons as horns, teeth, hoofs, spurs and nails.\footnote{45} On the other hand, he was slow, weak and defenceless. It proved a great handicap to him in his contests with other animals. For instance, when there was a quarrel over gathering of fruits he could neither beat them off nor run away from them.\footnote{46}

He also observed that his fellow fawns had smooth foreheads at first, yet horns grew on them, later on.\footnote{47} Similarly, they were weak in the beginning but became strong and swift afterwards. He eagerly waited for the same to happen to him, but he was disappointed.\footnote{48}
About the same time, the sense of shame began to emerge in Hayy. He observed with grief and shame his own nakedness, while in other animals he found that they were mostly covered with hair, wool, feathers or tails. 49

All these handicaps pained him very much and he could not understand the reason of this difference. 50 By this time he was about seven years of age.

His intense feelings about these handicaps and need for self-preservation put him on the path of creative thinking and invention. He took some branches of a tree, removed the twigs and the leaves and made them smooth. Thus he made clubs for the purpose of attack and defence against wild animals. 51 Similarly, he made two coverings with some broad leaves, one to wear on the front side, and the other to wear behind. He tied these coverings to his waist by means of a girdle made of the fibres of certain trees. 52 This made him conscious of the superiority of his hands over the forelegs of animals. 53

He had compensated for his handicap but there was a difficulty. The leaves soon dried and dropped away. Thus he had to repair and renew his coverings frequently. 54 He tried to find some better device. He thought of taking
the tail of some dead animal and wearing it himself. But he found that all beasts avoided the dead bodies of the fellow animals. He had the apprehension that it may be unsafe and harmful for him. This marks the beginning of reasoning in Hayy. One day he saw the carcass of a vulture, and found that no animal showed any particular aversion to it. He cut off its wings and the tail and drew out its skin, which he divided into two equal parts. One of these parts he put on his back and the other, on his front. He fixed the wings on each arm, and the tail he wore behind. This dress brought him several advantages. It covered his nakedness and kept him warm. Moreover, it made him look so formidable that none of the beasts, except the roe, would come near him.

IV. Death of the Roe and Hayy's search for its Cause.

As Hayy grew up the roe became old and weak. Now Hayy had a chance of repaying the debt he owed to her. He took care of her, led her to best pastures and plucked wild fruits for her. But she became weaker and weaker every day and ultimately died. This was a great shock for Hayy. His grief was unbounded. The death of a near one makes man reflective and inquisitive. The same was the case with Hayy. He had a desire to know the cause of this phenomenon.
He had observed in himself that his eyes could not see when there was an obstacle before them. He could not hear when he put his fingers into his ears. He could not smell anything if his nostrils were closed. From this he had concluded that all his faculties were liable to impediments, and that their operations could be restored only by removing those impediments. So he peeped into the eyes and ears of the roe and also examined other parts of her body in order to find out any possible impediment. But he found no visible defect or impediment in any external part of her body. This led him to suppose that there was some hurt in some internal organ of such vital importance that no organ could function without its help. He concentrated all his attention and effort on finding out that organ. Here we find clear beginning of inductive reasoning in Hayy. He observes a situation, the death of the roe which raises a problem in his mind about the cause of that phenomenon. Then, with the help of his past experience, he proceeds to frame a suitable hypothesis to explain the phenomenon.

He knew from his personal experience that all the parts of the animal body were solid except three cavities, the skull, the chest and the belly. He argued to himself that that vital organ must be in one of those cavities. As the
whole body stood in need of that organ, it was most probably in the middle one, i.e. the breast. He was reminded of the fact that he had felt the presence of some such organ in his own body. It was always active and constantly beating within his breast. He could stop his hands, feet, eyes, ears and nose, etc. from functioning but he could not conceive the possibility of stopping that organ even for the twinkling of an eye. It was for this reason that he used to take special care to protect his breast from being pierced by the horns of those wild animals with whom he was sometimes engaged in fighting.

V. Hayy's Discovery of the Animal Spirit.

He decided to open the breast of the dead roe in the hope of reaching that organ and removing the impediment from it. At first he feared lest his operation would do more harm than the 'disease' itself. He tried to recall if any animal, after reaching that state, ever returned to its normal condition. He could not find any such instance. He concluded that if the roe was left in that condition there was no hope of her getting well again. But if he tried operation on her body there might be some hope. He took some fragments of flints and splinters of dry cane and sharpened them to serve as knives.
With these he opened the ribs and cutting through the flesh he reached one of the lungs. First he mistook it for that vital organ. But when he saw that it leaned sideways he was satisfied that it was not the organ he looked for, because, according to his way of reasoning, that vital organ should have been in the centre. 74 Proceeding further, he found the heart covered by the lung on one side. 75 He wanted to know whether it was similar on the other side of it. 76 When he found that it was so, he was assured that the organ was really in the middle position. 77 The regularity of its shape, the firmness of its flesh, its being guarded by means of a stout membrane, and above all, its central position, persuaded him that it was the goal of his search. He examined it thoroughly, and, perceiving no apparent defect, he opened it. He found two cavities in it. One of them, on the right side, was filled with clotted blood. 78 The other one on the left was empty. 79 This made him argue to himself thus: That congealed blood, which filled one of the cavities, was just the ordinary blood. He had often seen blood flowing out of the body of an animal and congealing shortly. Moreover, it was common to all parts of the body. He had often lost much blood in his fights with wild animals, without damage to his vital functions. So that congealed blood could not be that being which he was looking for. 80 As far as the second cavity was concerned, he could not suppose that such a fine
chamber had been made in vain. That being which was responsible for the functioning of the whole body must have resided in it. When it left the body, its departure resulted in the privation of the sense and cessation of all motion of the body.

Hayy had no hope of its returning to the body. It had left the body when it was whole and entire. It was highly improbable that it should return to it when operation had caused such ruin and havoc to it.

It made Hayy realise that his mother, the roe, was not the body but that something which had departed from it. All the actions of the body proceeded from it. The body was a mere instrument for that being, just like his weapons with which he fought against the wild animals. Thus all his care and regard for the body of the roe was transferred to that being which governed it. In the meantime, the carcass of the roe began to disintegrate, and an obnoxious smell emanated from it. This increased his aversion for it. But he did not know how to get rid of it. At last he saw two crows fighting bitterly with one another. One of them killed the other and dug a pit with his claws and buried the body of his adversary. Hayy condemned, in his heart, the crow’s act of killing, but admired his cleverness
in burying the dead body. He did the same with the carcass of the roe. Here, we find an indication of the development of moral sense in Hayy.

Hayy now concentrated all his reflection on the being which moved and governed the body. He observed that rest of the roes were of the same form and figure as he saw in his mother. This led him to infer that every one of them was moved and directed by a being similar to that which moved and directed his mother previously. This increased his affection for them and he used to keep in their company for the sake of their likeness with his mother.

Hayy observed that every individual animal or plant had a great many more like it. He wanted to know if there was any being like himself. But he did not find such a being in that island. As the island was surrounded by the sea he had no idea of any other land beyond it.

VI. Discovery of Fire.

One day it so happened that a thicket of canes caught fire through friction. Hayy was very much surprised at the phenomenon. The brightness of its light and its power in consuming everything and changing it into its own nature
impressed him very much. His admiration for it and his natural boldness prompted him to touch it. It burnt his fingers. Then he caught hold of a half-burnt stick by the end which was as yet untouched by fire and brought it to his lodging place.\textit{(cave)}. There he kept the fire and went on adding dry grass and wood to it so that it may not be extinguished. He admired the fire very much and tended it night and day. He considered it most wonderful and the most excellent of all things that were around him. It supplied him light and heat in the absence of the sun. He was persuaded that it was one of those celestial substances that were shining in the firmament.

To test its power he used to throw all sorts of things into it. He found that it consumed and vanquished all bodies, sometimes quickly and sometimes slowly, according to the degrees of combustibility of those bodies.

Once he put into it some sea animals which had been thrown ashore by the water. It produced a smell which stimulated his appetite. He tasted of them and found them delicious. Thus he acquired the habit of eating meat, and for this purpose he applied himself to fishing and hunting.
Reflecting over the beneficial effects and the extraordinary power of fire he began to think that the substance which had departed from the heart of his mother the roe, was most probably something of the nature of fire. He had observed that the body of the animal was warm as long as he lived, and became cold immediately after death. Moreover, he had noticed greater degree of heat about his breast where the heart was situated. These facts confirmed him in his opinion and gave him the idea to dissect a living animal, to see if the substance residing in the heart was really like fire. He took a wild beast, tied him down, dissected him and opened his heart. He found that the left cavity of the heart was filled with airy vapour which looked like a mist or cloud. When he put his finger into it he found it intolerably hot, and the animal immediately died. From this he concluded that it was this hot vapour which moved and directed the body of an animal and its departure from the heart caused death.

Hayy performed dissection on many more animals, both living and dead, to know more about various parts of animal body and the way they enjoyed communication with that hot vapour. Thus he got the highest degree of knowledge of animal anatomy that was possible to a specialist in this field.
VII. Unity of Animal Body.

Hayy clearly saw that every animal, inspite of the multiplicity of his organs and limbs, was one in respect of that hot vapour or spirit, which dwelt in the heart and from there was diffused among all the members. This spirit was the Master or the mover of the body and all the organs or the limbs were its servants or instruments. Just as he made use of different instruments and tools for different purposes, similarly, that spirit made use of various organs for different functions. No organ or limb could function without having correspondence with that spirit, through proper passages, nerves, etc. The nerves derived the spirit from the cavities of the brain and the brain had it from the heart. This animal spirit is one though its influence is diffused throughout the body. It is the source of all the functions of the body. All actions and functions really belong to it. Its action, when it makes use of the eye, is sight; when of the ear, hearing; when of the nose, smelling; when of the tongue, tasting; and when of the skin and flesh, feeling. Similarly, motion and nutrition were its functions when it made use of the limbs and the liver. When the passages through which an organ or limb receives this animal spirit is damaged or obstructed the corresponding
member ceases to function. When this spirit departs wholly from the body the whole body stops functioning and is reduced to that state which is called death.

VIII. Hayy's Contrivances to satisfy Practical needs.

Hayy had made these discoveries by the time he was twenty one years of age. Besides, he had learnt to make good many pretty contrivances to satisfy his practical needs. He made himself clothes and shoes of the skins of the wild animals he dissected. He made thread with the hair or with the bark of the stalks of Mallows or Hemp trees, etc. He made awls of thorns and splinters of cane whose edges he had sharpened. Observing the swallow's nest he built for himself a dwelling place with a store-house and a pantry. He protected the house with strong doors made of canes. He took birds of prey and trained them for hunting. He kept poultry for their eggs and chicken. He made spears by fixing the horns of the buffaloes on strong canes and clubs made from trees. He made a shield for himself by folding the hides together. He captured wild horses and asses and tamed them for riding. He made bridles and saddles for them from the strips of the skin and the hides of the beasts. This enabled him to chase the swiftest animals of the island.
Hayy had been busy so far with learning various practical things about life. His scientific investigations had not proceeded beyond the animal anatomy and the properties of a few things connected with his needs. Now he enters the stage of classification and tries to reduce the multiplicity of nature to higher and higher unities.

IX. Different Species of Bodies and their Unity.

He proceeded to examine the nature of bodies. He found himself surrounded by so many bodies, viz. animals, plants, minerals, stones, earth, water, vapour, snow, flame, etc. He observed in them different qualities and actions. They agreed in some respects and differed in others. Fixing his mind on their common qualities, he thought they were one. But in view of their differences they appeared as great many. The same he found in his own person. When he looked at his various organs and their differences he found that there was a plurality in himself. Each organ, in turn, could be divided into a great many parts. On the other hand, he perceived that all his organs were conjoined together to make one whole. No doubt, different actions and functions seemed to distinguish them from one another but these actions and functions proceeded from the animal spirit. So from the point of view of this animal spirit too he was one.
He considered different animals and found that every individual of them was also one. Then he looked at different species of animals and found that all the individuals of each species were exactly like one another, in shape and functions. From this he concluded that the spirit which actuated any species was one and the same, and the multiplicity of individuals in the same species was like the multiplicity of parts in the same individual person.

Then he considered all the species of animals together and perceived that sensation, nutrition, and movement were common to them all. As these actions proceeded from the animal spirit, it was one and the same animal spirit which actuated all living creatures. That spirit was divided into so many hearts just as the same water may be poured out into different vessels. The differences and peculiarities of species were like the differences of temperature in the water contained in different vessels. Thus he regarded the whole animal kingdom as one in relation to the animal spirit that worked in it.

Similarly, he contemplated the different species of plants and found that the individuals of every species showed some common characteristics. Then, taking all the species of plants together, he found that they agreed in
the function of nutrition and growth. He thought that there must be something in them analogous to the animal spirit from which their common characteristics proceeded. In view of that spirit the whole vegetative kingdom was one.

Then he viewed the kingdoms of animals and plants together. He found that they both agreed in the functions of nutrition and growth. The animals, no doubt, showed some functions over and above these, viz. sensation, apprehension and movement. But he had observed something analogous to it in plants also. For instance, the plants extended their roots that way the nourishment came; and some flowers turned themselves towards the sun. Thus he was led to the conclusion that plants and animals were one in respect to that spirit which was common to them both. In one case, (i.e. animals), it was more perfect, and in the other case, (i.e. plant), a bit restrained.

He next considered the inanimate objects, such as stones, earth, water, air, flames, etc. They all had the common characteristic of being extended in three dimensions, i.e. length, breadth and thickness. Their differences lay in different qualities that belonged to them. Some of them were coloured, others not; some were warm,
others, cold, and so on. But he found that these qualities were liable to change. The bodies that were warm grew cold, and those that were cold became warm. Again, water was rarefied into vapours, and vapours were condensed into water. This showed that all those bodies were at bottom one and their differences were accidental to them.

Then, taking the animals, plants and inanimate objects together, he tried to find out if they possessed any principle of unity. He found that they were all bodies. They did not differ from one another in this respect. They differed, of course, in their functions and acts. But these acts were perhaps not essential to the body itself, and proceeded from something else. If the peculiar act of a body could be produced somehow in another body that body would be just like the first. So, viewing the bodies as abstracted from their peculiar functions, he concluded that they were all one.

This was the end of his scientific voyage. Now he enters the domain of philosophy and wants to discern the nature of body as such, abstracted from all properties and differences that give multiplicity to it.
X. Essential Nature of Body.

He considered all sorts of bodies to discover their underlying unity. He found that they all had a tendency either upward or downward. For instance, a stone or water will always tend to go downward unless it is interrupted in its course by some other object. On the other hand, smoke will tend to go upwards, and if intercepted by an arch or dome, will divide to the right and left and will resume its upward journey. Similarly, if a leather bag is filled with air and is held under water it will strive to get up and rise to its place of air.

Hayy did not find any body that was devoid of both these qualities, i.e. gravity and levity. But he could not take either of them as constituting the essence of body, because there were heavy bodies that were devoid of levity, and there were light bodies that were devoid of gravity.

He compared the heavy bodies with the light bodies and found that they were one and indistinguishable in respect to their corporiety, i.e. just the fact of being a body. But because of an attribute (levity or gravity) super-added to their corporiety, they were distinguished from one another. However, mere corporiety is never found
to exist. It is always corporiety and some attribute superadded to corporiety that we come across. Thus bodies consist of two aspects; one is corporiety, and the other is some attribute or attributes superadded to it. In the former aspect all bodies are one and indistinguishable. It is the latter aspect that gives them their distinctive features, individuality and multiplicity.

XI. Form and Matter.

Hayy had analysed body into two aspects, corporiety and something superimposed on corporiety. This analysis corresponds to the distinction of Form and Matter as upheld by Plato and other philosophers. It was Hayy's first lesson in philosophy as the knowledge of these forms is derived not through sense but through an intellectual apprehension.

Now, Hayy began to think that it was really the form of a body which was responsible for all its peculiarities and functions. The animal spirit, which was a fine body and which he had admired so much for its wonderful functions, must also possess a form, something superadded to its corporiety. In reality it was this form that was responsible for those wonderful actions. It was the same as philosophers call the animal soul. Similarly, the plants
must also possess their peculiar form which may be called the vegetative soul. The inanimate objects too had their form which was responsible for their properties and actions. It is generally known as their nature. All his regard and esteem was now transferred to the form or the soul and he wanted to know more about it.

Hayy considered different objects of the world from this point of view. He found that there was a hierarchy of forms. For instance, earth, stones, minerals, plants, animals and all heavy bodies had one common form from which proceeded their downward movement. A class in this category. (animals and plants) agrees with the rest in the first form yet has another form also superadded to it, from which flow nutrition and growth. Again, a group of this class, i.e. animals, has the first and the second forms in common with inanimate objects and plants, but has a third form also superadded to them from which arise sensations and movements. Moreover, he perceived that each species of animals and plants showed certain characteristics peculiar to it. These differences, he thought, must be due to some additional form peculiar to them.

It was evident to him that some objects of the world possessed a simple form while some other objects possessed
a more complex and richer form. As he wanted to understand the nature of form more closely he thought it better to concentrate on those things which exhibited form in its simplest.\textsuperscript{170} In this effort he became acquainted with the so called 'four elements', earth, water, air and fire.\textsuperscript{171}

Hayy had made himself familiar with so many forms but he had not fully understood the nature of corporiety. He wanted to know if there was any attribute common to all bodies which he should take as constituting the meaning of corporiety. He did not find any such attribute except the notion of extension. Extension was common to all bodies—they all had length, breadth and thickness.\textsuperscript{172} But he could not find any body in nature which possessed just extension and nothing more.\textsuperscript{173} There was always something superadded to extension. There was something in which that extension did exist. A body was the combination of these two notions, extension and something in which that extension existed.\textsuperscript{174} To understand more clearly the nature of this 'something' behind extension he made some experiments with clay.\textsuperscript{175} He took a certain quantity of clay and moulded it into different shapes, one after another. He made it into a spherical shape, then into a cubical, then into oval, and so on. The clay could not remain without assuming some particular shape, dimensions and proportions. But the two notions (clay and
its shape) were not identical. The clay remained the same but the shape changed every time in his experiment. Shape and dimensions that kept on changing represented to him the notion of form; and the clay, that remained constant, represented the notion of corporiety or matter devoid of all forms.

XII. Inference about an Immaterial Agent.

Hayy now takes another step forward. Observing the occurrences of nature and constant change of one form into another he inferred the existence of an Agent as the efficient and ultimate cause of all these phenomena. The actions and functions which he had previously attributed to the form of bodies now appeared to him as proceeding from this Agent. This Agent was the source of changes of forms too. And what was a form but the disposition of a body to act in such and such a way? In reality it was the Agent, and not the form, which was responsible for those acts. Thus he had an earnest desire to know this Agent more distinctly. He first looked for it among the sensible things. But they were themselves liable to corruption and change, and so could not be that Agent. By this time Hayy was 28 years old.
XIII. Heavenly Bodies.

He reflected on the nature of the heavenly bodies to see if the Agent was to be found among them. He knew that the Heavens and all the luminaries in them were bodies extended in three dimensions. But the question was whether they were extended to infinity or they were circumscribed by any limits. With ingenious arguments he proved to himself that the body of Heaven, and in fact every body, was finite.

Then he wanted to know the shape of the heaven. Observing the circles described by different planets in their movements, and seeing that the sun, the moon the stars set in the west and rise in the east, and on the basis of similar astronomical observations, he concluded that the Heaven was of a spherical figure.

When he considered the whole orb of the Heavens it appeared to him that earth, water, air, plants, animals and the like were all contained in it, and if formed one compact whole like the body of an animal. Thus he acquired the idea of Universe.
XIV. Is the World Eternal or Created in Time?

The next question which occupied his mind was whether the world existed eternally or it was created in time. The question puzzled him very much and he could not decide this way or that. Both the alternatives were supported by plausible arguments and both suffered from certain difficulties and disadvantages. At last he gave up the idea of proving it one way or the other. What was material to him was the fact that the world, whether it was eternal or created in time, stood in need of an Immaterial Agent or an Incorporeal Creator.

XV. Attributes of the Immaterial Agent.

All the interest of Hayy was now centred on knowing this Immaterial Agent. Being immaterial, it was obvious, he could not be apprehended through senses or imagination. He must be free from matter and from properties of body. Then from the wonderfulness of His workmanship he inferred such attributes as knowledge, wisdom, power, beauty, elegance and perfection. From the fact that He sustained all creatures he inferred His bevenolence and mercy, and so on. In short, Hayy conceived Him as possessing all attributes of perfection and as free from all attributes of imperfection. Hayy was 35 years of age by now.
He was so much inflamed with the desire of this supreme Agent that his thoughts were withdrawn from the creatures. Whenever his eye fell on any object he perceived in it the work of that Agent.\textsuperscript{190}

XVI. \textbf{Knowledge of the Supreme Agent through Immaterial Essence.}

Having attained to the knowledge of the Supreme Agent and His attributes, Hayy asked himself about the means by which he had acquired that knowledge. As the Supreme Agent was free from all the properties of body it was impossible to apprehend Him through sense or imagination. Obviously, he had apprehended that Being through his own essence which was also immaterial.\textsuperscript{191}

Now Hayy began to look down upon his body as insignificant and worthless and all his thoughts were concentrated on his noble essence\textsuperscript{192} through which he had known the Supreme Agent or the Necessarily Existent\textsuperscript{2} Being.

XVII. \textbf{Immortality of the Soul and its Reward and Punishment.}

Hayy wanted to know whether his noble essence was destined to perish or was it of perpetual duration. He
argued that since it was not a body it could not be liable to corruption or destruction. He was also desirous of knowing about the condition of his essence after being separated from the body. He tried to solve this question by means of an analogy. Suppose there is a man who has enjoyed the sight of beautiful and glorious objects. If he is deprived of his vision his desire for those objects will still continue and he will feel extreme pain and grief over his loss. Similarly, if a man, after knowing the Perfect Being, turned his face against Him and remained absorbed in sensuous pleasures till death overtook him, he will continue in that state of privation which would be a source of great torture and suffering for him, especially when there would be no objects of sense to distract his mind.

On the other hand, if there was a person who had known the Supreme Being, His Beauty, splendour and Perfection, and had remembered Him till his death, he will continue in that extreme joy and bliss for ever. Besides these two classes, there is a third category of those who were never acquainted with that Being, nor had they heard anything about Him during their lives. They will not feel any pains as they will have no sense of their loss. This is true of brutes and of men who are in the same stage of development.

These considerations made Hayy very anxious to have the vision of the Necessarily Existent perpetually before
him so that death may not overtake him when his thoughts were removed from Him. But he found it very difficult. He tried to observe various kinds of animals to see if any of them enjoyed that vision, so that he may learn from him the way to salvation. But it appeared to him that none of them had any knowledge or desire of that Being.

Looking at the spheres and stars and finding them bright, remote from change and corruption, and engaged in regular motions, he was persuaded to believe that they possessed immaterial essences which were acquainted with Him and enjoyed the Vision all the time.

XVIII. **What constitutes the suitability of a Body to receive the Noble Essence?**

Then Hayy began to consider what should be the reason that he alone of all living creatures should possess an essence like that of the Heavenly bodies. Was his body different from other bodies so as to be able to receive that noble essence?

To understand these differences he looked again at different bodies and studied the principles underlying them. This is what he discovered.
The bodies which came nearest to purity and had least mixture in them were least disposed to corruption, e.g. gold and jacinth.

The bodies which were mixed and compounded of contrary things were most disposed to corruption because of the conflicting tendencies of different elements.

The bodies that had a single form superadded to their corporiety were far removed from life and had fewest actions, e.g. the four elements.

The bodies that were endowed with several forms had stronger manifestations of life and more numerous operations, and e.g. plants/animals.

If there is a compound body in which no element prevails over the other but all combine in a most equal and harmonious way, then it will have a rich form, unopposed by a contrary form, and will be more disposed to life. And if the forms are so joined to matter that they cannot be separated from it then the life would be most durable, vigorous and manifest.

He thought that the heavenly bodies were simple and pure and had no opposition to their form. This was the secret
of their power and durability. The animal spirit came nearest to the Heavenly bodies. It was a mean between all the elements and so it was capable of receiving the highest form and showing greatest manifestations of life. And it was for the same reason that his essence, like the essence of the Heavenly bodies, possessed the knowledge of the Necessarily Existent Being. Other animals lacked this noble essence. It suggested to him that he had been created for a nobler purpose.

In short, he came to the conclusion that his noble essence, which gave him the knowledge of the Necessarily Existent Being, was something Divine, not subject to corruption. It could not be described by any attributes of body, nor it could be apprehended through sense or imagination.

XIX. Practical Programme of Life — the Three Assimilations.

Hayy decided to chalk out a programme for himself, in order to realise the highest end of his life. He found that there were three aspects of his nature. In his body he resembled the irrational animals and beasts. In respect to the animal spirit which resided in his heart he resembled the Heavenly bodies. And in his immaterial essence he resembled the Necessarily Existent Being.
To satisfy all these aspects of his nature, he thought of three kinds of assimilations. The first assimilation required that he should imitate the actions of the animals, in nourishing his body and protecting it from harm and injury. The second assimilation required that he should imitate the Heavenly bodies. The third assimilation consisted in trying to assimilate, more and more, the attributes of the Divine Being. It was to be achieved by knowledge, contemplation and vision of the Divine Being, and by trying to be as much free as possible from all bodily properties. This third assimilation was his highest goal in virtue of his possessing the immaterial essence, and it was to be desired for its own sake. The second assimilation also helped in attaining to the vision but it was not without mixture. It was necessary as a precondition and preparation for the third assimilation. The first assimilation was, in a way, a hindrance to the vision. But it was necessary for the preservation of the animal spirit which was the basis of the second assimilation. He, therefore, decided not to indulge in it more than what was absolutely necessary. For this purpose he imposed certain restrictions on himself and made elaborate rules about his diet, etc. Some of these rules are given below:
He will eat, as far as possible, the pulp of the fruits which were fully ripe and had seeds in them to produce others of the same kind.

He will always take care to preserve the seeds and will not throw them in such places which were not fit for their growth.

If such pulpy fruits were not available he will take some variety of herbs, etc., choosing that variety only which was in abundance. He will also take care that he does not pull up anything by its roots.

If he could not find any vegetables or fruits he will take some living creature or its eggs. But he will always choose that variety which is plentiful so that he may not destroy any species totally.

With regard to the quantity of food he decided that he would eat just so much as was necessary to satisfy his hunger.

As for the timings, he would not seek the food again unless he felt some disabling weakness in himself.

In the beginning he was reluctant to eat anything at all. To eat a plant or a living creature would mean
destroying a work of the Creator and opposing His design. But abstinence seemed to lead to the dissolution of his own body which was a higher and more excellent work of the Creator. So he decided to eat under above mentioned restrictions.

In connection with the second assimilation he tried to imitate the Heavenly bodies in various ways. They were beneficial and source of advantages to other creatures. He also tried to be benedict and helpful by removing those things from plants and animals that were obstructive or harmful. If a stone stopped the flow of water he would remove it from its path. He watered the plants and fed the hungry animals. Observing that Heavenly bodies were pure and bright, he would keep his body and clothes clean and apply fragrance to them. He would make circular movements like them and take rounds of the island. The Heavenly bodies in his opinion, enjoyed constant and uninterrupted Vision of the Divine Being. He also tried to concentrate on the contemplation of the Divine Being, withdrawing all his thoughts from the sensible things. During this condition he had some vision of the Divine Being but his bodily faculties would soon assert and interrupt him.

Then he took to third assimilation. He first considered the attributes of the Necessarily Existent Being.
He found them of two kinds,\(^{222}\) (i) positive attributes like knowledge, wisdom and power, and (ii) the negative attributes as immateriality and freedom from bodily attributes.

With regard to the assimilation of the former he came to the conclusion that to know Him was to be like Him, because His knowledge and His Essence were not two different things.\(^{223}\)

In imitating the negative attributes\(^{224}\) he tried to strip himself of all bodily properties. He cut himself off from everything, confined himself to his cave, and sat there with his eyes shut and his head bowed down, meditating upon the Necessarily Existent Being. He would remain in this condition for days together, without eating anything. He used to be so much absorbed in contemplation that everything would disappear from his view except his own essence. Ultimately, the Heavens and the earth, and whatever is between them, and all spiritual forms together with his own essence disappeared and there remained nothing but One, True, Perpetually Self-existent Being.\(^{225}\) In this state he saw such splendour and beauty that no eye hath seen, no ear heard, nor hath it ever entered into the heart of man to conceive.\(^{226}\)
Before communicating further details about the mystical experiences of Hayy, Ibn Ṭūfayl warns his readers that they should not crave a description of what is impossible to describe.²²⁷ It is just as if one should have a desire to taste colours. The only way to the knowledge of that state is to have that state.²²⁸ However, he promises to convey something from it figuratively and by way of parables, without knocking at the door of truth.²²⁹ And this is what he relates:

XX. Mystical Experiences of Hayy Ibn Yaqqān.

When Hayy came to himself from that mystical state which was like a state of intoxication, he began to think that his own essence did not differ from the Essence of that Truly Existent Being and that there existed nothing except His Essence. The apparent multiplicity of essences he tried to understand through the analogy of the sun and its light. Just as the light of the sun seems to be multiplied according to the multiplicity of bodies on which it falls, but in reality it is only one light, similarly, it was the Essence of the Truly Existent One which appeared as so many essences in different creatures:²³⁰

He was strengthened in this belief by another argument also. To know the Essence of the Truly Existent Being
is to have that Essence. Since his Essence had the knowledge of the Truly One, so he possessed the Essence of the Truly One with his own essence. But it was not capable of multiplicity so the Essence of the Truly One and his own essence were one.

In this connection Hayy perceived that the notions of much and little, one and many, etc., have essential reference to bodies. With regard to the Essence of the Truly Existent Being or other immaterial essences we cannot say that they are one or many. Even in case of this sensible world, Hayy thought, it was difficult to decide whether it was one or many. How much more difficult it should be in case of the Divine world where the terms one and many do not apply? In fact, no words of our language can express anything belonging to that world without insinuating some wrong notions. The truth about that world can be known only by attaining to it, by having direct experience or vision of it.

With this explanation Ibn Tufayl proceeds to describe the experiences of Hayy Ibn Yaqzan, repeating the warning that his words should not be understood in their ordinary sense but should be taken figuratively. This is what Hayy experienced when he attained to the state of total absorption and union with the Truly Existent Being:
He saw that the highest sphere had an immaterial essence which was not the Essence of the Truly One nor the sphere itself, nor it was any thing different from them. It was like the image of the sun in a well-polished mirror. We cannot say about this image that it is the sun or it is the mirror, yet it is not distinct from them. Hayy saw in the essence of that highest sphere such beauty, perfection and felicity that no words can express.  

Then he saw the next sphere, the sphere of the fixed stars. In this sphere too he saw an immaterial essence which was not the Essence of the Truly One, nor the essence of the highest sphere, nor the sphere itself, and yet it was not different from them. It was like the image of the sun which is reflected upon a mirror from another mirror facing the sun. He observed in this essence also the same splendour, beauty and felicity which he had observed in the essence of the highest sphere.

Similarly, he observed the essences of different spheres. About any one of those essences it could not be said that it was the essence of the Truly One, or it was one of those essences that went before, and yet it was not distinct from them. It was like the image of the sun reflected from one glass to another, according to the order of spheres. He saw in every one of those essences such
beauty, splendour, felicity and joy as eye hath not seen, nor ear heard, nor hath it entered into the heart of man to conceive.  

Coming down to the world of generation and corruption he perceived that it too had an immaterial essence. It was not the same as any of the preceding essences, and yet it was not different from them. This essence had seventy thousand mouths, and every mouth had seventy thousand tongues with which it praised and glorified the Essence of the Truly Existent One. In this Essence too he saw the same perfection and felicity which he had seen in others. This essence was like the image of the sum in fluctuating water, reaching it through a series of intermediary mirrors. Then he saw his own essence and similar other essences as parts of that essence, if we may be allowed to speak of parts and whole in this context. They appeared as many in relation to the bodies to which they were joined. But from the point of view of their source, they seemed to be one. In fact, the terms one and many do not apply to them. In these essences too he observed such beauty, splendour and felicity as no eye hath seen, no ear heard, nor hath it entered into the heart of man to conceive.

Hayy also saw a great many essences which resembled rusty mirrors, covered with filth and having their faces
averted from the mirrors that reflected the image of the sun. They were afflicted with great pain and torment on account of their privation.\textsuperscript{244} Besides, there were essences which appeared and took form and were soon dissolved.\textsuperscript{245}

After a little while, when Hayy came to himself and his consciousness of this sensible world returned to him, he lost sight of the Divine world. He longed for it and tried to return to it. Gradually it became easier and easier for him to attain to that state and to stay in it longer. Thus he continued till he was about 50 years of age.\textsuperscript{246}

XXI. Hayy meets Asāl.

Now, in the neighbouring island there lived two men, Asāl and Salamān. They belonged to a sect founded by one of the ancient Prophets - a sect which tried to convey the truth about realities of the Divine world by way of parables and metaphors.\textsuperscript{247} The two men, Asāl and Salamān were deeply religious but Salamān was content with the literal sense of various statements of his religion, while Asāl was more inclined to search for the deeper meaning and mystical interpretation of religion. Salamān had a more social nature and tried to practice religion in relation to society. Asāl, on the other hand, was a man of retiring nature, given to contemplation.\textsuperscript{248}
Asāl came to the island where Hayy was living, to pass his days in solitude, meditation and devotion. One day, Asāl and Hayy chanced to meet one another. Asāl had no doubt that it was some religious person, like himself, who had retired to that island to lead a solitary life. But Hayy could not identify Asāl, as he had not seen any being like him so far. Asāl, fearing interruption in his meditations, tried to avoid him, and ran away from him. Reaching a safe distance he engaged himself in prayers and invocations in a most humble and devoted way. Hayy, on account of his natural curiosity, had pursued him thither and was observing him from a hidden place. He recognised in Asāl a being like himself. His devotional behaviour convinced him that he was one of those essences which had the knowledge of the True One. So he approached him with a desire to be acquainted with him. But Asāl took to his heels. Hayy ran after him and overtook him.

Asāl was at first afraid of Hayy. But Hayy, through tender sounds and gestures, convinced him that he meant no harm. Asāl tried to speak to him in different languages that he knew but Hayy did not understand him.

Asāl had brought some food with him from the other island. He offered it to Hayy but Hayy did not know what to make of it. Then Asāl tasted it himself and made a sign
to Hayy to do the same. Hayy at first refused, thinking of the rules that he had prescribed to himself. Then he ate a little of it to please Asāl. He found it delicious. But he felt sorry and repentent on breaking his rules.253

Hayy tried to return to his state of contemplation but the vision did not return to him. He decided to spend some time with Asāl in the sensible world so that his curiosity about Asāl may be fully satisfied and he may be able to return to his contemplation uninterrupted.254

Asāl, with the hope of initiating him in his own religion, tried to teach him language. He showed him particular things and pronounced their names. He asked him to do the same. In this way he taught him all the nouns and also the way to connect them in speech.255

After picking up the use of language, Hayy related his whole story to Asāl. Asāl immediately recognized the truth of his statements about the Divine world and realized that all those things which the religion had taught him about God, Angels, Books and Messengers, the Day of Judgment, Hell and Paradise, were symbols of what Hayy had seen in his mystical states.256 Thus he got that enlightenment for which his heart was craving and he was convinced that the teachings of reason and tradition were in perfect harmony.257 Thenceforth,
he began to look upon Hayy as one of the saints of God and took him as his guide and teacher.

Hayy, on the other hand, learnt from Asāl about the conditions of life and society on the other island and also about the religion which they professed. When Asāl acquainted him with the account and description of the Divine world, Hell and Paradise, Day of Judgement and Resurrection, etc., Hayy understood them easily and did not find in them anything contrary to his own experiences. He recognized that the describer of those things was true in his description and sincere in his words, and was a true Messenger from his Lord. He affirmed his veracity and bore witness to his Divine Mission.

Then he enquired about other precepts and rites of worship taught by that Messenger. When he was told about the Prayer, Alms, Fasting and Pilgrimage, etc., he accepted them and undertook to practice them in obedience to his orders.

XXII. Relation of Religion to Philosophy.

But two things about his teachings he could not comprehend. First, why did the Messenger of God choose to express the truths of religion in parables and metaphors.
Secondly, why did he allow men so much indulgence in worldly matters, like food, trade and other such things? His feeling was that one should eat only so much as was just sufficient to keep him alive. Moreover, the religious laws relating to alms, trade, usury, punishment for theft, etc. appeared superfluous to him.

Feeling great sympathy and pity for mankind, he drew up a plan in consultation with Asāl to go to the other island to preach the truth to its inhabitants. When they reached the other island, Asāl introduced Hayy to his old friends and companions. Asāl's friend Salamān now ruled over the island. He also sympathized with their mission. But when Hayy tried to communicate to them the inner secrets of religion they misunderstood him and developed hatred and antagonism against him. To his great disappointment, he found that the majority of mankind were no better than brutes. Their desires and aspirations were confined to this material existence alone. They could not see beyond. So all his counsel was lost on them. It made them all the more obstinate and confirmed in their ignorance.

Hayy was now convinced that it was futile to speak to them of the pure truth or to ask them to do more than what they were doing. The majority of them derived no benefit from religion except in relation to the things of this
He realized that the Messenger of God had adopted the right course. There could be no better way of dealing with them.

He went to Salaman and his friends, and apologized to them for his previous views. He exhorted them to stick firmly to the performance of the external rites and to keep within the bounds of the Law. He warned them against the neglect of religious performances and the love of the world. He did so because he was convinced that there was no other way of salvation for them. If they were raised to the realms of speculation it would be worse for them.

At last, Hayy and Asāl took their leave and returned to their island where they passed their days in meditation, seeking the Vision of God.
NOTES AND REFERENCES

1. The question of the origin of Hayy Ibn Yaqzān is not vital to the story. But Ibn Tufayl, through the first version, wants to show the rational and scientific possibility of the birth of first man, Adam, without father and mother. But for those who cannot accept this explanation he offers a more common-place version. This shows his caution in avoiding dogmatic adherence to a point of view which is not rationally certain.

2. H.Y.O. 1, p. 39. (H.Y.O., will be used for Ockley's tr. of Hayy Ibn Yaqzān)

3. Ibid. 1, p. 39.

Ibn Tufayl gives in this connection some details about the causes and transmission of heat which have a modern touch about them.

4. Ibid. 2, p. 42.

5. Ibid. 6, p. 45.

6. Ibid. 6, p. 45.

7. Ibid. 6, p. 45.

8. Ibid. 6, p. 46.

9. Ockley has used the word 'spirit' in this context. The original word used in the Arabic text is 'الص Behaviour'. So we have translated it as 'Soul'.

10. H.Y.O. 6, p. 46.

11. Ibid. 6, p. 46.

12. Ibid. 6, pp. 45, 47.

13. Ibid. 6, p. 46.


15. Ibid. 8, p. 48.
17. Ibid. 9, p. 49.
18. Ibid. 9, p. 49.
19. Ibid. 9, p. 50.
21. Ibid. 9, p. 50.
22. Ibid. 9, p. 50.
23. Ibid. 9, p. 50.
24. Ibid. 9, p. 50.
25. Ibid. 9, p. 50.
26. Ibid. 9, pp. 50, 51.
27. Ibid. 9, p. 51.
29. Ibid. 3, p. 43.
30. Ibid. 3, p. 43.
31. Ibid. 3, p. 43.
32. This fragment of the sentence has been derived from the Quran (XVIII, 16). Ibn Tufayl is very fond of using the Quranic verses and phrases, fitting them in his own narration.
33. H.Y.O. 3, p. 43.
34. Ibid. 4, p. 44.
35. Ibid. 4, p. 44.
36. Ibid. 5, p. 45.
37. Ibid. 10, p. 51.
38. Ibid. 11, p. 51.
41. H.Y.O. 11, pp. 52, 53. Ibn Tufayl believes that the animals possess a rudimentary language of sounds by which they express their various needs and emotions.

53. Ibid. 14, p. 55.

It is interesting to note how Ibn Tufayl anticipates some modern ideas. According to Darwin and other Evolutionists the superiority of human hands has been a very important factor in his evolution.
60. H.Y.O. 16, p. 57.
61. Ibid. 17, p. 57.
62. Ibid. 17, p. 57.
63. Ibid. 17, p. 58.
64. Ibid. 18, p. 58.
65. Ibid. 18, p. 58.
66. Ibid. 18, p. 59.
67. Ibid. 18, p. 59.
68. Ibid. 18, p. 59.
69. Ibid. 19, p. 59.
70. Ibid. 19, p. 59.
71. Ibid. 19, p. 60.
72. Ibid. 19, p. 60.
73. Ibid. 19, p. 60.
74. Ibid. 20, p. 61.
75. Ibid. 20, p. 61.
76. Ibid. 20, p. 61.
77. Ibid. 20, p. 61.
78. Ibid. 20, p. 61.
79. Ibid. 20, p. 61.
80. Ibid. 20, p. 62.
81. Ibid. 20, p. 62.
82. Ibid. 20, p. 62.
83. Ibid. 20, p. 62.
84. Ibid. 21, p. 63.
85. Ibid. 22, p. 64.
86. H.Y.Ö. 22, p. 64.
87. Ibid. 22, p. 64.
88. Ibid. 23, p. 65.
89. Ibid. 23, p. 65.
90. Ibid. 23, p. 65.
91. Ibid. 23, p. 65.
92. Ibid. 23, p. 65.
93. Ibid. 23, p. 65.
94. Ibid. 23, p. 65.
95. Ibid. 23, p. 66.
96. Ibid. 24, p. 66.
97. Ibid. 24, p. 67.
98. Ibid. 24, p. 67.
99. Ibid. 24, p. 67.
100. Ibid. 24, p. 67.
101. Ibid. 25, p. 68.
102. Ibid. 25, p. 68.
103. Ibid. 26, p. 68.
104. Ibid. 26, p. 69.
105. Ibid. 26, p. 69.
106. Ibid. 26, p. 69.
107. Ibid. 27, p. 70.
108. It is the same as animal spirit referred to by Descartes and other philosophers.
110. Ibid. 29, p. 71.
112. Ibid. 29, p. 71.
113. Ibid. 29, p. 71.
114. Ibid. 29, p. 71.
115. Ibid. 29, p. 71.
116. Ibid. 29, p. 71.
117. Ibid. 29, p. 71.
118. Ibid. 30, p. 72.
119. Ibid. 30, p. 72.
120. Ibid. 30, p. 72.
121. Ibid. 30, p. 72.
122. Ibid. 30, p. 72.
123. Ibid. 30, p. 72.
124. Ibid. 30, p. 72.
125. Ibid. 30, p. 72.
126. Ibid. 30, p. 73.
127. Ibid. 30, p. 73.
128. Ibid. 31, p. 73.
129. Ibid. 31, p. 73.
130. Ibid. 32, p. 74.
131. Ibid. 32, p. 74.
132. Ibid. 32, p. 74.
133. Ibid. 32, p. 75.
134. Ibid. 33, p. 75.
135. Ibid. 33, p. 75.
136. Ibid. 34, p. 75.
The unity of plants and animals is a modern idea. It is surprising how Ibn Tufayl anticipates the discoveries of scientists like Bose and others.

It is the same argument which had led Thales to believe that all things are derived from one common substance, water. Cf. History of Early Greek Philosophy by Burnet.
160. Ibid. 42, p. 84.
161. Ibid. 42, p. 84.
162. Ibid. 42, p. 84.
163. Ibid. 42, p. 84.
164. Ibid. 42, p. 85.
165. Ibid. 43, p. 85.
166. Ibid. 44, p. 86.
167. Ibid. 44, pp. 86, 87.
168. Ibid. 44, p. 87.
169. Ibid. 44, p. 87.
170. Ibid. 45, p. 88.
171. Ibid. 45, p. 88.
172. Ibid. 46, p. 89.
173. Ibid. 46, p. 89.
174. Ibid. 47, pp. 89, 90.
175. Ibid. 47, p. 90.
176. Ibid. 47, p. 91.
177. Ibid. 47, p. 91.
178. Ibid. 48, p. 92.
179. This argument will be explained more thoroughly in the next chapter.
181. Ibid. 50, p. 94.
182. Ibid. 51, p. 95.
183. The details of the argument will be given in the next chapter.
185. Ibid. 54, p. 99.
186. Ibid. 55, p. 100.
188. Ibid. 57-58, pp. 103-105.
190. Ibid. 62, p. 109.
191. Ibid. 63, pp. 110, 111.
192. Ibid. 63, p. 111.
193. Ibid. 64, p. 112.
194. Ibid. 65, p. 112.
195. Ibid. 65, pp. 113, 114.
196. Ibid. 66, p. 115.
197. Ibid. 66, p. 116.
198. Ibid. 66, pp. 114, 115.
199. Ibid. 67, pp. 116, 117.
200. Ibid. 68, p. 117.
201. Ibid. 69, pp. 118, 119.
202. Ibid. 70, p. 119.
203. Ibid. 70-71, pp. 120-122.
204. Ibid. 71, p. 122.
205. Ibid. 71, pp. 122, 123.
206. Ibid. 71, p. 123.
207. Ibid. 72, p. 124.
208. Ibid. 72, p. 124.
209. Ibid. 72, p. 124.
211. Ibid. 74, p. 126.
212. Ibid. 74, p. 126.
213. Ibid. 75, p. 127.
214. Ibid. 75, p. 127.
215. Ibid. 75, p. 128.
216. Ibid. 76, p. 128.
218. Ibid. 77, p. 128.
219. Ibid. 77, p. 128.
220. Ibid. 79-80-81-82, pp. 132-136.
221. Ibid. 83, p. 136.
222. Ibid. 83, pp. 136, 137.
223. Ibid. 83, p. 137.
224. Ibid. 84, pp. 138, 139.
225. Ibid. 85, p. 139.
226. Ibid. 85, p. 140.
227. Ibid. 86, p. 140.
228. Ibid. 86, p. 141.
229. Ibid. 86, p. 141.
230. Ibid. 87, p. 142.
231. Ibid. 88, p. 143.
232. Ibid. 88, p. 144.
233. Ibid. 89, p. 145.
234. Ibid. 89, p. 145.
235. Ibid. 89, p. 145.
237. Ibid. 92, p. 147, 148.
238. Ibid. 92, p. 148.
239. Ibid. 93, p. 149.
240. Ibid. 93, p. 149.
241. Ibid. 93, p. 150.
242. Ibid. 93, p. 150.
243. Ibid. 93, p. 150.
244. Ibid. 94, p. 150.
245. Ibid. 94, p. 151.
246. Ibid. 98, p. 155.

247. The reference is obviously to Islam.
249. Ibid. 102, p. 158, 159.
250. Ibid. 105, p. 161, 162.
251. Ibid. 106, p. 162.
252. Ibid. 107, p. 163.
253. Ibid. 108, p. 163, 164.
254. Ibid. 109, p. 164.
255. Ibid. 109, p. 164, 165.
256. Ibid. 110, p. 166.
257. Ibid. 110, p. 166.
258. Ibid. 111, p. 167.
259. Ibid. 111, p. 167.
260. Ibid. 111, p. 167.
262. Ibid. 112, p. 168.
263. Ibid. 112, p. 168.
264. Ibid. 113, pp. 169, 170.
265. Ibid. 117, p. 172.
266. Ibid. 117, p. 173.
267. Ibid. 119, p. 175.
268. Ibid. 119, p. 175.
269. Ibid. 119, p. 176.
270. Ibid. 120, p. 177.