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# Genetic Interpretation of Some Medico- Philosophical Theories of Ibn Sina
## 1- Ibn Sina's Theory of the Soul Creation

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**Abstract:** In his astonishing manuscript "Treatise on Cardiac Drugs" [*Risala al Adwiya al Qalbiyah]*, Ibn Sina used the terms mixtures, essence, and temperament to represent and explain the process of the soul creation which takes place under absolutely divine auspices. Ibn Sina stated*, "God Almighty created the left cavity of the two heart cavities to be a repository "chamber" for the soul and a source of its permanent validity. Almighty God has created the soul of fine and delicate mixtures just as He has Almighty created the body of dense mixtures, so that the ratio of the soul to the finest (elite) mixtures is equivalent to the ratio of the body to the density of the mixtures".* According to the above mentioned manuscript, the current study investigates some contents of Ibn Sina's fundamental theory of the soul creation. This investigation is mainly depending on a new, preliminary genetic interpretation of the overall medico- philosophical implications of this theory. In the current study, we have adopted the term "sacred pairing theory" for the first time to refer to the creative pairing between soul, blood, and genes in the beginning stage of embryonic development. This pairing process in our believe may be consists of two successively steps, the first is the pairing between soul and blood, and the second step is the pairing of the soul, blood and genes. Therefore, the soul is likely to have been born before or associated with the first division of the zygote cell into cleavage. In this humble study, we have just opened a small new horizon to an idea/issue that had not been explored before. That idea/issue is, was Ibn Sina the first geneticist in the history of human medicine? Suppose the assumptions presented in this study are sufficiently accurate, which means that Ibn Sina was the first to understand and deduce the meanings and concepts of genetics eight centuries before humanity realized it.

**Key words:** Ibn Sina · Zygote · Soul · Genetic of intelligence · Philosophy · Embryogenesis

## INTRODUCTION

Ibn Sina belongs to the unique generation of Central Asian scholars that has illuminated the space of both Islamic and human civilization. Thanks to their exceptional scientific leadership, this giant generation deserved to be immortalized in the conscience of humanity and to be worthy of widespread human recognition.

Ibn Sina was born in the village of Afshanah, near Bukhara, where he spent his formative years and showed early signs of talent there.

Avicenna (Ibn Sina) made an invaluable contribution to world medicine. He is the largest representative of the advanced socio-humanitarian ideas of the Central Asian people. The scientist's most illustrious legacy deserves a place in the history of medicine in particular, and of world civilization in general [1].

Ibn Sina wrote his chief medical work, Al-Qanun fi'l-Tibb, in Arabic, the dominant langue of science at that time, and since then, there has not been an English translation of the Canon of Medicine directly from the original source [2].

The "treatise on cardiac drugs" is a separate and independent work which is medico-philosophical character. Due to its great acceptance and importance, this treatise was translated to Latin in the early 14$^{th}$ century by Arnaldo de Villanova (d.1301 or 1313AD) under the title "De Medicines Cordialibus" and it was translated for the second time to Latin by Alpagus in 1520AD[3].

This treatise is not confined to medicine only. Nine of its seventeen chapters deal with psychology which gives details about the soul, its kinds, seat, and its extrovert and introvert states [4].

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The soul is one of the most complex and controversial problematic issues that faced humanity since the realization of this humanity's existence and awareness. That is why all human philosophies dealt with it by explaining and analyzing it in order to ascertain its origin, essence, existence, and its relationship to the body and life, according to the dualist theories of creationism and traducianism.

The Greek term used in philosophical text and commonly translated as soul is psyche, which meat to breath. Plato claims that the soul is that which imparts life to its body (Plato, 105C-D), and he suggests defining the word "soul" as "the motion which can set itself moving" and be thinks of the soul as a "the universal cause of all motions and changes" (Laws,896B). Socrates argues that the soul actually pre-exists the body; and, if the soul pre-exists the body, it is not identical with it. Like Plato, Aristotle believes that the soul gives life to its body, because the soul is the first principle of the living things [5].

Ibn Sina as a Muslim philosopher believes in the theory of divine creation. Therefore, he relies on the Holy Qur'an as a reliable source of faith and knowledge. The issue of the soul's creation was mentioned in the Holy Qur'an more than once, and every time the Qur'an confirms that the soul was created by God's creation [6].

Definition of the soul in Arabic language include more than thirteen synonyms, we summarize here the most important of them:

1 - The soul is "nafas"or "nafs" and this definition has two closely related synonymous, the first is coincide with the Greek term" psyche" which meant to breathe, while, the second is the "self".
2 - The soul is what a person lives by.
3 - The soul is what the body is made of and through which life is created. And this definition is very applied to Ibn Sina's term "temperament".
4 - The soul is the essence of thing and its reality.
5 - The soul is blood, and this definition is applied to Ibn Sina's thought [7].

On the other hand, Augustine sets out four possibilities concerning the origin of the soul, two of them agree with and support the theory of divine creation, and the other is supposed to have an unknown origin for the soul and all of them join the child at birth [5].

The relationship between the soul and the body in the philosophy of Ibn Sina is one of the fundamental theories in the soul's studies, and it has been reviewed carefully in all philosophical, religious, and psychological fields [2, 8 - 11]. On the other hand, Chinese philosophy dealt with the issue of the creation of the soul through the concept of "Shen Si" as indicated by its two constituent Chinese characters, literally means "spiritually divine" (shen) and "thinking" (si). Taken together, it stands for imaginative contemplation [12].

The main objective of this study was to explain and analyze the concept and the content of Ibn Sina's theory of the soul's creation by using new genetic and philosophical perspectives, to verify the extent to which Ibn Sina can be considered the first founder of genetics.

**Translation of Ibn Sina's theory from its original language (Arabic):** *God Almighty created the left cavity of the two heart cavities to be a repository "chamber" for the soul and a source of its permanent validity. He is the Almighty who created the soul as a carrier of the physic faculties that flow through the bodily organs. Additionally, He is the Almighty who made the first specialization of the psychic faculties dedicated to the soul. What is surplus to the needs of the soul then passes to the bodily organs. God Almighty created the soul of fine and delicate mixtures, as He Almighty created the body of dense mixtures so that the ratio of the soul to the finest mixtures is equal to the ratio of the body to the density of the mixtures.*

*Just as the mixtures, when mixed together, produce organs with special structure (*admixture*), this admixture prepares to accept the conditions that have not benefited of simple stuff* (in the sense that they consists only of compound structures). *Likewise, the soul is formed up of the finest of mixtures, due to the mixing between its four types, which results in a special structure (*admixture*), by means of which the soul is prepared to accept the psychic faculties that have not benefited of simple stuff* (in the sense that they consists only of compound structures), *and its origin is of divine emanation. This divine flow alone is capable of transforming power into action, provided that it is prepared for its perfection without apathy or miserliness. Each organ has a special structure, which is the result of specific mixtures in the essence, but this special structure, develops because of the numbers of mixtures and the form of their structure*.

(Text in italic is the original words of Ibn Sina).

(Between brackets is author's interpretation)

(Fig. 1" summarizes Ibn Sina's theory is in Arabic language) [13].

**Interpretations of Ibn Sina's theory:** Ibn Sina said: *God Almighty created the left cavity of the two heart cavities to be a repository "chamber" for the soul and a source of its permanent validity". He is the Almighty who created the soul as a carrier of the physic faculties that flow through the bodily organs*.

This is the key phrase that explains the process of the soul's creation as envisioned by Ibn Sina. The meaning that can be deduced from this phrase is that Ibn Sina is talking about the left ventricle of the heart (repository), and the characteristics of both blood and the dynamic nature of the soul (permanent validity -flow through the bodily organs). Therefore, the only meaning that can be understood of this phrase is that the soul and blood represent a combinatorial unit, which means that they are created together and, move together and, with them together life continues. Now, the question is, why was blood paired with the soul in the philosophy of Ibn Sina? Furthermore, when and where did this pairing occur? The answer to these questions has an interdisciplinary embryogenesis, philosophical, psychological, and genetic point of view:

1: Embryogenesis point of view: Blood cell development begins as early as the seventh day of embryonic life [14]. During embryogenesis, red blood cells play a major and crucial role in delivering oxygen to tissue and developing vascular channels. The ontogeny and maturation of this blood cell lineage are growing and developing into two successive stages: the production of primitive erythroid cells (EryP) followed by an expanding population of definitive erythroid cells (EryD) that subsequently predominate. Failure of primitive erythropoiesis can prove fatal to an embryo.

Through early development, the primitive vasculature expands, remodels, and specializes to achieve the critical metabolic demands of the tissue it supplies. As a result of this remodeling process, the endothelial cells lining the cardiovascular system subspecialize into atrial, venous, lymphatic, and hemogenic fates via a complex network of intersecting molecular pathways [15]. Then, the blood island integrates to form vascular channels and a plexus network throughout the yolk sac, which conducts oscillatory plasma flow driven by the developing heart tubule [16].

On the other hand, many studies have addressed the molecular genetic control of embryonic development. In this context. Ivanova *et al*. [17] reported that "Homeobox genes, such as Hox and Sox genes play a key role in determining cell identity during embryonic development. Moreover, Iacovino *et al*. [18] revealed that Hox paralog group 3 (HOXA3), is the best known for specifying the identity of tissues that originate from pharyngeal arches, however it also plays an important role in endothelial development.

The incandescent facts and the conclusion of this paragraph are that:

1st- The blood creates first, and then the heart comes after. Rather, to be precise, the heart is the gift of the blood.

2nd- Homeobox genes, such as Hox and Sox genes play a key role in determining cell identity, as well as developing of cardiovascular tubules during embryonic development.

2: Philosophical Point of View: 2/1 - In Islamic Philosophy in general and in Ibn Sina's philosophical thought in particular, psychological studies have focused crucially on its fateful connection with the essence of humankind as a living active being in his relationship with himself and his surroundings and being conscious of his fate as a metaphysical vision. This has led to the necessity for continuous research in order to establish a system of conceptual and scientific terminology, in which the nature, the reality, and the aspects of the human soul *(ar-Ruh* in Arabic) could be, identified, and this is what was reflected in Ibn Sina's perception, who treated in his philosophy a variety of psychological issues, studying them by combining the mental deductive approach and the experimental inductive method, taking into consideration the metaphysical reality of the soul and its behavioral appearance [7].

2/2-Literally, it is wrong to believe that Ibn Sina was talking about the creation of the soul of the left ventricle of the heart in its mature state. Rather, he was imagining by his unique scientific sense the creation process that occurred in the distant depths of the embryonic stage. As previously mentioned, blood is one of the first components that is created at the beginning of the early stage of embryonic development. This is due to the paramount importance of the blood in providing life (oxygen and nutrients) to the organs that are generated successively through the multiple rapid divisions, and of course, the soul must be present at the top of this synthetic process, dominant, supervised, and inherent in the synthesis of the blood and enabling it to perform its sacred biological functions. This means that the process

of the pairing of the soul and the blood occurs at this luminous depth. This pairing can be considered a reflection or even proof of Ibn Sina's theory of the "first perfection" of the soul.

In this sense, what we have concluded about the pairing between the soul and the blood in the early stage of embryonic development, maybe relatively consistent with Ibn Sina's theory of the relationship between soul and body which states that: "*the rational soul comes into existence together with the body, not before, and it maintains a certain association with it as long as a person is alive*".

This association Ibn Sina defines in strictly Aristotelian terms by calling the rational soul: "*the first entelechy of a natural body possessing organs. The rational soul has two functions: one theoretical, perceiving the universals and another practical, making rational choices and deliberations that lead to action*" [8]. Furthermore, some erroneously attribute to Avicenna (Ibn Sina) the idea that the heart is the producer of the "spirit" (soul), which is a mistaken translation of Avicenna's (Ibn Sina) writing. His exact statement is that "the heart is the starting place of the "spirit" (soul).

This is supported by his assertion that "*there is a consensus that the brain and the liver accept nutrients, heat, and "spirit" (soul) from the heart*." [The fifth lesson, the first art, the Canon of Medicine] [9].

These findings may be partially consistent with the analysis that presented by the current study especially for the "pairing theory". But the only disagreement with this assumption is our belief that the starting point of the soul is not the heart, but rather the zygote, specifically the stage of cleavage.

Although Ibn Sina assumed that the soul is the first perfection, he stressed that the soul is still in keenly need of the body to reach the proper perfection. The major importance of the body in relation of the soul is embodied in two reasons:

*1st- The human intellect is an immaterial substance; therefore, it cannot be achieved by itself, but through a body that acts as a custodian for it, and prepares it to perceive intellectually the full range of intelligible objects.*

*2nd- The body act as an occasioning cause for the origination of the human soul, while the production of a new substance is ultimately owing to the Giver of forms, such a production requires the initial preparation of the material so as to provide a suitable subject for the new species form*.

The dialectical relationship between the human soul and the body is owing to the dual nature of the soul, as it is overlooks and connects two complete different worlds (immaterial realm world and material realm world) by means of two faculties, *a theoretical faculty (immaterial realm of intelligible) which is the one that the soul possesses for connection to the side above it*. And this faculty may apply to the "fine delicate mixtures" according our interpretation), and the second faculty *is the practical faculty (material realm of the body) which is the one that the soul possesses for connection to with side below it*. And this faculty may apply to the "dense mixtures" according to our interpretation). (Psychology, 1.5, 47.8-18)[9].

3- Preliminary genetic perception about the soul creation:

3/1 - It is noteworthy that, not only homeobox genes, there are also, a wide spectrum of genes are associated with, and responsible for the regulation of the early stages of embryonic development. Transcription factor Sp1 has been implicated in the expression of cell cycle-regulated genes like thymidine kinase (*TK*) [19]. Moreover, Yanqin *et al*. [20], reported that Estrogen receptor alpha (ERa) has been implicated in the early embryogenesis, and controls the expression of genes associated with the proliferation, differentiation and development of cell and target organs via a genomic effect. Nadine *et al.* [21] revealed that the GATA6 and NANONG are the earliest markers of the PrE and EPI lineages, respectively; however they are co-expressed in all ICM cells at early blastocyst stage (32-46 cell) . The transcription factors OCT4, Sox2 and NANONG t are essential to maintain the capacity of the cell to differentiate into any cell type of the developing embryo. [22].

The retinoic acid (RA) is a morphogen derived from retinol (vitamin-A) that plays important role in cell growth, differentiation, and organogenesis, the RA interacts with retinoic acid receptor (RAR) and retinoic acid X receptor (RXR) which they regulate the target gene expression [23]. TDP-43is a DNA/RNA-binding protein implicated in multiple steps or transcriptional and post-transcriptional regulation of gene expression. Alteration of this multifunctional protein is associated with a number of neurodegenerative diseases [24].

3/2 : The soul as first perfection: The soul according to Ibn Sina completes and perfects the body with respect to its species (Human, plant or animal). Consequently, the soul must belong to the very substance of that body. *The*

*soul is the first perfection of a natural body possessed of organs that performs the activities of the life* (Psychology, 1.1, 12.6-8). In other words, Ibn Sina stated that "*The first perfection is that by which the species actually becomes a species"* [9].

The most accurate definition of Ibn Sina's words is that the "first perfection is the zygote/soul or both together or, more precisely, the eternal unity between them.

In our believe, the confirmed meaning of Ibn Sina's above mentioned notions is the inevitable compatibility between the soul and the body. This inevitability can be understood – in the language of our time- as a genetic compatibility. Evidence that Ibn Sina considered the soul as the first perfection responsible for the origin and formation of the species, and there is only genetics that can study the species, their origin, constitution, and characterization. In this sense, the soul may be the objective equivalent of the genetic core (zygote) in Ibn Sina's mind.

Moreover, the term "first perfection" can be considered a genetic term par excellence, since it refers to the correctness and completeness of the genetic makeup in the zygote cell, which results in the origin of the species. Furthermore, Ibn Sina develops an important concept that states: "*The soul is the first perfection of a natural body possessed of organs that performs the activities (second perfection) of the life"*. We can deal with and interpret this notion as follows:

1 - First perfection "soul" → organs → second perfection/activity. (This means)↓
2 - Zygote → organs/different genotypes → second perfection/ different activities/functions (This means). ↓
3 - Specific gene → specific genotype → second perfection/specific activity/function.

For more clarification and confirmation Ibn Sina stated that: "*The human body and soul are two distinct substances, one material and the other is immaterial. Humans have a "unique activity" that defines them as humans, namely rational thought, and this activity can only be accounted for if the human intellect is an immaterial substance"*. This theory also could have a genetic shade through the expression "unique activity" which per excellent a genetic term, and can be explained by:

Specific gene → specific genotype → specific function (unique activity)

Moreover, the causal and dialectical relationship between the soul and the body, as well as the philosophy of the integration between them, can be considered an embodiment of the genetic makeup of an organism.

The crucial genetic fact in this debate that explains the existential relationship between the soul and the body, is found in the folds of the genius expression of Ibn Sina, who stated" *Once there are the various humors* (in the sense of different mixtures/different genotypes/chromosomes)*, *the organs and the vital spirits or pneumas come*".

*(In the current context we use the term of "mixtures" in the sense of chromosomes instead of the Greek term "humors". More details about the differences between "mixtures" and "humors" will be discussed in the next our paper titled "The theory of mixtures and essence").

This assumption confirms the validity of what we mentioned earlier about the starting point of the soul is not the heart, but rather the zygote, specifically during the first division of the zygote cell into cleavage, and also corresponds with our genetic interpretation of the soul as "first perfection".

Zygote/soul/first perfection → organs/different genotypes → second perfection/different activities/ functions)/genome

Consequently, the genius conception of Ibn Sina about the dual nature of the soul, and also about the both theoretical and practical faculty, obliges us to reveal the nature of these faculties and their mechanism of action. We assume that these faculties are regulated by specific genes, for example: the genes of intelligence for the theoretical faculty (immaterial faculties) such as genes of behavior, psychology, psychiatry, cognizing, sensing, and all other genes that regulate the different molar traits, named "fine mixtures", according to Ibn Sina).

As for the practical faculty (physic faculties), that associated with the functions and activities of the body organs. Genetics has proven that all these body functions and activities are genetically controlled by means of "dense mixtures" according to Ibn Sina. Both faculties can be seen as approximate embodiment of the concept of human genome. Accordingly, promising human genome studies could provide sufficient crucial evidences to give a definitive explanation for these two faculties in the future.

Finally, as mentioned before, the homeobox genes, such as Hox and Sox, and other genes, are playing a key role in determining cell identity, as well as developing of cardiovascular tubules during the early stages of the embryonic development. Accordingly, can it be assumed

– just an assumption – that the human "rational soul" of Ibn Sina is the genes?

In this respect, (Alex Mauron [25] had asked a hypothetical similar question: is the genome the secular equivalent of the soul? and he was very wise in his question because he bases this question within the scope of his inspiring theory of "genetic metaphysics".

The current study partially adopts this assumption of Alex Mauron, with a simple addition/difference, that the genome is not the secular equivalent of the soul, since the soul is the first perfection, which means that it is the first cause of emergence, while the genome is the final result, which means that it is exactly the "second perfection" that complements the first perfection of Ibn Sina. Then, suppose these assumptions are sufficiently accurate, can we consider that Ibn Sina's rational soul is the pinnacle, or the crown, or the code of codes of the human genome?

3/3 - Is Ibn Sina's theory of "fine mixtures" apply to our notion "genetics of intelligence"?

Ibn Sina stated, "*God Almighty created the soul of the fine and delicate mixtures as He Almighty created the body of the dense mixtures, so that the ratio of the soul to the finest (elite) mixtures is equal to the ratio of the body to the density of the mixtures*".

From the genetic point of view, this theory can be addressed and interpreted as follows:

3/3/1 - The equation of the equality between the ratio of the chromosomes that formed the soul and the ratio of the chromosomes that formed the physical body organs represents one of the most important factors explaining the theory of the soul's creation according to Ibn Sina.

3/3/2 - According to Ibn Sina, God created the soul first of the fine elite mixtures and gave it fore and dominance over the body's organs. With consideration, this is not one soul, but many souls for multiple organs of the body, and these souls spread in all the details of the body cells and tissues, and this means that the soul is equal to the body organs by quantitative (practical faculties) and moral ( theoretical faculties) calculation as well.

3/3/3 - In this context, we can add another factor: Ibn Sina in his interpretation of the embryonic development realized that mixtures (chromosomes) when mixed in the zygote, participate equally in forming the new organism. Isn't it logical then that the number of "elite/fine" mixtures "chromosomes" that responsible for the formation of the soul is equal to those "dense" mixtures "chromosomes" that responsible for the formation of the body?. Isn't that exactly determined by genetics? Isn't genetics the science that has the double feature (dual function) of the transmission of traits from one generation to the next, as well as the expression of these traits during the process of organism development?

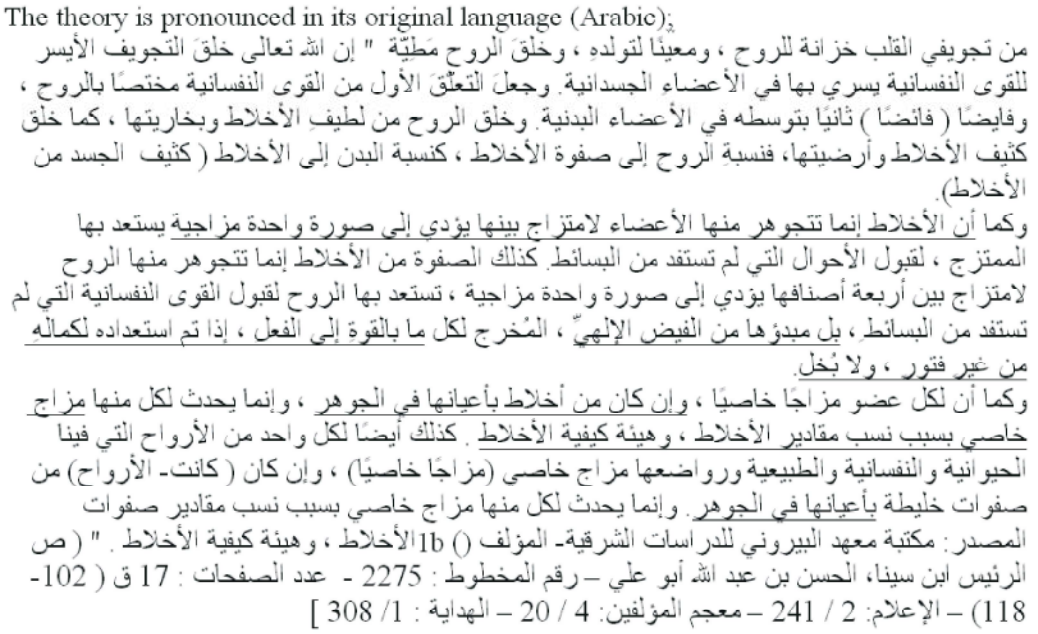
3/3/4 - Ibn Sina's term of "elite mixtures" (chromosomes/genes) is equivalent in meaning to the current genetic term of "genetics of intelligence" and/or "genetics of behavior" and/or "genetics of psychology and psychiatry", and/or any other moral characteristics (traits) such as feelings, emotions, joy, and sadness. All the above mentioned traits were explained and discussed in detail by Ibn Sina in his wonderful manuscript "The Treatise on Cardiac Drugs". He said "*Joy, grief, fear, and anger are from the emotions of the soul. The intensity and weakness of any emotion are not caused by the external influence but are caused by the preparedness of the passive person to receive this influence, that is, the strength/or weakness of the passive core, i.e. the psychological readiness of the passive person" [26].This preparedness of the passive person is due to the genetic makeup of the given person* [27].

Concerning the genetics of psychology, Robert, and Oliver [28] studied the genome-wide association between genetics and psychology and psychiatry. Furthermore, Hannah and Marcus [29] reported that an increasingly large number of genome-wide association study findings (GWAS) have been published that identify many genetic variants for individual differences in behavioral traits. The study of human differences in physiological traits, including their genetic heritability, has gained strength through an infusion of modern DNA blueprint technologies as well as molecular genetics [30-33].

3/3/5 - From the last century until now, genetics has developed astonishingly, not only in proving the merit of heredity as an explanatory basis for all biological phenomena, but also in parallel research in the genetics of intelligence, behavior, and psychology, which has accelerated and increased its pace, especially in the last five years. This assumption gained its most important meaning and depth from some recent promising and ambitious studies [34-36] who used the methodology of distinct screening based on the clustered regulatory short palindromic repeats (CRISPR) gene-editing system to identify approximately 2000 genes required for optimal fitness of haploid human cells under culture conditions.

Concerning these highly promising genes, can they be considered one of the manifestations of Ibn Sina's theory of "elite mixtures" and/or "optimal mixtures"?

**Fig. 1**


The theory is pronounced in its original language (Arabic):

من تجويفي القلب خزانة للروح ، ومعينًا لتولده ، وخلقَ الروح مَطيّة " إن الله تعالى خلقَ التجويف الأيسر للقوى النفسانية يسري بها في الأعضاء الجسدانية. وجعلَ التعلّق الأول من القوى النفسانية مختصًا بالروح ، وفايضًا ( فائضًا ) ثانيًا بتوسطه في الأعضاء البدنية. وخلق الروح من لطيفِ الأخلاط وبخاريتها ، كما خلق كثيف الأخلاط وأرضيتها، فنسبة الروح إلى صفوة الأخلاط ، كنسبة البدن إلى الأخلاط ( كثيف الجسد من الأخلاط).

وكما أن الأخلاط إنما تتجوهر منها الأعضاء لامتزاج بينها يؤدي إلى صورة واحدة مزاجية يستعد بها الممتزج ، لقبول الأحوال التي لم تستفد من البسائط. كذلك الصفوة من الأخلاط إنما تتجوهر منها الروح لامتزاج بين أربعة أصنافها يؤدي إلى صورة واحدة مزاجية ، تستعد بها الروح لقبول القوى النفسانية التي لم تستفد من البسائط ، بل مبدؤها من الفيض الإلهيّ ، المُخرج لكل ما بالقوة إلى الفعل ، إذا تم استعداده لكماله من غير فتور ، ولا بُخل.

وكما أن لكل عضو مزاجًا خاصيًا ، وإن كان من أخلاط بأعيانها في الجوهر ، وإنما يحدث لكل منها مزاج خاصي بسبب نسب مقادير الأخلاط ، وهيئة كيفية الأخلاط . كذلك أيضًا لكل واحد من الأرواح التي فينا الحيوانية والنفسانية والطبيعية ورواضعها مزاج خاصي (مزاجًا خاصيًا) ، وإن كان ( كانت- الأرواح) من صفوات خليطة بأعيانها في الجوهر. وإنما يحدث لكل منها مزاج خاصي بسبب نسب مقادير صفوات الأخلاط ، وهيئة كيفية الأخلاط . " ( ص 1b () المؤلف – الرئيس ابن سينا، الحسن بن عبد الله أبو علي – رقم المخطوط : 2275 - عدد الصفحات : 17 ق ( 102-118) – الإعلام: 2 / 241 – معجم المؤلفين: 4 / 20 – الهداية : 1/ 308 ]

المصدر: مكتبة معهد البيروني للدراسات الشرقية-

**Fig. 2**

1 - Part no. 15 Al-Isras " The Night Journey":
In the name of God, the Most Gracious, the Most Merciful.
"They question you about the Spirit, Say Spirit is at my Lords command, and you have been granted but little knowledge" [85]. [6]

بسم الله الرحمن الرحيم" ويسألونك عن الروح قل الروح من أمر ربي وما أوتيتم من العلم إلا قليلا"
صدق الله العظيم -سورة الإسراء- الجزء الخامس عشر الآية 85

2 - Part no. 28 (Al-TAHRIM)- PROHIBITION
In the name of God, the Most Gracious, the Most Merciful.
"Imran's daughter who preserved her chastity and we breathed Our spirit into her, she testified to the words of her Lord and His Scriptures, and was truly devout"[12]

بسم الله الرحمن الرحيم " ومريم ابنة عمران التي احصنت فرجها فنفخنا فيه من روحنا وصدقت بكلمات ربها وكتبه وكانت من القانتين" صدق الله العظيم– سورة التحريم- الجزء الثامن والعشرون الآية

3/3/6 - The field of intelligence genetics has advanced significantly in recent years. In this aspect, Rober and Sophie [37] reported that genetic association studies have confirmed a century of quantitative genetic research showing that inherited DNA differences is responsible for substantial individual differences in intelligence test scores".

On the other hand, Arthur, and Paul [38] studied the relationship between brain structure and the genetics of intelligence, and they revealed genetic influences on brain morphology and IQ. Furthermore, Thomas [39] studied the relationship of brain size to intelligence, and he reviewed a large body of evidence that demonstrates that there is a heritable factor *g* related to brain size in a wide range of species.

3/3/7 - A major part of current neuroscience research involves mapping regions of the brain and studying the function of various regions. Studies of this sort intersect, the philosophical issues (concerning the relationship of the mind to the brain). The neuroscientists associate more

and more of the faculties once attributed to mind or soul with the functioning of specific regions systems of the brain [40].

## CONCLUSION

Based on the assumptions presented by the current study, the following can be concluded:

1 - The soul is one of the most complex and controversial problematic issues that faced humanity since the realization of this humanity's existence and awareness.
2 - The soul is likely to have been born before or associated with the first division of the zygote cell into cleavage where, the pairing between the soul, the blood and the functional genes (the sacred pairing theory) occurs at the early stage of embryonic development.
3 - The issue of the soul's creation was mentioned in the Holy Qur'an more than once, and every time the Qur'an confirms that the soul was created by God's creation. (Fig 2").
4 - Although Ibn Sina assumed that the soul is the first perfection, he stressed that the soul is still in keenly need of the body to reach the proper perfection.

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