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نجم عبد الودود نعمة الجزائري



## Knowledge and the Foundations of Scientific Methodology in the Noble Quran

### [المعرفة وأسس المنهجية العلمية في القرآن الكريم]

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#### Abstract

The Quran treats knowledge not as a peripheral concern but as the very foundation on which faith rests and the entire Islamic way of life holds together. It is no exaggeration to say that seeking knowledge, in the Quranic view, ranks among the foremost obligations placed on every Muslim. What makes this emphasis all the more striking is the setting in which it first appeared. The message came to an unlettered community, one with no established tradition of scholarly inquiry - a sharp contrast to the intellectual cultures of Rome and Persia at the time. That very gap highlights how central knowledge was meant to be in the civilizational project Islam set out to build. This paper takes up two guiding questions: What does the Quran mean by knowledge, and where does it locate its sources? And how did Muslim scholars, working across a wide range of disciplines, draw on the Quran to shape their own research methods? The findings point to a Quranic vision of knowledge that is distinct from purely human frameworks in its concept, nature, and method. It holds revelation and reason together rather than setting them apart; it links empirical observation with theoretical reflection, and ties learning to practice. Embracing this vision gave Muslim scholars a disciplined yet flexible methodology that carried knowledge to remarkable heights and allowed them to pass it on with integrity. None of this was accidental. It grew directly out of Islam's own encouragement of creativity and inquiry across every field, without ranking one discipline above another. The result was a body of civilizational achievement that stayed true to the spirit of the faith while pushing the boundaries of what was known.

**Keywords:** Knowledge; Quran; Scientific Methodology

#### الملخص

يُعَلِّي القرآن الكريم من شأن المعرفة حتى يجعلها أساساً لا بُدَّ من الإيمان بدونه، ولا تستقيم الحياة الإسلامية إلا عليه. ومن هنا لم يكن طلب العلم خياراً ثانوياً، بل فرضاً يتقدم على كثير من الواجبات. واللافت أن هذا التكليف جاء في أمة أمية، لم تكن تُعرف بين الأمم باهتمامها بالبحث والتعلم، على خلاف ما كان عليه حال الرومان والفرس. وهذا وحده يكفي لندرك أي مكانة أرادها الإسلام للمعرفة في مشروعه الحضاري. ينطلق البحث من سؤالين محوريين: ما مفهوم المعرفة في القرآن وما مصادرها؟ وكيف وظّف العلماء المسلمون، على اختلاف تخصصاتهم، الرؤية القرآنية في بناء مناهجهم البحثية؟ وقد توصل إلى أن الرؤية القرآنية للمعرفة ليست مجرد تنظير، بل منهج عملي يجمع بين الوحي والعقل، وبين التجربة الحسية والتأمل النظري، وبين العلم والعمل. هذه الرؤية تستوعب تنوع التوجهات الإنسانية وتتميز عن أي مقارنة بشرية محض في مفهومها وطبيعتها وأدائها. وعلى هذا الأساس، سار العلماء المسلمون في شتى الحقول بمنهجية منضبطة، فبلغوا بالمعرفة مستويات رفيعة نقلوها إلى من جاء بعدهم. ولم يكن ذلك وليد صدفة، بل ثمرة طبيعية لتشجيع الإسلام على الإبداع والابتكار من غير تمييز بين علم وآخر. وهكذا تحققت أهداف حضارية تنسجم مع روح الدين ومقاصده.

الكلمات المفتاحية: المعرفة؛ القرآن الكريم؛ المنهجية العلمية

## 1. INTRODUCTION

The Holy Quran addresses the nature of knowledge as one of the most important issues in the project of building humanity and society according to divine guidance. In the Quran, knowledge represents the cornerstone upon which not only faith is established, but upon which the entire Islamic way of life depends for its soundness and integrity. For this reason, the Quran made the pursuit of knowledge among the most important and primary obligations of every Muslim, male or female. Indeed, it considers the seeker of knowledge to be engaged in an act of worship superior to many other acts of worship, and among the closest of servants to the Lord of all servants.

For these reasons, the beginning of revelation was with the command for knowledge and learning, as established in the first verses of Surat Al-Alaq: "Read! In the Name of your Lord Who created, created man from a clinging clot. Read! And your Lord is the Most Generous, who taught by the pen, taught man that which he knew not" (Qur'an, 96:1-5).

Upon reflecting on the historical context in which heaven began to connect with earth, across both time and space, in an unlettered nation for whom knowledge held no priority in their lives, and in an unlettered environment not historically known for its interest in knowledge (unlike what was prevalent among the Romans and Persians at that time), the esteemed position that knowledge holds in the project of Islamic civilization becomes clear to us.

Based on the foregoing, this research paper addresses the following problem: What is the concept of knowledge in the Holy Quran and what are its sources? And how did Muslim scholars, across their diverse specializations and bodies of knowledge, benefit from the Holy Quran in formulating their methodologies?

### 1.1 Research Objectives

1. To elucidate the value of knowledge in the Holy Quran and explain how its scope, essence and methodology differ from any man-made approach.
2. To reveal the coherence in the sources of knowledge in the Qur'an, with revelation being one of them, with the essence of the unseen and the physical worlds, making both revelation and reason the two main sources of knowledge.

3. To focus on the aspects of sources of knowledge in the Holy Qur'an that influenced the methodology of research undertaken by Muslims.

## **1.2 Research Methodology**

The nature of this study necessitated the adoption of the following methodologies:

- Descriptive Methodology: Employed to present the foundational concepts and terminologies upon which the research topic is built.
- Analytical Methodology: Utilized to fulfil the study's requirement for a three-step process — analysing, interpreting, and critiquing the scientific material presented — thereby yielding the desired outcomes within the permissible scope of the field of study.
- Historical Methodology: Applied to describe the methodologies of past Muslim scholars, verify and analyse the cited historical data, and demonstrate how these approaches were fundamentally rooted in the Quranic vision.

## **1.3 Research Outline**

Section One: An exploration of the concept and characteristics of knowledge in the Quran and its sources.

Section Two: Elucidation of the effect of the Holy Qur'an on the shaping of scientific research methodologies, and the ways in which Muslim scholars, in their various fields of expertise and areas of knowledge, have used the Holy Qur'an in developing their methodologies.

Section Three: Dedicated to the pillars of knowledge in the Holy Quran, highlighting the most critical methodological rules in scientific research among Muslim scholars, specifically regarding data collection through reliance on primary sources, the documentation of information, and the linkage of knowledge to practical reality.

## **2.0 SECTION ONE: THE CONCEPTION OF KNOWLEDGE IN THE HOLY QUR'AN AND ITS SOURCES**

### **2.1 The Notion of Knowledge (Ma'rifah) and Its Disparity from Science ('Ilm)**

In Arabic, the term ma'rifah (knowledge/cognition) is closely associated with the term 'ilm (knowledge/science). The term knowledge is commonly used to mean the same as science, as in the verse: "according to what they knew of the truth" (Qur'an, 5:38), which means "with what they knew." This section first discusses the definitions of both terms and the subtle differences between them.

### 2.1.1 Ma'rifah Linguistically

Linguistic sources agree that ma'rifah and its derivatives are connected to 'ilm. To know (ma'rifah) something indicates knowledge of it ('ilm bihi) and perceiving it through one of the senses or the intellect. It is stated in Mu'jam Maqāyīs al-Lughah:

"The letters 'ayn, rā' and fā' have two correct roots: one indicates the successive sequence of things connected to each other, and the other indicates calmness and reassurance... You say: 'So-and-so knew ('arafa) so-and-so, with 'irfān and ma'rifah, and this is a known matter (ma'rūf).' This confirms what we said about being reassured by him, because whoever denies something is alienated from it and averse to it."<sup>2</sup>

<sup>2</sup> Ibn Fāris, A. (1979). Mu'jam maqāyīs al-lughah (A. Hārūn, Ed.). Dār al-Fikr, p. 281.

**Biographical note:** He is: Aḥmad ibn Fāris ibn Zakarīyā al-Qazwīnī al-Rāzī, Abū al-Ḥusayn, one of the leading imams of language and literature. Al-Badī' al-Hamadhānī and al-Ṣāhib ibn 'Abbād, among other eminent figures of rhetoric, studied under him. He was originally from Qazwīn, resided for a time in Hamadhān, then moved to Rayy, where he died in 395 AH. His works include Maqāyīs al-Lughah, Al-Mujmal, Al-Ṣāhibī fī 'Ilm al-'Arabiyyah (written for the library of al-Ṣāhib ibn 'Abbād), Jāmi' al-Ta'wīl fī Tafsīr al-Qur'ān, and others.<sup>3</sup>

<sup>3</sup> Al-Ziriklī, K. D. (2002). Al-a'lām (2nd ed.). Dār al-'Ilm lil-Malāyīn, p. 193.

### 2.1.2 The Meaning of 'Ilm Linguistically

It is the opposite of ignorance. Ibn Fāris (1979) said:

"The letters 'ayn, lām, and mīm together form a common root denoting an effect in that which is distinctive from others. Thus came the word 'sign'... The flag and the banner; their plural is 'alam. The flag refers to the mountain. 'Ilm is the opposite of ignorance."<sup>4</sup>

<sup>4</sup> Ibn Fāris, Maqāyīs, entry for ilm; see also Ibn Manẓūr, M. (1414 AH). Lisān al-'Arab. Dār Ṣādir, pp. 110-111; Al-Fīrūzābādī, M. Y. (2005). Al-qāmūs al-muḥīṭ (N. al-'Arqasūsī, Ed.). Mu'assasat al-Risālah, p. 771.

The author of the dictionary compared it to knowledge, saying: "He knew it, like he heard it, with knowledge, meaning he understood it."<sup>5</sup>

<sup>5</sup> Al-Fīrūzābādī, Al-qāmūs al-muḥīṭ, chapter on 'ayn, section on lām.

### 2.1.3 Terminologically

Scholars have definitions that distinguish ma'rifah from 'ilm. The most important of these are those presented by Al-Jurjānī (2011) in his book *Al-Ta'rifāt*. He states:

"Ma'rifah is the perception of a thing as it truly is, and it is preceded by ignorance, unlike 'ilm. For this reason, the Exalted Truth is called al-'Ālim (The All-Knowing) and not al-'Ārif. As for 'ilm, it is the perception of a thing as it truly is, or a firmly established quality by which universals and particulars are perceived. It is also said that ma'rifah is the perception of the particular, while 'ilm is the perception of the universal. Ma'rifah is used to indicate conceptualizations (*taṣawwurāt*), while 'ilm is used for affirmations (*taṣdīqāt*). Therefore, we say, for example, 'he knew ('arafa) God,' and we do not say, 'he 'alima God.' We also say, 'those who know God (al-'ārifūn bi-llāh),' and it is not said, 'al-'ālimūn bi-llāh.' 'Ilm necessitates encompassing the known object and perceiving it as it truly is, while ma'rifah necessitates familiarity with the thing in its outward aspect, or in one of its effects, or in one of its particulars. Denial (*inkār*) is the opposite of ma'rifah, whereas the opposite of 'ilm is ignorance (*jahl*)."<sup>6</sup>

<sup>6</sup> Al-Jurjānī, A. M. (2011). *Mu'jam al-ta'rifāt*. Dār al-Faḍīlah, p. 238.

**Biographical note:** He is: 'Alī ibn Muḥammad ibn 'Alī, known as al-Sharīf al-Jurjānī. A philosopher and one of the leading scholars of the Arabic language. Born in Tākū near Astarābād, he studied in Shīrāz. When Tīmūr entered it in 789 AH, al-Jurjānī fled to Samarqand, then returned to Shīrāz after Tīmūr's death and remained there until his death in 816 AH. He authored about fifty works, including *Al-Ta'rifāt*, *Mafātīḥ al-'Ulūm*, *Tahqīq al-Kulliyyāt*, and others.<sup>7</sup>

<sup>7</sup> Al-Ziriklī, Al-a'lām, p. 7.

### 2.1.4 The Difference Between 'Ilm and Ma'rifah

Scholars have differed regarding the relationship between ma'rifah and 'ilm. Some have argued that ma'rifah is more general than 'ilm, as previously stated in the transmission from Al-Jurjānī. Others held the opposite view, while a third group saw them as identical. This latter point of view was adopted by Imam Ibn Ḥazm (n.d., p. 242), who states:

"The definition of 'ilm of something is ma'rifah of it. You say that al-'ilm and al-ma'rifah are two names applied to a single meaning, which is the conviction of a thing as it truly is, being certain of it, and the absence of doubts about it. This occurs either through the testimony of the senses and reason, or through a proof that traces back, closely or remotely, to the

testimony of the senses or reason, or through an agreement he encounters in coinciding with the belief of truth, specifically by following what God Almighty has commanded us to follow, without deduction."<sup>8</sup>

<sup>8</sup> Ibn Ḥazm, A. (n.d.). *Al-faṣl fī al-milal wa al-ahwā' wa al-niḥal*, p. 242.

**Biographical note:** He is: Abū Muḥammad ‘Alī ibn Aḥmad ibn Sa‘īd ibn Ḥazm ibn Ghālib al-Fārisī al-Andalusī. Born in Cordoba in 384 AH, Ibn Ḥazm initially followed the Shāfi‘ī school of thought before transitioning to the Zāhirī school. He authored numerous valuable scholarly works in various fields, including *Al-Iḥkām fī Uṣūl al-Aḥkām*, *Al-Muḥallā*, *Al-Faṣl fī al-Milal wa al-Ahwā' wa al-Niḥal*, and *Marātib al-Ijmā'*.<sup>9</sup>

<sup>9</sup> Al-Dhahabī, M. A. (1982). *Siyar a‘lām al-nubalā'*. Mu’assasat al-Risālah, p. 184.

Meanwhile, Imam Ibn Al-Qayyim (1996) asserts that there is a difference between 'ilm and ma'rifah, both verbally and in meaning. The verbal difference is manifested in the fact that the verb of ma'rifah takes a single object, as in the Almighty's saying: "he recognized them, but they denied him" (Qur'an, 12:58), whereas the verb of 'ilm requires two objects, as in His saying: "and if you know them to be believers" (Qur'an, 60:10). If it takes a single object, it carries the meaning of ma'rifah, as in His saying: "and others besides them whom you do not know — Allah knows them" (Qur'an, 8:60).

As for the meaningful difference, it appears in several aspects:

1. Ma'rifah pertains to the essence of the thing, while 'ilm pertains to its states. You say: "I knew your father and knew him to be righteous." Thus, ma'rifah is the presence of the thing's form and its conceptual image in the soul, while 'ilm is the presence of its states, attributes, and their relation to it. Ma'rifah resembles conceptualization (taṣawwur), while 'ilm resembles affirmation (taṣdīq).<sup>10</sup>
2. Ma'rifah is mostly used for something that was absent from the heart after having been perceived; when it is perceived again, it is said he recognized it (‘arafahu). Or it is used for something described with attributes established in the mind; when one sees it and knows it is the one described, it is said he recognized it. An example of the first is His saying: "he recognized them, but they denied him" (Qur'an, 12:58). An example of the second is His saying: "Those to whom We have given the Book recognize him as they recognize their own sons" (Qur'an, 2:146). Since his attributes were known to them, when they saw him, they recognized him by those attributes. For this reason, the opposite of ma'rifah is denial (inkār), and the opposite of 'ilm is ignorance (jahl).<sup>11</sup>

<sup>10</sup> Ibn Qayyim al-Jawziyyah, M. (1996). *Madārij al-sālikīn bayna manāzil iyyāka na‘budu wa iyyāka nasta‘īn* (3rd ed.). Dār al-Kitāb al-‘Arabī, pp. 335-337. <sup>11</sup> Ibn Qayyim, *Madārij*, pp. 335-337; see also al-Aṣḥānī, A. Q. (1412 AH). *Al-mufradāt fī gharīb al-Qur’ān* (1st ed.). Dār al-Qalam / al-Dār al-Shāmiyyah, p. 331.

This is noted alongside the observation that the Quran did not use the verbal noun *ma'rifah* to indicate 'ilm; rather, it used derived verbs such as 'arafa and ya'rifu, applying them to direct experience with things, as in His saying: "And say, 'Praise to Allah. He will show you His signs, and you will recognize them. And your Lord is not unaware of what you do'" (Qur'an, 27:93).

## 2.2 Sources of Knowledge in the Holy Quran

The Holy Quran indicates that the primary source of knowledge ('ilm) and cognition (*ma'rifah*) is God. He, glorified be He, is the Lord of all things, its Owner, the Creator of humanity, and its Teacher: "Who taught by the pen, taught man that which he knew not" (Qur'an, 96:4-5); and His saying: "And He taught Adam the names; all of them" (Qur'an, 2:31). He, Exalted, endowed humanity with the means of knowledge: hearing, sight, and heart: "And Allah has brought you out from the wombs of your mothers while you know nothing. And He has made for you hearing, vision, and hearts that perhaps you would be grateful" (Qur'an, 16:78).

Reflecting on the Quranic texts that address the subject of knowledge in detail, we find that they point to two primary sources for acquiring human knowledge: Divine Revelation (*al-Wahy*) and Reason (*al-'Aql*). Given the nature of the human being and the needs and requirements that arise from it, knowledge, from a Quranic perspective, cannot be other than an integrated knowledge between revelation and reason. That is, human nature has a decisive need for knowledge emerging from both sources, despite the fact that the knowledge provided by each source individually has a nature that distinguishes it from the other, and consequently, its specific function in responding to the demands of the different dimensions of the human personality. Each of these two sources provides a type of knowledge that complements the knowledge provided by the other. If revelation undertakes to provide knowledge that reason is incapable of acquiring, reaching, or comprehending, then reason undertakes to arrive at knowledge that falls within the limits of its capacity through sense perception and experience on one hand, and to indicate the truth of revelation regarding the unseen knowledge it reports on the other. This imparts an integrative dimension to these two cognitive sources, ensuring a

kind of balance, harmony, and coherence in the human personality and even in human action itself. Thus, its orientation becomes the vast cosmic horizons, to be invested in after their discovery, but guided by divine revelation. Consequently, the methodology of knowledge in the Holy Quran is based on three considerations.<sup>12</sup>

<sup>12</sup> Amzīān, M. (1998). Uṣūl al-manhaj al-maʿrifī min al-Qurʾān wa al-sunnah. Majallat al-Muslim al-muʿāṣir, 87, 77-112.

### **2.2.1 The First Source: Revelation**

Knowledge, according to the guidance of the Holy Quran, cannot be separated from the direction of revelation. Indeed, one of the most specific characteristics of this knowledge is that it is disciplined and governed by this principle. This is the feature that makes it unique in its methodology from other human knowledges that originate from pure human endeavour.

Humanity cannot live an upright life isolated from the guidance of revelation. Turning away from this path has had its negative repercussions on human society, a natural result of humans subjecting their reason to domains where they cannot, as humans, make definitive judgments. This suffices to indicate the credibility of revelation as a guide and rectifier for humanity's movement on earth, introducing it to its Creator and what is required of it in the station of servitude, as well as introducing it to its rights towards itself and others. These are the totality of issues that constitute the cognitive field of human activity.

The Quran distinguishes between two different worlds: the world of the Unseen (ʿĀlam al-Ghayb) and the world of the Witnessed (ʿĀlam al-Shahādah), each having its own domain and specific nature. When it concerns the world of the Unseen, the Quran refers to revelation as the sole source from which humanity derives its knowledge by way of report: "And with Him are the keys of the unseen; none knows them except Him" (Qur'an, 6:59); "Say, 'Indeed, the unseen belongs to Allah. So wait; indeed, I am with you among those who wait'" (Qur'an, 10:20); "And to Allah belongs the unseen [aspects] of the heavens and the earth and to Him will be returned the matter, all of it" (Qur'an, 11:123). Whereas concerning the world of the Witnessed, we find it refers to reality and calls upon humanity to use its intellectual and sensory capacities: "Have they not traveled through the land and have hearts by which to reason and ears by which to hear? For indeed, it is not eyes that are blinded, but blinded are the hearts which are within the breasts" (Qur'an, 22:46).

The function performed by revelation in various cognitive fields is not uniform. Revelation may independently provide ready-made knowledge regarding specific issues, where

humanity's role is merely reception and understanding, without intervention in determining the elements of this knowledge, choosing its subject, or modifying it by addition or deletion. Of this kind is the totality of knowledge humanity receives about the world of the Unseen, for which it has not been given the means to investigate. Hence, the sole source for those truths is revelation, such as in establishing matters of creed and the principles upon which it is built, which are encompassed in the verses of the Holy Quran in His Almighty saying: "The Messenger has believed in what was revealed to him from his Lord, and [so have] the believers. All of them have believed in Allah and His angels and His books and His messengers, [saying], 'We make no distinction between any of His messengers.' And they say, 'We hear and we obey. [We seek] Your forgiveness, our Lord, and to You is the [final] destination'" (Qur'an, 2:285).

Additionally, it is revelation that determines humanity's place in existence, as well as its purpose and requirements in the realm of divine servitude, precisely as it grants humanity its rights towards itself and others. All of this has been established through the rulings and legislation contained within the Holy Qur'an.

### **2.2.2 The Second Source: Reason**

Reason is specialized in acquiring knowledge that falls within the limits of its perceptive capacity. Therefore, reason is the instrument of acquired knowledge — that which is obtained through the exercise of reason and its related faculties: the senses, experience, and so on — in order to acquire the knowledge dispersed in the universe, that is, within themselves and in the horizons as the Quran expresses it, as signs indicating the divine existence, the greatness of this existence, and indeed His absolute knowledge: "We will show them Our signs in the horizons and within themselves until it becomes clear to them that it is the truth" (Qur'an, 41:53).

As stated earlier, one of the characteristics of the Quranic methodology in knowledge is unity and integration. Where revelation mandated the matter of faith, it did not demand mere blind acceptance devoid of rational proof. God Almighty said: "So let man observe from what he was created" (Qur'an, 86:5); and His saying: "And within yourselves. Then will you not see?" (Qur'an, 51:21). The Quran condemned following whims (hawā), because following whims corrupts judgment upon things, and clarified that following whims is associated with injustice, misguidance, and corruption on earth, while simultaneously being opposed to knowledge, divine guidance, and truth: "And indeed many do lead [others] astray through their [own]

inclinations without knowledge" (Qur'an, 6:119). Indeed, the Quran considers certainty (yaqīn) as its criterion for knowledge and rejects doubt and conjecture, not considering them to be sound knowledge: "And they have thereof no knowledge. They follow not except assumption, and indeed, assumption avails not against the truth at all" (Qur'an, 53:28). When it established a command, it was not devoid of rational interpretation. Allah said: "Then do they not reflect upon the Qur'an? If it had been from [any] other than Allah, they would have found within it much contradiction" (Qur'an, 4:82). Wherever He prescribed legal rulings, He did not neglect the reason (cause) and wise purpose (wisdom) behind them: "They ask you about wine and gambling. Say, 'In them is great sin and [yet, some] benefit for people. But their sin is greater than their benefit.' And they ask you what they should spend. Say, 'The excess [beyond needs].'" Thus Allah makes clear to you the verses [of revelation] that you might give thought" (Qur'an, 2:219).<sup>13</sup>

<sup>13</sup> See also Ismā'īl, F. (1981). *Al-Qur'ān wa al-naẓar al-'aqlī*. International Institute of Islamic Thought, pp. 101-107.

Thus, revelation does not annul reason, just as reason does not negate revelation. In this context, it is worth noting that there is an inherent relationship existing between divine revelation and reason. Divine revelation, in addition to being the primary source of knowledge, is also the guide for reason in its quest to acquire knowledge related to the limits of its abilities and the scope for its acquisition. To put it another way, while revelation provides humanity with knowledge that is beyond the reach of the limited intellect, it also plays a more important role in that it acts as a guide for the intellect.<sup>14</sup>

<sup>14</sup> Naqīb, 'U. (2013). *Al-manhaj al-Qur'ānī lil-tarbiyah*. Al-Aṣālah lil-Nashr wa al-Tawzī', pp. 97-99.

### **2.2.3 The Third Source: The Universe**

The discourse on the universe as the third source of knowledge in the Holy Qur'an includes human existence. The Qur'an's call to reflect on this existence is an all-encompassing one, pertaining to both nature and humanity. In this regard, the following verse states: "And on the earth are signs for the certain [in faith], and in yourselves. Then will you not see?" (Qur'an, 51:20-21). There is also a call to contemplate the natural world around us; a subject that receives significant focus in the Quran to instil in humans the consciousness that everything is governed by an immutable law. The understanding and exploration of this law allows them to benefit from it: "[He is] the cleaver of daybreak and has made the night for rest and the sun

and moon for calculation. That is the determination of the Exalted, the Knowing" (Qur'an, 6:96); "And it is He who placed for you the stars that you may be guided by them through the darkneses of the land and sea" (Qur'an, 6:97); "It is He who made the sun a shining light and the moon a reflected light and determined for it phases that you may know the number of years and account [of time]" (Qur'an, 10:5); "It is Allah who erected the heavens without pillars that you [can] see" (Qur'an, 13:2); "It is not allowable for the sun to reach the moon, nor does the night overtake the day, but each, in an orbit, is swimming" (Qur'an, 36:40). Thus, we find a vast collection of verses directing humanity to observe the things and phenomena around them, indicating their constancy in patterns that allow for their investment and benefit. Hence comes the call of revelation to reason to ponder and think about them.

The sphere of knowledge is inherently diverse, and it is unrealistic to expect it to be governed by a single principle. The oscillation of cognitive activity within the spheres of revelation, reason, and sensory perception mandates the presence of all three elements, each without negating the other. The three principles divide the fields of knowledge that humanity seeks to cover. Were it to limit itself to a single one, its knowledge would be incomplete and limited, and incapable of encompassing the diverse fields of knowledge that humanity needs in its existence and performance. The relationship that governs these three principles is one of complementarity. The existence of all these elements together constitutes the completeness of the Qur'anic approach to knowledge in its breadth and scope for developing a solid and scientific body of knowledge.

The Holy Qur'an informs us that it is Allah who has provided mankind with the faculties of knowledge: hearing, sight, and the heart: "And Allah has brought you out from the wombs of your mothers while you know nothing. And He has made for you hearing, vision, and hearts that perhaps you would be grateful" (Qur'an, 16:78). It states that one of the reasons for mankind's failure to recognise the truth, leading to their condemnation to Hell, is due to their neglect of the gifts of the senses and the intellect, and their unwillingness to use them or derive benefit from them in the quest for knowledge. Allah says: "And they will say, 'If only we had been listening or reasoning, we would not be among the companions of the Blaze'" (Qur'an, 67:10). The Holy Quran further explains that mankind is responsible for using these senses and faculties, and that rewards follow their usage for good, as punishment follows their use for evil: "And do not pursue that of which you have no knowledge. Indeed, the hearing, the sight and the heart; about all those [one] will be questioned" (Qur'an, 17:36).

### 3.0 SECTION TWO: THE IMPACT OF THE HOLY QURAN ON THE FORMATION OF SCIENTIFIC RESEARCH METHODOLOGIES AMONG MUSLIMS

#### 3.1 The Impact of the Holy Quran on the Formation of Research Methodologies in the Humanities and Social Sciences

The Holy Quran pointed to the diversity of societies, the differences in languages and colours, and the variation in human activities. God Almighty said: "And of His signs is the creation of the heavens and the earth and the diversity of your languages and your colours. Indeed, in that are signs for those of knowledge" (Qur'an, 30:22). Language is considered a tool of knowledge and the most important means of understanding and interaction among members of society in all fields of life. Without language, human cognitive activity would be impossible. Language is closely linked to thought; human ideas are always formulated in a linguistic mould, even in internal reflection. It is only through language that an idea obtains its actual existence. Language also represents the things it describes.<sup>15</sup>

<sup>15</sup> Faraj, Ş. R. (n.d.). *Wa ikhtilāfu alsinatikum wa alwānikum inna fī dhālika la āyāt lil-‘ālimīn. I’jāz al-Qur’ān wa al-Sunnah*. Retrieved from <https://www.themwlx.org>

In the field of sociology, the Quran paid attention to historical events and occurrences as sources of human knowledge. In this regard, it presented the foundations of an integrated methodology for dealing with human history, as it was not content with mere presentation and collection but attempted to extract divine patterns (sunan) or laws governing social and historical phenomena, and the lessons and morals within those historical events. God Almighty says: "There was certainly in their stories a lesson for those of understanding" (Qur'an, 12:111). History, from a Quranic perspective, is governed by constant, consistent laws, expressed as God's patterns (sunan Allāh), and humanity is called upon to discover them. God Almighty says: "[This is] the established way of Allah which has occurred before. And never will you find in the way of Allah any change" (Qur'an, 48:23). The Holy Quran also clarified the importance of the human role in the movement of history: "Indeed, Allah will not change the condition of a people until they change what is in themselves" (Qur'an, 13:11).

The Quran established a basis and methodology for accepting or rejecting reports, as indicated by the verse: "O you who have believed, if there comes to you a disobedient one with information, investigate, lest you harm a people out of ignorance and become, over what you have done, regretful" (Qur'an, 49:6). This enabled Muslim historians to form a clear vision in

this regard. By following the guidance of the Holy Quran in verifying and scrutinizing the sources of news — one of the most prominent features of Islamic civilization — whether that data was poetry, as transmitted by the leading imams of the Arabic language in their books; or the Arabs' methods of expression, as transmitted by Sībawayh in his book and others; or narrations of ḥadīth and the reports of the Companions and Followers, as done by the authors of the major collections like the Musnad of Imam Aḥmad and all that Muslims established in the principles of ḥadīth science as a rigorous methodology for scrutinizing reports and precise conditions for their acceptance, following the example of the imams of al-jarḥ wa al-ta'dīl (criticism and validation). Their content was immense data on Islamic personalities from the era of the Companions up to the era of the author. Likewise, the authors of history, literature, and other books — the huge literary collections are replete with data recording various aspects of life in different ages, providing every researcher with vast material to draw from. You will not find a nation that cared for collecting information on such a large scale as happened with this nation, not to mention its attention to the aspect of verifying this information. Muslim scholars early on recognized this pillar. Al-Ḥakīm al-Tirmidhī (d. approx. 295 AH) devoted a full chapter in his book Nawādir al-Uṣūl titled "On Restricting Knowledge by Writing."<sup>16</sup>

<sup>16</sup> Al-Tirmidhī, M. A. (n.d.). Nawādir al-uṣūl.

**Biographical note:** Abū 'Abd Allāh Muḥammad ibn 'Alī ibn al-Ḥusayn al-Tirmidhī, known as al-Ḥakīm al-Tirmidhī, a scholar of Ahl al-Sunnah wa al-Jamā'ah and a prominent figure of Sunni mysticism in the 4th century AH. He was among the leading shaykhs of Khurāsān. He met Abū Turāb al-Nakhshabī and accompanied Abū 'Abd Allāh ibn al-Jalā' and Aḥmad ibn Khaḍrawayh. He died around 293 AH. His works include Nawādir al-Uṣūl fī Aḥādīth al-Rasūl, Al-Furūq, Gharṣ al-Muwaḥḥidīn, Al-Riyāḍah wa Adab al-Nafs, and Al-Ṣalāh wa Maqāṣiduhā.<sup>17</sup>

<sup>17</sup> Al-Ziriklī, Al-a'lām.

Al-Khaṭīb al-Baghdādī (d. 463 AH) wrote his book Taqyīd al-'Ilm (Restricting Knowledge), which he dedicated to this issue.<sup>18</sup>

<sup>18</sup> Al-Khaṭīb al-Baghdādī. (n.d.). Taqyīd al-'ilm.

**Biographical note:** He is: Abū Bakr Aḥmad ibn 'Alī ibn Thābit ibn Aḥmad ibn Mahdī al-Baghdādī. Born in 392 AH, he grew up in a pious religious environment in the village of Darzījān in Iraq. He began his scholarly journey at a young age, hearing ḥadīth when he was

ten. He traveled to Basra, Nīsābūr, Syria, Mecca, and other lands, studying under leading scholars of his time, including Abū al-Ṭayyib al-Ṭabarī, Abū Ishāq al-Shīrāzī, Abū al-Ḥusayn al-Muḥāmīlī, and Abū Naṣr ibn al-Ṣabbāgh. He left a wealth of works demonstrating his abundant knowledge and excellence, including *Al-Kifāyah fī ‘Ilm al-Riwāyah*, *Al-Faqīh wa al-Mutafaqqih*, *Iqtidā’ al-‘Ilm al-‘Amal*, and *Tārīkh Baghdād*. He died in Baghdad in 463 AH.<sup>19</sup>

<sup>19</sup> Al-Dhahabī, *Siyar*, p. 270; Al-Dhahabī, M. A. (2009). *Tadhkirat al-ḥuffāz*. Dār al-Kutub al-‘Ilmiyyah, p. 1135.

Following their example, Ibn ‘Abd al-Barr (d. 463 AH) did the same in his book *Jāmi‘ Bayān al-‘Ilm wa Faḍlihī*.<sup>20</sup>

<sup>20</sup> Ibn ‘Abd al-Barr, Y. (1982). *Jāmi‘ bayān al-‘ilm wa faḍlihī* (2nd ed.). Dār al-Kutub al-Islāmiyyah.

**Biographical note:** He is: Abū ‘Umar, Yūsuf ibn ‘Abd Allāh ibn Muḥammad ibn ‘Abd al-Barr ibn ‘Āṣim al-Namarī al-Andalusī. Born in Cordoba in 368 AH, he received knowledge from prominent scholars of his time in various cities of Andalusia. He heard from Sa‘īd ibn Naṣr, ‘Abd al-Wārith ibn Sufyān, Abū al-Walīd al-Bājī, and others. His beneficial scholarly works include *Al-Tamhīd limā fī al-Muwatta’ min al-Ma‘ānī wa al-Asānīd*, *Jāmi‘ Bayān al-‘Ilm wa Faḍlihī*, *Al-Istī‘āb fī Ma‘rifat al-Aṣḥāb*, *Al-Durar fī Ikhtisār al-Maghāzī wa al-Siyar*, and *Al-Istidhkār*. He died in Shāṭibah (Játiva) in 463 AH.<sup>21</sup>

<sup>21</sup> Ibn Khallikān. (n.d.). *Wafayāt al-a‘yān*, p. 66; al-Dhahabī, *Siyar*, p. 157.

### 3.2 The Methodology of Deriving Rulings Among Scholars of Uṣūl al-Fiqh

The science of uṣūl al-fiqh (principles of Islamic jurisprudence) is among the greatest of the religious sciences, the most esteemed in rank, and the most beneficial. It is the examination of the legal evidences from the perspective of how rulings are derived from them. The beginnings of this methodology trace back to the era of the Companions, who established the controls by which rulings are derived. Historians of this science transmit "that they used to compare similar things to similar ones, and analogize examples to their counterparts, with consensus among them and their acceptance of each other's reasoning in that. For many incidents after his time, may God's prayers and peace be upon him, were not encompassed by the established texts, so they compared them to what was established and attached them to what was textually ruled upon, with conditions for such attachment that validate the equality between the two similar things or counterparts, until it became overwhelmingly probable that

the ruling of God Almighty concerning them was one. This became a legal proof by their consensus, and it is al-qiyās (analogy)."<sup>22</sup>

<sup>22</sup> Ibn Khaldūn, A. R. (n.d.). Muqaddimat Ibn Khaldūn. Mu'assasat al-A'lamī lil-Maṭbū'āt, p. 453.

Uṣūlī scholars traced qiyās back to a type of precise scientific induction based on two principles upon which the inductive method in the modern era is founded: the principle of causality (al-‘illah) and the principle of the consistent occurrence of events (al-ittirād). They considered al-‘illah (the effective cause) the most important pillar of qiyās, and upon it depends the extension of the ruling from the original case (aṣl) to the subsidiary case (far‘). For this reason, the uṣūlī scholars thoroughly investigated and analyzed the concept of ‘illah, detailing its conditions, rulings, and how to identify it. They addressed this in what is known among them as masālik al-‘illah (paths to identifying the cause), the most important of which include: al-sabr wa al-taqṣīm (analysis and division), al-ṭard wa al-‘aks (coextensiveness and co-exclusiveness), and tanqīḥ al-manāt (refining the operative cause). They were influenced by the methodology of the Holy Quran, as the styles of Quranic argumentation are varied, and the methods of inference and proof are numerous to clarify the truth to different types of interlocutors, to refute opponents, and to expose the falsehood of their beliefs and the invalidity of the proofs they clung to. Ibn Taymiyyah holds that the Quran is what provides us with forms of inference and presents the scale (mīzān). He divided the forms of Quranic inference into two types: signs (āyāt) and analogy (qiyās).<sup>23</sup>

<sup>23</sup> Al-Nashshār, A. S. (1947). Manāhij al-baḥṭh ‘inda mufakkirī al-Islām (1st ed.). Dār al-Fikr al-‘Arabī, pp. 219-228.

Examples of this include God Almighty's saying:

"And he presents for Us an example and forgets his [own] creation. He says, 'Who will give life to bones while they are disintegrated?' Say, 'He will give them life who produced them the first time; and He is, of all creation, Knowing. [It is] He who made for you from the green tree fire, and then from it you ignite.' Is not He who created the heavens and the earth able to create the likes of them? Yes, [it is so]; and He is the Knowing Creator" (Qur'an, 36:78-81).

In these verses, a comparison and likeness are drawn between the origin of creation and its recreation. This is what is called qiyās al-tamthīl (analogy of representation): attaching one of two things to the other, whereby the arguer compares the matter he claims to a matter known

to his interlocutor, or to an axiomatic matter not denied by minds, and clarifies the common ground between them.

### 3.3 Implied Syllogisms (Al-Aqyisah al-Idmāriyyah)

These are syllogisms where one of the premises is omitted, while there is an indication of what is omitted. This is a common style in the Quran. Al-Ghazālī mentioned that the Quran is based on ellipsis and conciseness, meaning in the form of syllogisms. Consider His Almighty's response to the Christians who claim that Jesus is the son of God because he was created without a father: "Indeed, the example of Jesus to Allah is like that of Adam. He created Him from dust; then He said to him, 'Be,' and he was. The truth is from your Lord, so do not be among the doubters" (Qur'an, 3:59-60). The context of the proof: Adam was created without a father or mother, and Jesus was created without a father. If Jesus were a god because of that, then Adam would be more deserving. But Adam is not a son nor a god by your admission, so Jesus is also not a son nor a god.<sup>24</sup>

<sup>24</sup> Abū Zahrah, M. (n.d.). Muḥammad al-mu'jizah al-kubrā. Dār al-Fikr al-'Arabī, p. 398; see also al-Jalīlī, A. M. (2022). Al-ma'rifah fī al-Qur'ān al-karīm wa atharuhā fī shiyāghat manāhiḥ al-baḥth 'inda 'ulamā' al-Muslimīn. Sūdānāyl. Retrieved from <https://www.soudanile.com>

### 3.4 Al-Sabr wa al-Taqsīm (Analysis and Division)

This is one of the most famous masālik al-'illah among the uṣūlī scholars and a chapter of dialectic used by an arguer as a means to invalidate the claim of his opponent. This is done by enumerating the attributes or divisions of the subject under debate, then demonstrating that none of these divisions or attributes possess a characteristic that would justify accepting the claim within it. Thus, the opponent's claim is invalidated through this logical enumeration of the subject. An example of this methodology from the Quran is God Almighty's saying: "[There are] eight mates of the sheep, two and of the goats, two. Say, 'Has He forbidden the two males or the two females or that which the wombs of the two females contain? Inform me with knowledge, if you should be truthful.' And of the camels, two and of the cattle, two. Say, 'Has He forbidden the two males or the two females or that which the wombs of the two females contain? Or were you witnesses when Allah charged you with this? Then who is more unjust than one who invents a lie about Allah to mislead the people without knowledge? Indeed, Allah does not guide the wrongdoing people'" (Qur'an, 6:143-144).

Al-Suyūfī (1974, p. 55) says:

"When the disbelievers prohibited some male cattle at times and some females at other times, God Almighty refuted them by way of al-sabr wa al-taqṣīm. He said: 'Creation belongs to God Almighty. He created from each pair mentioned, male and female. So from where did the prohibition of what you mentioned come? What is its cause (‘illah)? The matter is none other than that [the prohibition] is either due to masculinity, femininity, the womb's encompassment of both, or it is unknown, a devotional matter (ta‘abbudī) taken from God Almighty. And taking from God Almighty is either through revelation and sending a messenger, or hearing His speech and witnessing its reception from Him. This is the meaning of His saying: "Or were you witnesses when God charged you with this?" These are the possible bases for prohibition; it does not go beyond one of them. The first would necessitate that all males be forbidden. The second would necessitate that all females be forbidden. The third would necessitate forbidding both types together. Thus, what they did, forbidding some in one case and some in another, is invalid, because the cause, based on what was mentioned, would necessitate absolute prohibition. And taking [it] from God without intermediary is false. When all this is invalidated, the claim is proven, namely that what they said is a lie against God.'"<sup>25</sup>

<sup>25</sup> Al-Suyūṭī, J. D. (1974). *Al-itqān fī ‘ulūm al-Qur’ān* (A. F. Ibrāhīm, Ed.). Egyptian General Book Authority, p. 55. (Original work published 911 AH); see also Zāhir, A. (1984). *Manāhij al-jadal fī al-Qur’ān al-karīm*, p. 74.

These are some examples. The Holy Quran encompasses all types of proofs and evidences. There is no proof, indication, division, or warning built upon the universals of rational and transmitted knowledge except that the Book of God has spoken of it, but it presents it according to the customary ways of the Arabs, not with the precise methods of the scholastic theologians.<sup>26</sup>

<sup>26</sup> Al-Aṣṣfahānī, A. Q. (n.d.). *Muqaddimah fī al-tafsīr*, pp. 41-42.

#### **4.0 THE IMPACT OF THE HOLY QURAN ON THE FORMATION OF RESEARCH METHODOLOGIES IN THE EXPERIMENTAL SCIENCES**

The importance of this methodology lies in it being the safe path to reaching correct knowledge. Islam has its special concern with seeking knowledge, just as it demands verification and certainty in it. In this regard, it is transmitted from Muslim scholars: "If you are a narrator, [ensure] authenticity; if you are a claimant, [provide] proof." The experimental scientists among them charted their methodology for discovering and verifying scientific

truths, guided by the scientific indications in the Holy Quran, which nurtured in them the scientific inclination and instilled in their souls a strong tendency towards research, observation, examination, and experimentation to encompass medicine, engineering, algebra, astronomy, and other fields. We can mention some Muslim scholars who rendered great services to humanity in this field: the scholar, physician, and philosopher Ibn Sīnā (Avicenna) through his book *Al-Qānūn fī al-Ṭibb* (The Canon of Medicine); Abū Bakr al-Rāzī through his book *Al-Ḥāwī*; among the great chemists, Jābir ibn Ḥayyān; and among the distinguished physicists, Al-Ḥasan ibn al-Haytham, who is considered the first to apply mathematics to the study of natural phenomena.

Jābir ibn Ḥayyān spoke about what he called *al-durba*, by which is meant today experimentation, considering it a necessary condition for the establishment of knowledge. He said in this regard: "Whoever is *darban* (experienced/experimented) is truly a scholar, and whoever is not *darban* is not a scholar. Sufficient for you is *al-durba* (conducting experiments) in all crafts: the experienced craftsman becomes skilled, while the inexperienced remains idle." He also said: "The duty of those engaged in chemistry is work and conducting experiments, and knowledge is only obtained through it." He also spoke about the necessity of defining meanings, or what we today call defining concepts and terms, and wrote a treatise on this entitled *Al-Ḥudūd* (The Boundaries). He refused to accept any truth transmitted from others unless its correctness was experimentally verified, and he demanded the establishment of proof and evidence for any claim a person makes. Among the important foundations upon which he built his methodology was emphasizing the guarantee of scientific integrity and objectivity. He said: "Let our purpose in all that we investigate and examine be the application of justice, not following whims, and let us seek in all that we distinguish and critique the pursuit of truth, not inclining towards opinions." Jābir ibn Ḥayyān said in the first article of his book *Al-Khawāṣṣ al-Kabīr*: "You must know that we mention in these books only the properties of what we have seen, not what we have heard or what was said to us or what we have read, after having tested and experimented with it. Whatever is confirmed to us by sensory observation we record, and whatever is invalid we reject."<sup>27</sup> What he mentioned are precisely the foundations of the experimental method known today: hypothesis, observation, experimentation, and conclusion.

<sup>27</sup> Al-Nashshār, *Manāḥij*, p. 261; see also Muqallid, S. R. M. (n.d.). *Ta'ṣīl al-manhaj al-tajrībī fī al-Qur'ān al-karīm*. Majallat al-Dirāsāt al-'Arabiyyah, Jāmi'at al-Jawf / Jāmi'at al-Minyā.

The assertion that the source of this contemporary civilization based on the experimental method is the Muslims is a solid statement, not straying from or exceeding scientific and historical truth. Dr. Sāmī al-Nashshār affirms this meaning in his various researches, stating that the thinkers of Islam, representing the spirit of Islam, did not accept Aristotelian logic because it does not recognize the experimental method, and that the Muslims were the ones who established the experimental method with all its elements, and that the source of European civilization is the Arab experimental method.

"What we owe to Arab science is not the discoveries of innovative theories; science owes more than this to Arab culture; it owes its very existence. Indeed, the methods of research, the collection and systematization of positive knowledge, the precise methods of science, deep observation, and experimental investigation, all these were foreign to the Greek temperament. What we call science appeared in Europe as a result of a new spirit in research and coercive methods of inquiry: the method of experiment, observation, measurement, and the development of mathematics in a form unknown to the Greeks. This spirit and these methods were introduced to the European world by the Arabs."<sup>28</sup>

<sup>28</sup> Al-Nashshār, *Manāhij*, pp. 291-292; see also Briffault, R. (1919). *The making of humanity*. London, p. 191.

In the Holy Quran, there are numerous evidences that regulate the foundations of experimental scientific research. In Surat Al-Baqarah, God Almighty said:

"Or [consider] like the one who passed by a township which had fallen into ruin. He said, 'How will Allah bring this to life after its death?' So Allah caused him to die for a hundred years; then He revived him. He said, 'How long have you remained?' He said, 'I have remained a day or part of a day.' He said, 'Rather, you have remained a hundred years. Look at your food and your drink; it has not changed with time. And look at your donkey; and We will make you a sign for the people. And look at the bones [of this donkey]; how We raise them and then cover them with flesh.' And when it became clear to him, he said, 'I know that Allah is over all things competent'" (Qur'an, 2:259).

It is mentioned in the interpretation of Sheikh ‘Abd al-Raḥmān ibn al-Sa‘dī:

"This man passed by a township that was completely destroyed, collapsed upon its roofs. Its people had died, and its structures were in ruins. He said, out of doubt and improbability, and some say out of wonder and inquiry, 'How will God bring this to life after its death?' meaning: this is far-fetched in its current state, and other places like it, according to what arose in his

heart at that moment. So God willed mercy for him and for the people, so He caused him to die for a hundred years. He had a donkey with him, so He caused it to die as well, and he had food and drink with him. God preserved them in their state throughout this long period. When the hundred years had passed, God (Exalted) resurrected him and said to him: 'How long have you remained?' He said: 'I have remained a day or part of a day,' based on what he assumed. So God (Exalted) said to him: 'Rather, you have remained a hundred years.'"<sup>29</sup>

<sup>29</sup> Al-Sa'dī, A. R. (1426 AH). *Taysīr al-karīm al-raḥmān fī tafsīr kalām al-mannān*. Dār Ibn al-Jawzī, p. 114.

This verse is among the verses of scientific miracle in the Holy Quran. It contains the specifications of a precise, practical scientific experiment controlled from all aspects. Below is an explanation and detailing of this:

**The Research Question:** "How will God bring this to life after its death?" The question asks about the capable power that can bring this township to life after its destruction.

**The Experiment:** How can we be sure of the passage of this time upon the food and drink? Here comes the role of the controlled experiment, which is the transformation of the donkey into decayed bones. Therefore, God Almighty said to the man: "And look at your donkey; and We will make you a sign for the people. And look at the bones [of this donkey], how We raise them and then cover them with flesh." So that the man could be certain of the passage of the hundred years, and that these bones were indeed those of his donkey, God Almighty showed him how He gathers the scattered bones, then covers them with flesh, skin, and hair, and life courses through the donkey, confirming that it is his donkey.

The man looks around him and sees that the sun's position has changed from the day of his question ("How will God bring this to life after its death?"), that the food and drink have not changed, and that the donkey is his donkey. Thus, the practical experimental experiment was completed with all its practical elements.

**The General Conclusion from the Experiment:** The final, confirmed result comes: that God, glorified and exalted, is capable of bringing the township and other things to life after their death: "He said, 'I know that Allah is over all things competent'" (Qur'an, 2:259).

God Almighty said: "And [mention] when Abraham said, 'My Lord, show me how You give life to the dead.' [Allah] said, 'Have you not believed?' He said, 'Yes, but [I ask] only that my heart may be satisfied.' [Allah] said, 'Take four birds and commit them to yourself. Then, on

every mountain, put on them a portion; then call them, they will come to you in haste. And know that Allah is Exalted in Might and Wise" (Qur'an, 2:260).

He said: "Have you not believed?": The question. He said: "Take four birds and commit them to yourself. Then, on every mountain, put on them a portion; then call them, they will come to you in haste.": The experiment. And the result: "And know that Allah is Exalted in Might and Wise."

The Holy Quran teaches us the importance of experimentation in the cosmic sciences and lays down the foundations of scientific research: formulating the research question, the observation leading to it, the research experiment, reaching the general conclusion, commenting on it, benefiting from it, and applying its results in people's lives.<sup>30</sup>

<sup>30</sup> Abū al-‘Aṭā, N. K. (2019). *Al-ḍabṭ al-‘ilmī al-tajrībī fī al-Qur’ān al-karīm — ru’yah jadīdah. Al-I‘jāz al-‘ilmī fī al-Qur’ān wa al-Sunnah.*

Through presenting these methodologies of Muslim scholars, the esteemed position that knowledge holds in the project of civilization becomes clear to us.

## **5.0 THE PILLARS OF KNOWLEDGE AMONG MUSLIM SCHOLARS**

### **5.1 Collection of Data**

Among the methodological rules in scientific research for Muslim scholars is reliance on primary sources. This is a fundamental rule for Muslims, as it is established in the history of Islam that Abū Bakr and ‘Umar (may God be pleased with them), when one of them encountered a matter, would first look into the Book of God, Almighty and Majestic, as the primary source of legislation. If he did not find therein what would adjudicate it, he would look into the Sunnah of the Messenger of God (peace be upon him) as the second source. If he did not find it therein, he would summon the Companions and ask them. Muslim scholars after them adopted this as a scientific methodology in research, by referring to the original sources in every discipline.

Among their scientific methodologies in collecting information was also not discriminating between Islamic and non-Islamic sources. Their principle in this regard was: "Wisdom is the lost property of the believer; wherever he finds it, he is most deserving of it," accompanied by the lofty Islamic ethics enjoined by our true religion. The relationship of Muslim scholars with their non-Muslim counterparts in the field of research was not based only on material foundations represented by reliance on their writings, but rather was also based on ideal human principles represented by appreciation, respect, and recognition of high status. This is

evident in the distinguished titles they would give them, including the title "al-Fāḍil" (The Virtuous) given by Ibn al-Bayṭār to the Greek physician Galen; the title "al-Ḥakīm al-Fāḍil" (The Virtuous Sage) given to him by Ibn Sīnā; and the title "Imām al-Ṭibb" (The Imam of Medicine) given to him by Abū al-Ḥasan ‘Alī al-Fārisī, as well as by Ibn Khaldūn.<sup>31</sup> Examples of this are countless in all scientific fields.

<sup>31</sup> Ḥammāsh, K. (1999). A‘dāf al-baḥṭh al-‘ilmī wa mabādī’ al-kitābah ‘inda al-Muslimīn. Majallat Jāmi‘at al-Amīr ‘Abd al-Qādir, 14, p. 323.

They also cared about collecting data, whether that data was poetry, as transmitted by the leading imams of the Arabic language in their books; or the Arabs' methods of expression, as transmitted by Sībawayh in his book and others; or narrations of ḥadīth and the reports of the Companions and Followers, as done by the authors of the major collections of sunan and masānīd and all that Muslims established in the principles of ḥadīth science as a rigorous methodology for scrutinizing reports and precise conditions for their acceptance, following the example of the imams of al-jarḥ wa al-ta‘dīl. Their content was immense data on Islamic personalities from the era of the Companions up to the era of the author. Likewise, the authors of history, literature, and other books — the huge literary collections are replete with data recording various aspects of life in different ages, providing every researcher with vast material to draw from. You will not find a nation that cared for collecting information on such a large scale as happened with this nation, not to mention its attention to the aspect of verifying this information. Muslim scholars early on recognized this pillar. Al-Ḥakīm al-Tirmidhī (d. approx. 295 AH) devoted a full chapter in his book Nawādir al-Uṣūl titled "On Restricting Knowledge by Writing." Al-Khaṭīb al-Baghdādī (d. 463 AH) wrote his book Taqyīd al-‘Ilm (Restricting Knowledge), which he dedicated to this issue. Following their example, Ibn ‘Abd al-Barr (d. 463 AH) did the same in his book Jāmi‘ Bayān al-‘Ilm wa Faḍlihī.

## 5.2 Documentation of Information

Documentation is considered one of the principles of writing among Muslim scholars, embodied in trustworthiness (amānah). This is a general legal principle approved by the Wise Lawgiver. God Almighty said: "Indeed, We offered the Trust to the heavens and the earth and the mountains, and they declined to bear it and feared it; but man [undertook to] bear it. Indeed, he was unjust and ignorant" (Qur'an, 33:72).

Among the most prominent Quranic directives for adopting this scientific principle is what came in the Mighty Book of God. He Almighty said: "And do not pursue that of which you have no knowledge. Indeed, the hearing, the sight and the heart, about all those [one] will be questioned" (Qur'an, 17:36). It is mentioned in the interpretation "Ma'ālim al-Tanzīl": "Qatādah said: Do not say, 'I saw' when you did not see it, 'I heard' when you did not hear it, and 'I knew' when you did not know it. Mujāhid said: Do not accuse anyone of something you have no knowledge of. Al-Qutaybī said: Do not follow it by guesswork and conjecture. Linguistically, it means following the trace. It is said: 'I followed (qafawtu) so-and-so' meaning I followed his trace, and from this the rhyme (qāfiyah) is named because of their following the traces. Al-Qutaybī said: It is derived from al-qafā (the back of the neck), as if he follows matters from behind, tracking and recognizing them. The true meaning is: Do not speak, O man, by guesswork and conjecture."<sup>32</sup>

<sup>32</sup> Al-Baghawī. (n.d.). Tafsīr ma'ālim al-tanzīl. Al-Mawsū'ah al-Qur'āniyyah, p. 525.

In the field of research, the most important methodological rule by which a researcher expresses the possession of the attribute of scientific trustworthiness is "documentation," which means mentioning the sources relied upon in accomplishing their work in order to impart scientific truthfulness to it.

The Islamic nation became known for the chain of transmission (isnād) of sciences, foremost and greatest of which is the science of ḥadīth, to the extent that Ibn al-Mubārak said: "The chain of transmission is part of the religion; were it not for the chain of transmission, anyone would say whatever they wished."<sup>33</sup> Isnād terminologically is: "The chain of narrators who transmitted the report, one after another, until they connect the narration to its original source."

<sup>33</sup> Muslim ibn al-Ḥajjāj. (2010). Ṣaḥīḥ Muslim. Dār al-Kutub al-'Ilmiyyah, p. 15.

Isnād in the Islamic methodology is considered the backbone of the report. It is the means for criticizing reports, because it contains what indicates their origin, and it is possible to control their criticism and examination better than reports lacking a chain of transmission. The continuous, authentic isnād is among the characteristics of the Islamic nation. Its advantage is that it gives reassurance and confidence in what is transmitted through this path, as it represents the testimony of a group of upright, trustworthy, and precise men, which confirms the authenticity and accuracy of the transmitted report.

Due to the importance of isnād, its use was no longer limited to prophetic ḥadīth; rather, its use became common in other sciences such as exegesis (tafsīr), history, and literature, until it came to represent the dominant characteristic of the methodology for recording various Islamic sciences. A number of contemporary historians have realized the positives of this methodology and the precision of its critical rules. They called in their writings for emulating it, and they quoted chapters from the works of scholars of terminology such as al-Khaṭīb al-Baghdādī and Ibn ‘Abd al-Barr, using the terminology employed by ḥadīth scholars.<sup>34</sup>

<sup>34</sup> Amḥazūn, M. (n.d.). Manhaj al-tawthīq wa ithbāt al-ḥaqā’iq fī dirāsāt al-tārīkh al-Islāmī.

In our present age, documenting the scientific source from which we quote a text or idea is considered among the most important principles and ethics of scientific research.

### 5.3 Linking Knowledge to Reality

Realism is a characteristic that has marked Islamic thinking in all cognitive fields within its horizon. It is a realism we encounter at various levels, appearing in the avoidance of delving into problems that take on a hypothetical dimension, appearing in opposition to mythological and pagan interpretations, and appearing in subjecting the senses to test the truth of sensory issues, and subjecting revelation to test the truth of unseen matters. This established rule is expressed by Imam Mālik, who said: "I detest speech about religion, and the people of our city have always detested it and forbidden it... I do not like speech except regarding what has practical application beneath it."<sup>35</sup>

<sup>35</sup> Ibn ‘Abd al-Barr, Jāmi‘ bayān al-‘ilm wa faḍlihī, p. 411.

The implication of this rule is that any intellectual effort not related to practical issues — engaging in it is a kind of illusion. Therefore, he rejected the method of the scholastic theologians (mutakallimūn) who spoke on creedal matters in which they contradicted the Quranic methodology, and he called for exertion (ijtihād) in matters that touch people's reality. Hence, the famous rule among jurists: "Leave it until it happens" (da‘hā ḥattā taqa‘), because once an event occurs, it is studied within the framework of its objective conditions and tangible circumstances.

Muslim scholars paid attention to this pillar. We find Imam al-Khaṭīb al-Baghdādī dedicating an entire book to it, titled Iqtidā’ al-‘ilm al-‘amal (Knowledge Requires Action), in which he narrated a large number of ḥadīths, reports, and sayings of the predecessors, all focusing on the importance of knowledge yielding beneficial action in reality. Although the basis of this book and these texts is religious knowledge, the same principle applies to all sciences,

especially since the prophetic ḥadīths came with the word "knowledge" generally, without specifying it as religious knowledge.

Imam al-Shāṭibī says in his book *Al-Muwāfaqāt*:

"Every issue that is not built upon action — discussing it is discussing something whose approval no legal evidence indicates. By action, I mean action of the heart and action of the limbs, insofar as it is legally required. The evidence for this is the inductive study of the Sharia; for we see the Lawgiver disregarding what does not lead to action required of the responsible person. In the Holy Quran: 'They ask you about the new moons. Say, 'They are measurements of time for the people and for Hajj'' (Qur'an, 2:189)."

If we look at our world today, we will find that rising nations are those that are not satisfied with theoretical sciences alone, but rather link those sciences with applied sciences, making their cognitive repository a resource for building various technologies. Thus, theoretical knowledge becomes the foundation for building applied forms that benefit humanity in this world.

## 6.0 CONCLUSION

The research concludes that the Holy Quran did not merely provide Muslims with a collection of knowledge and directives; rather, it was instrumental in forming an integrated methodological system for the acquisition, evaluation, and application of knowledge. This system is anchored in verification, observation, inference, critique, the integration of diverse knowledge sources, and a strict adherence to ethical values. This profound influence was clearly reflected in the evolution and diversification of research methodologies among Muslim scholars. Accordingly, the following findings and recommendations are presented:

### 6.1 Research Findings

1. The study demonstrates that the Holy Quran made a fundamental contribution to establishing the epistemological and research methodology among Muslims. It achieved this by directing humanity toward observation, reflection, and contemplation, and by firmly rejecting the acceptance of information or judgments without evidence or verification.
2. The research uncovers the plurality of knowledge sources within the Quranic paradigm. The Quran did not confine the acquisition of knowledge to a single source; instead, it encouraged the utilization of revelation, reason, sensory perception, observation, and reflection upon the universe and the human self, weaving them into an integrated epistemological framework. Within this Islamic perspective, reason was never positioned as an adversary to revelation, but rather as an essential tool for comprehending the text, examining evidence, and deriving rulings within the boundaries of legitimate parameters.
3. It is evident that the principle of verification and validation constitutes one of the most vital methodological foundations established by the Quran. This is manifested in the prohibition of following baseless conjecture, the mandate to verify reports, and the call to establish proof

and rational argument. Furthermore, the Quran laid the groundwork for critical thinking by inviting reflection upon evidence and the discussion of ideas through rational argumentation, thereby fostering a critical scientific mindset among Muslims.

4. The research confirms that Quranic directives were not confined to abstract theoretical principles; rather, they were actively translated into the scientific practices of Muslims. This practical application led to the emergence of rigorous methodologies in documentation, critique, and inference, which significantly expanded the horizons of knowledge and diversified the fields of scientific inquiry among Muslim scholars.

## **6.2 Recommendations**

Any project of scientific renaissance in the Arab and Islamic world must be accompanied by the Quranic vision of knowledge — a vision that accommodates the diverse orientations of humanity and distinguishes its concept, nature, and methodology from any purely human approach, harmoniously uniting revelation and reason, experience, theory, and practice. By adopting this vision, Arabs and Muslims can meaningfully contribute to the contemporary scientific renaissance, guiding its trajectory to spare humanity from the destruction and devastation implied by the philosophy of modern science. Therefore, the following recommendations are proposed:

- **Re-reading the Islamic Scientific Heritage:** There is a pressing need for a methodological re-reading of the Islamic scientific heritage to uncover the Quranic foundations underlying many of the rules of critique, inference, and documentation developed by Muslim scholars, rather than merely showcasing their scientific results in isolation from their epistemological origins.
- **Applying Quranic Methodological Values in Contemporary Research:** Scholars should benefit from the methodological values established by the Quran, particularly verification, objectivity, justice, scientific integrity, the rejection of blind imitation, and the avoidance of building judgments on unreliable assumptions (such as forcing links between Quranic verses and ever-changing scientific theories). Instead, the focus should remain on constant Quranic methodological principles, which preserves the sanctity of the Quranic text and protects Quranic studies from forced or anachronistic interpretations.
- **Curriculum Integration:** It is highly recommended to incorporate the study of these historical methodologies into our modern university curricula. This will strengthen the interconnected links of our history and achieve civilizational continuity across the generations of our nation.
- **Beyond Nostalgia:** The objective of this research is not to merely boast about the glories of our past civilization. Such nostalgia will yield no benefit unless it is accompanied by a serious, collective will to re-embodiment these foundational pillars in our modern construction of knowledge. It is a long and arduous path that requires us to overcome numerous obstacles and properly arrange our priorities. We must revive our societies through a civilizational project that possesses a clear vision for transforming knowledge into a material reality, enabling us to return to fulfilling the role that God has willed for us.

*Praise be to Allah, the First and the Last*

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## TRANSLITERATION

### a. Consonant

| Arabic | Latin   | Example  |          |
|--------|---------|----------|----------|
|        |         | Arabic   | Latin    |
| ء      | ‘       | فَأْر    | fārun    |
| أ      | (a,i,u) | أَحْكَام | aḥkāṃ    |
| ب      | b       | بَاب     | bābun    |
| ت      | t       | تَمْر    | tamr     |
| ث      | th      | ثَلَاث   | thalātha |
| ج      | j       | جَبَل    | Jabal    |
| ح      | ḥ       | حَدِيث   | ḥadīth   |
| خ      | kh      | خَالِد   | khālīd   |
| د      | d       | دِين     | dīn      |
| ذ      | dh      | مَذْهَب  | madhhab  |
| ر      | r       | رَاهِب   | rāhib    |
| ز      | z       | زَكِي    | zakī     |
| س      | s       | سَلَام   | salām    |
| ش      | sh      | شَرَب    | sharaba  |
| ص      | ṣ       | صَدْر    | ṣodrun   |
| ض      | ḍ       | ضَار     | ḍār      |
| ط      | ṭ       | طَهْر    | ṭahura   |
| ظ      | ẓ       | ظَهْر    | ẓohr     |
| ع      | ‘       | عَبْد    | ‘abdun   |
| غ      | gh      | غَيْب    | ghayb    |
| ف      | f       | فَاتِحَة | Fātihah  |
| ق      | q       | قَبَس    | qabas    |
| ك      | k       | كِتَاب   | kitāb    |

|    |   |        |                     |
|----|---|--------|---------------------|
| ل  | l | لَيْل  | layl                |
| م  | m | مُنِير | munīr               |
| ن  | n | نِقَاب | niqāb               |
| و  | w | وَعْد  | wa <sup>c</sup> ada |
| هـ | h | هَدَف  | hadaf               |
| ي  | y | يُوسُف | Yūsuf               |

#### b. Short Vowel

| Arabic | Latin | Example |         |
|--------|-------|---------|---------|
|        |       | Arabic  | Latin   |
| ا      | a     | كَتَبَ  | kataba  |
| ي      | i     | عَلِمَ  | ‘alima  |
| و      | u     | غُلِبَ  | ghuliba |

#### c. Long Vowel

| Arabic | Latin | Example           |               |
|--------|-------|-------------------|---------------|
|        |       | Arabic            | Latin         |
| ا ، آ  | ā     | عَالَمٌ ، فَتَى   | ‘ālam , fatā  |
| ي      | ī     | عَلِيمٌ ، دَاعِي  | ‘alīm , dā‘ī  |
| و      | ū     | عُلُومٌ ، أَدْعُو | ‘ulūm , ‘ud‘ū |

#### d. Diphthong

| Arabic | Latin | Example   |        |
|--------|-------|-----------|--------|
|        |       | Arabic    | Latin  |
| أَوْ   | aw    | أَوْلَادٌ | aulād  |
| أَيَّ  | ay    | أَيَّامٌ  | ayyam  |
| إِي    | iy    | إِيَّكَ   | iyyāka |