Measures and Balances in the Universe through the Perspective of the Qur'an and Science in Risale-i Nur

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Abstract

In some verses of the Qur'an, it is mentioned that Allah creates every creature and incident in measure. Science proves these verses of the Qur'an by showing that from atoms to stars everything and every incident happen in certain measures. This article explains this topic through explaining and studying measures in the creation of the universe such as Big Bang, measures between stars, measure in rain, measures in animals and plants, measures in human societies and measure in human body.

The writer adopted, in this article, the analytic and descriptive methods. The most important result in this study is the assertion on the determined balances and measures in the universe in general.

Keywords: The Qur'an, Science, Measure, Balance.

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المقادير والموازين في الكون من منظور القرآن والعلوم في رسائل النور

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المستخلص

لقد ذُكرفي بعض الآيات القرآنية أن الله خلق الخلق والحوادث بمقدار. فثبَّت العلم هذه الآيات القرآنية بإظهار أنّ كل شيء من الذرة إلى المجرة وكل حادث يحدث في هذا الكون إلا وله مقدار معلوم. فتهدف هذه الورقة إلى توضيح هذا الموضوع من خلال المقادير في خلق الكون من الانفجار العظيم والمقادير بين النجوم والمقدار في المطر

والمقادير في الحيوانات والنباتات والمقادير في المجتمعات الإنسانية والمقادير في جسم الإنسان. المنهج الذي اتبعه الكاتب في هذا المقال هو المنهج التحليلي إلى جانب استخدامه للمنهج الوصفي، أما أهم النتائج التي توصلت إليها الدراسة هي التأكيد على المقادير المقدرة والموازين الدقيقة التي رصدتها الدراسة في جوانب الكون المختلفة كما اكدت هذه الحقائق الكثير من السابقة العديدة، وهو الأمر الذي تكرر كثيراً في رسائل النور.

الكلمات المفتاحية: القرآن، العلوم، المقدار، الميزان.

Introduction

Qur'an is the biggest miracle among many others of our Prophet (sav). He said: *"Every prophet has been given miracles (by Allah) to make people believe in. And my miracle is Qur'an which is revealed to me by Allah. Therefore I believe I will have the most followers on the Day of Judgment."*

Only the people who lived on that timeline has witnessed the miracles of past prophets. Their miracles have ended with their deaths. However even though our prophet has passed away, miracles of the Qur'an will stay until the day of reckoning. That's why his followers will outnumber the ones of other prophets.

Qur'an is a miracle in terms of declamation and fluency. But not only that, it has lots of other miraculous aspects.

One of those aspects is that it speaks of the secrets about the universe. Nowadays with science improving, this can be seen more clearly. Because the more science turns these secrets into facts, the more those facts became explanations for the verses about universe. For example, its expressed that Allah created every being on certain quantities, measures, and balance in different parts of the Qur'an. Some of those verses are as follows:

"With Him, everything is by measure." (Quran,13/8) "God has set a measure to all things." (Quran,65/3), "...(He) created everything and determined its measure." (Quran,25/2), "Everything We created is precisely measured. (Quran,54/49), "We spread the earth, and placed stabilizers in it, and in it We grew all things in proper measure. (Quran,15/19), "If God were to increase the provision to His servants, they would transgress on earth; but He sends down in precise measure whatever He wills." (Quran,42/27)

Science proves these verses of the Qur'an by showing that from atoms to stars everything has certain measures in their creations. In this article we want to dwell on these two similarities between Qur'an and science.

1. Stability of the Big Bang

On several verses of Qur'an, people are heeded to the creation of the sky and the earth and wanted to think of it. For example in a verse it is said: *"And of His signs is the creation of the heavens and the earth" (quran,30/22)*

We mentioned the verse *"Everything We created is precisely measured." (Quran,54/8)* earlier. According to this verse, it is not wrong to say everything,

little or big, even the whole universe is created on a measure. Explanations made by scientists support this fact shown as here:

Until the 20th century it was believed that the universe was only consisted of the Milky Way. Edwin Hubble (1889-1953) found out that many other galaxies just like ours existed by using the biggest telescope available at that time in California. He announced this important discovery in 1929. Hubble who specialized in galaxies, made another shocking discovery that these galaxies were drifting apart from each other. The further the galaxies were, the faster they were moving away. And this movement wasn't random but in fact it is a kind of movement that is known as Hubble Diagram. The curve of this catenary is called the *Hubble constant*.

This showed that galaxies were much closer to each other. And if we go further in the past they did not even exist until a big bang. Hubble's discovery caused many disputes among scientists. Some of them denied these allegations. But later, studies and experiments showed that in fact universe arose from a big bang. This confuted the stationary universe theory of atherist philosophers and showed that the religious claims of universe being created out of nothing were true. At the present time atheists, even if they don't believe in god, agree that big bang is not a theory but a proven fact. (Steven Weinberg, 1996, 16-43; Stephen Hawking 2012, 50, 117-136.)

Scientists discovered marvellous measures and balances both during and after the Big Bang. These measures and balances confirm the statements of Qur'an that we mentioned earlier in the above. For example, scientists say that there is a sensitive balance between the "***expansive force"*** of the explosion and "***attraction force"*** which blocks expansion by pulling. By the words of cosmology professor Paul Davies: *"Careful measurement puts the rate of expansion very close to a critical value at which the universe will just escape its own gravity and expand for ever. A little slower, and the cosmos would collapse, a little faster and the cosmic material would have long ago completely dispersed. It is interesting to ask precisely how delicately the rate of expansion has been 'fine-tuned' to fall on this narrow dividing line between two catastrophes. If at time 1 s (by which time the pattern of expansion was already firmly established) the expansion rate had differed from its actual value by more than* 10^{-18}*, it would have been sufficient to throw the delicate balance out. The explosive vigour of the universe is thus matched with almost unbelievable accuracy to its gravitaing power. The big bang*

was not, evidently, any old bang, but an explosion of exquisitely arranged magnitude. (Paul Davies, 1984, 184)(Paul Davies, 1983, 179)

Paul Davies brought attention to another subject in his book *The Mind of God* by saying: "(*During the big bang*) *If the masses of the electron and proton were normally a little more than the mass of a neutron, then the result would be in the disastrous direction. In the universe, all hydrogen atoms would dissociate in the formation of neutrons and neutrinos. The sun would be out of nuclear fuel and would shrink until it dissappears.*"

As we said before the Qur'an states that Allah created everything acocrding to a measure and amount. It has been found out that there is marvellous measures and balances in the creation of universe by scientists. Hence as well as the big bang reveals the existance of Allah, the foundings of the measures and balances in creation of the universe it, also, confirms the statements of the Qur'an.

2. Stars, the Sun, and the Planets

It says, *"The sun and the moon move according to plan."* (En'am, 96, 5) in Qur'an. Glossators say that "hesap" word is in its plural form which indicates that the sun and the moon both of them are created on precise calculations and measurements. We only want to dwell on one of these calculations and measurements.

Masses have an attraction force which is called gravitational force. Any released object falls on the ground and rivers flow downwards because of this atraction force.

Attraction force is directly proportional with the mass and inversely proportioanl with the distance between masses. Which means that attraction force increases with the mass and decreases with the distant between the masses. That is why there is a slight difference when measuring weight by the sea where it is closer to Earth's centre and on a high mountain. Or a weight measurement can be different on Earth and on the moon.

Our earth pulls the moon just like it is pulling everything on it. But it is not strong enough to crash it into earth because the moon is approximately 382.000 kilometres away. Also, the moon travels around the world at a speed of 3660 kilometres per hour. (This figure is pretty high if we consider that jet planes travel at a speed of 2500 kilometres per hour.) Its velocity gives the moon a centrifugal force. This centrifugal force pushes the moon to outer space while earth pulls it

back. Neither the moon crashes the earth nor it flies out of orbit due to complete balance between these two forces. If the gravitaional force of the earth was a little more powerful the moon would crash earth. And if the centrifugal force of the moon was a little more powerful the moon would fly out to space.

Big or small, every globe in the universe be it big or small has this – gravitational and centrifugal force- like earth and the moon. For example, the sun pulls world with its gravitational force. The world pushes itself back with its centrifugal force. Owing to this balance between these two forces, the world stays in a certain distance towards the sun and travels 30 kilometers per hour around it. Any Increase or decrease on one of these forces would cause the world either to crash into sun or to fly out of orbit.

Other planets have the same connection with the sun too. But gravitational force applied by the sun and their centrifugal force varies due to the differences in masses, spinning velocities, and distances to sun of each planet. (Paul Davies, 52)

There is a gravitational force between every planet and other planet the same in the system just as between the sun and the planets. Of course, the force that planets apply to each other is not as powerful as the sun's gravitational force. But they still affect each other. For example, the biggest planet on the solar system is Jupiter. It is bigger thousand times more than the earth and it has thirteen moons. Jupiter pulls earth and planets as well as its moons. Also, it has an important role in preserving the life on earth. With its strong gravitational force, Jupiter throws every comet and asteroid that gets in the solar system out of their orbit or destroys them by pulling them into itself. If not for Jupiter, the life on earth would have been destroyed by comets and asteroids constantly crashing into earth.

The gravitational force between the sun and the planets form a steady unity and integrity in the solar system. Some scientists say that some kind of designing must have been done to form the balance of the solar system. Some scientists also say "The solar system is literally a system and not just a random group of planets."

As a matter of fact, same balancing action in the solar system exists between every star and the center of the Milky Way galaxy. Moreover, this can be said about every star and galaxy in the space. By stabilizing gravitational force and centrifugal force, an organic bond is built between masses.

The order of these celestial bodies directly indicates the existence of Allah. When this enormous system is observed, it can be clearly understood that this

system is set accordingly to a brilliant plan and there needs to be someone with higher knowledge, conscious, and power behind this plan. It is not possible for this marvelous system to be constituted coincidentally, because coincidences happen once or twice not millions of times. The ones that consistently happen millions of times do not count as coincidence. Saying that it is, would only be an assumption and not an evidence.

Even though gravitational force might seem as the source of constructing a unity by establishing some sort of a connection between stars. In reality, however, infinite knowledge, will, and the power of Allah is behind all these. Gravitational force is the cause but the real operative is the divine power.

3. Fine Tuning in the Rain

As is known, water evaporates from oceans, seas, lakes, rivers, and earth. Evaporated water densifies and form clouds. These clouds get distributed to different areas via wind and brought back to earth as rain.

Well, how much water gets evaporated and rains back to us? Qur'an's words match up with science on this subject.

On some verses it is expressed that it rains in a certain quantity: *"He who sends down water from the sky in due proportion; and so We revive thereby a dead land. Thus you will be brought out." (Qur'an,43/11)*

"And We sent down water from the sky in proper quantity, and settled it in the ground, and We are able to take it away." (Qur'an.23/18)

Our prophet (sav) has said: *"It doesn't rain more one year than another. But Allah makes use of those rains as he wishes. (In some places it rains more than others.) Every inch of the wind that comes and goes, follows an order and regulation*." (İmam Suyutî, 1993, 71) about this subject.

Scientists did some research on how much water evaporates and rains during water cycle and found fitting results to what our prophet has said. According to the scientists, water vapor in the atmosphere weighs ordinarily $13x10^{12}$ tons. This is an unchangeable stable number. It drops down when it rains but immediately gets compensated with evaporation. Like so the number stays same. Scientist found out that an average **16 million tons of water evaporates per second**.

Do you wonder how much it rains? Studies show that it rains **16 million tons per second** which is the same amount of evaporated water. In a year this number goes up to 505 million times one million tons. 22 percent of 13,4 x 10^{20} kilocalories of thermal energy that comes from sun goes to evaporation. (Taşkın Tuna, 1984, 30-31)

Findings of the scientists fit the words of Qur'an and our prophet.

The Examples that we have given until here shows that the name *Adl (Just)* of Allah and also the prophecies of Qur'an and sunnah which goes 1400 years back correspond to the findings of scientific research of today.

4. Balance Among Livings and the Disturbance of the Balance

Balance Among Livings

All kinds of plants and animals tend to breed, reproduce, and spread around the world. However, none of them has never been seen to overbreed and invade the world. For example, some fish in the sea, spawn thousands and millions of eggs. It is established that a couple of rats can breed up to 500 rats in one year and 20 million in three years. Based on these facts, oceans should be filled up with fish and the ground would be crawling with rats whereas that is not the case. Because Allah prevents them from overpopulating by encountering them with other animals. Thus, fish and rats didn't fill up the world more than necessary. Their births, lives, and deaths always persist on balance. This situation of rats and fish is applicable to every (eco-system) living being.

Millions of species whose births, lives, and deaths differ from each other, interdependently live together. They all tend to breed. There are other living creatures, however, that prevent them from overbreeding.

Scientists have studied the creatures which interact and nourish with each other and called it the ***food chain***. For instance, crickets eat herbs, frogs eat crickets, snakes eat frogs, and eagles eat snakes. Every one of them becomes the daily meal of another. They also maintain the balance by preventing each other from overbreeding. This, what scientists call ***ecological balance***, is not the natural selection, but it is the divine balance that has been constituted among livings by Allah. If there wasn't a creator with endless knowledge and power who is watching, handling, balancing them every second, then this wondrous balance between livings that has lasted for centuries would be disrupted, the world of living would be chaos, and then it would have perished in no time.

Disturbance of the Balance

> *"Corruption has appeared on land and sea, because of what people's hands have earned, in order to make them taste some of what they have done, so that they might return." (Rum, 41)*

There is an *ecological balance* that has been constituted by Allah in the world of livings. However, this balance may be disrupted if the humans intervene.

For the last century, some species have extinct because of humans killing them or polluting the environment. Extinction of these species caused other livings which are interacting with them to extinct as well, and hence, the disturbance of the balance would appear. In other words, humans breaking a link of the food chain results the balance among livings to be disrupted.

One of the reasons for the disturbance of the ecological balance is changing the habitat of a specie. By the development of transportation in the 20th century, there has been an increasing mobility across the world. People started to travel for different reasons such as trading, education, and entertainment. During these travels, people brought different plants and animals with them. Some of these replaced plants and animals disrupted the *ecological balance* of the places they were brought. There are lots of examples on this subject which we will be examining two of them.

Australia and Cactus

Around 1900s, an immigrant brought a cactus to Australia, After being planted, this cactus spread so fast that it wasn't long before it took up 4 million hectares of land. This situation made it difficult for both citizens and villagers. All the crops gone bad and its impact on farming was very big. Australians couldn't find a solution to stop the rapid expansion of this plant. Australia took measures against the invasion of this unstoppable foreign army of plants.

Thanks to their wide research around different parts of the world, insect specialists found a bug that only lives by eating the leaves of this plant. This bug breeding very fast. Also there was no other bug in Australia, that was hostile towards it. It didn't take long time to stop the expansion of the aforementioned cactus. Then breeding of the bug itself slowed down. And one day there was just enough bugs left to stop the constant expansion of the plant. (Cressy Morrison, 1992, 91)

Rabbit Disaster in Australia

Rabbits can be found in every continent. They are never seen to upset the natural balance by overbreeding. But it is a different story for Australia.

An English man who settled in Australia around 1859, brough two dozen of rabbits with him. These rabbits ran away and then started to breed rapidly since there was no other animal to stop them. The number of the rabbits went up to ten thousand from two dozen in few years. Their increasing speed was estimated to be 10-15 kilometers in the woods and 130 kilometers on the level ground. When the people couldn't handle the harm the rabbits are causing, they asked for help from the government. By the year 1900, rabbits were all over the continent even though they were being hunt down everywhere. These rabbits went down in history as the fastest mammal to cover an area. They started to use poison by 1950s when nothing else seems to work. With this solution the number of rabbits brought down from 600 million to 100 million.

The war against rabbits in Australia is still a problem that is trying to be solved and the rabbits are trying to be kept under control.

From what we said until here we can conclude that every living tend to breed and spread. Allah, however, prevents them from breeding unrestrained with other livings he put before them. Thus, a balance and order can be provided among living. Humans can sometimes disrupt this balance and order with their unconcious actions.

5. Balance in Men and Women Proportions in Society

It is said in the Qur'an:

"He creates whatever He wills. He grants daughters to whomever He wills, and He grants sons to whomever He wills. Or He combines them together, males and females; and He renders whomever He wills sterile. He is Knowledgeable and Capable." (Quran,42/49-50)

"God knows what every female bears, and every increase and decrease of the wombs. With Him, everything is by measure." (Quran.13/8)

When you pay attention especially to the second verse, you will se that it is mentioned that every child, whether it is a boy or a girl, is created in a certain quantity. The data which is provided by science confirms this verse.

Population research studies show that there is a wondrous balance in men-women ratio in cities, counties, and the whole world. According to these studies, 100 girls are being born in return for every 105 boys. Both genders are balanced by the age 4 due to male infant deaths are higher. (Erol Tümertekin.2015, 272.)

When the population of the society is observed, it can be seen that the number of males and females is also in balance. This situation applies to the ratio of male-female numbers of the world as well as the countries. The world population is roughly %50,5 male and %49,5 female.

The men-women ratio of population can sometimes be unbalanced due to reasons such as wars, epidemics, and migration. However, with time, this ratio is balanced by itself if human being not interfered.

Imbalance in Population and Social Problems

As we mentioned before, birth and death ratio of men and women in every society across the cities, countries, and all over the world is equal, there is a balance between both genders and thus the humanity lives a balanced life in terms of population. This measure and balance show us that there is someone planning the births and deaths. This plan obviously is not a coincidence, rather, it is a work of a mighty creator with knowledge, will, and power who knows and sees everything at any moment.

There are sometimes when the ratio of men and women can change because of social and economic conditions (e.g., war) and thus the balance between men and women can be disrupted. Changes that happen by themselves generally don't cause a problem and resolved with time. However, the interference of the countries which are concerned about overpopulation, caused many social problems and deterioration of the measure and balance that is applied by the mighty creator.

In India and China, a single child policy has been followed for a long time and married couples are forbidden to have more than one child. Thereby families usually want a boy, they killed their girls before or after the birth. This situation inevitably resulted in an imbalance in female and male proportions in both countries. The report named "*The Lesser Child: The Girl in India*", which was published by UNIXF in 1990, states that the number of girls who die each year in India is 300,000 more than that of men. The United Nations reports that there are 133 single men in India for every 100 single women. In countries such as India where sex is determined before birth, the male ratio is significantly higher. In

China, the situation is not different. According to the figures released by the Chinese government in 1995, there were 10 million people in their thirties who could not marry because they could not find a match. Researchers state that the number of men who cannot find a match will be doubled in the first decade of the 21st century. (Erol Tümertekin,2015- 279)

To put it simply, what we have told so far reveals that there is a balance in the proportion of women and men in the societies, and that interventions against the nature disrupt the balance in the population and cause many social problems.

6. Measure and Balance in the Human Body

In some verses it is stated that Allah created beings, and that he created them according to certain measures. For example, in a verse, it is said that *"He who creates and regulates. He who measures and guides." (quranç87/2-3)* This verse shows that all beings, especially plants and animals, are created according to certain measures and quantities. Amongst these beings, humans are created in the most beautiful way. Many great measures are favored in their creation. In a verse, it is said *"O man! What deluded you concerning your Lord, the Most Generous? He Who created you, and formed you, and proportioned you? In whatever shape He willed, He assembled you". (Quran.82/6-8)*

"Adeleke" (عدلك) word in the verse is defined by glossators as "decent, measured, and equable body and limbs, harmony and balance of the limbs". Ibn Abbas said, "He made his waist straight, upright and balanced, he did not curve it like some animals". (Hamdi Yazır, 51) The glossator Mukatil also said "Allah gave two eyes, two ears, two hands, and two feet to man and he gave it in a complete balance and proportion. For example, one of the two hands isn't longer than the other, or one of the two eyes is not created larger than the other." (Fahrettin Razî,, 1995, 81)

Glossators' comments being based on symmetry is appropriate to the meaning of the verse. In my opinion, however, the meaning of the verse is not limited to those things mentioned only. There are many balances and measures in the human body beyond symmetry. It seems more reasonable that the verse refers to the measures and balances of every aspect of man, material or spiritual. Some examples are given below.

Psychologists have shown with the intelligence tests that the intelligence in society is distributed according to a certain measure. As stated in these studies, approximately two-thirds (68%) of people are in the range of 85 to 115 IQ. This area is called normal intelligence. 13% that is between 70 and 85 are close to idiocy, and 13% that is between 115 and 130 are close to superior intelligence. 95% of people are in the 70-130 IQ range. The rate of those who are retarded and those who are gifted is the same and about 2% of the population. (Rod Plotnik, 288.)

A similar tendency is observed in people's height as well as the distribution of the intelligence in society. If the heights of a group from the same age and gender are to be measured, it is seen that they are in a row from the shortest to the tallest. However, the interesting point is that the majority of them are of medium height and those who are too short and too tall are in the minority. (Feriha Baymur, 1978.243)

There is also a perfect balance in the work of organs in the human body. For example, when we are hungry, the sugar in the blood drops and the feeling of hunger arises. When we eat and we are full, the feeling of need for food stops. A similar activity occurs in red blood cells. When red blood cells in the blood are reduced, the marrows are activated to produce red blood cells. When the red blood cells reach a certain amount, the production in the marrow stops.

50 million cells on average die every second in the human body, and new ones are produced to replace them. Thanks to the balanced organization of this heavy traffic, our life continues in tranquility. If new cells not formed at the same rate corresponding to continuous cell loss or excessive cell production occurs, the human body is impaired, it becomes sick and endangered. For example, cancer is only one of the most dangerous diseases that result from excessive, uneven growth of cells.

The need for eating and the production of red blood cells is almost identical to all activities in the body. When there is any deficiency in the body, the organism is activated and the activity is stopped when the need is provided.

CONCLUSION

At the beginning of this article, we mentioned the verse *"There is not a thing but with Us are its stores, and We send it down only in precise measure." (Quran, 12/21)* and some other similar verses. The explanations that we gave from the science until this point confirm the Qur'an by showing that there are measurements and balances everywhere from a cell to the Milky Way galaxy. To sum up the explanations we gave until here:

- The universe was created with a great explosion and then began to expand with tremendous speed. During this expansion, scientists have determined that there is a great measure and balance between the rate of expansion and gravitational force.
- With the balance created between the gravitational force and the centrifugal force, the Moon and Earth, the Sun with the Earth, the planets with the Sun, the solar system and the galaxy, our galaxy and other galaxies have formed a unity. A slight change in these balances will result in huge changes in the whole universe.
- Approximately 16 million tons of water evaporate just as 16 million tons of water rains down every day in the world; Hence, tons of salt water is transformed into fresh water so that life on earth can continue.
- All plants and animals in the world have been given a tendency to breed and spread. However other creatures are placed to stop them from overbreeding so that an ecological balance can be obtained. From time to time, people knowingly or unknowingly disrupt this ecological balance.
- Research shows that there is a balance in the proportion of women and men in the society. It is seen that the number of men and women is equal in terms of birth and death, provided that people do not intervene.
- When the heights and intelligence of the individuals are examined, it is seen that the height and intelligence are distributed according to certain measures in the society.
- When the human, animal and plant bodies are examined, it is seen that there is a symmetrical structure in all of them, and that these structures are applicable to the *golden ratio*.

- A balance in decrease and increase can be observed in the cells, smallest units of the body, such as red and white blood cells. Disruption of this balance in decrease or increase of the cells, endangers the human life.

These measures and balances can only be the work of a holy designer, who observes the whole universe at any moment, who is omnipotent, and when doing a job, the other works are not hard for him. We call this holy person Allah.

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