

**The Impact of the Research of Famous Arab Scientists on
the Life of Humanity**

Prof. Dr Moustafa El-Abdallah Al Kafry

Contents

Abu Ali al-Husayn ibn 'Abdullah ibn al-Hasan ibn 'Ali ibn Sina (Avicenna):	2
Muhammad ibn Musa al-Khwarizmi:	4
Abu Yusuf Ya'qub ibn Ishaq al-Kindi:	4
Fourth: Abu Bakr al-Razi:	5
Fifth: Ibn al-Haytham:	8
VII. Al-Biruni:	9
Seventh: Jaber bin Hayyan:	10
VIII. Ibn al-Nafis:	11
Ninth: Jacob ben Isaac al-Kindi:	12
Tenth – Al-Ghazali:	12

The Impact of the Research of Famous Arab Scientists on the Life of Humanity

Prof. Dr Moustafa El-Abdallah Al Kafry

Civilization has known many great scientists who have actively contributed to the provision of many important scientific achievements in various fields such as physics, mathematics, astronomy, medicine, philosophy, and economics, these achievements that scientists today still rely on as a valuable reference for the development and improvement of science, we will highlight below the life of a group of the most famous Muslim scientists.

The scientific development we are living in our contemporary world is due to the efforts of scientists who left us many scientific researches that were and are still a basic reference for various widespread sciences, and the Arabs had a large share of these achievements, as there are many Arab scientists who have had a clear impact on the life of humanity, and we will try to identify the most prominent of them below.

[Abu Ali al-Husayn ibn Abdullah ibn al-Hasan ibn Ali ibn Sina \(Ibn Sina\)](#)

Born on August 21, 980, the famous scholar Ibn Sina (Abu Ali al-Husayn ibn Abdullah ibn al-Hasan ibn Ali) was known as the Sheikh Raisi, nicknamed the West as the father of modern medicine, and the emir of physicians in the Middle Ages.

From a young age, Avicenna had a sharp intelligence, unlimited genius in learning and teaching literature, the Holy Qur'an, receiving the sciences of literature, medicine, jurisprudence, and philosophy, and studied under the Bukhari scholar Abu Abdullah al-Naili, and witnessed in his father's palace, many literary debates that influenced him positively. He studied medicine at the age of thirteen, and his first medical achievement was the treatment of the

Emir Noah bin Mansour Al-Samandi from his disease, which doctors were unable to treat at the time, and he was the first to discover the parasite of Encelstoma, the first to find a suitable drug for meningitis, and the first to detect ways of infection for epidemic diseases such as measles and smallpox.

Avicenna has completed many works, the most important of which are:

1. The book Paying the Total Harms of Human Bodies,
2. The Book of Goling, a Treatise on the Anatomy of the Law,
3. Book of Law in Medicine,
4. Cardiac Medicines Book,
5. Book of Divine Science,
6. Survival in logic and theology,
7. psychiatry
8. housekeeping,
9. Dependencies of Natural Science,
10. A message on the politics of the body and the virtues of drinking,
11. A message in the upper bodies and the causes of lightning and thunder,
12. Message in space,
13. Message in plant and animal,
14. Argus in anatomy,
15. Euclid's abbreviation,
16. Artemic abbreviation,
17. Essay Collectors of Musicology,

The benefits of time as presented by Avicenna and other important books.

Avicenna says, "Time forgets the pain and extinguishes revenge, soothes anger and stifles hatred, so that the past becomes as if it were not.

Muhammad ibn Musa al-Khwarizmi:

Muhammad ibn Musa al-Khwarizmi was born in the city of Khwarizm in Khorasan province in 164 and died in 232, and this scientist is famous for the field of mathematics, geography, and astronomy. Al-Khwarizmi completed most of his research between 813 and 833 at Dar al-Hikma in Baghdad, founded by Caliph al-Ma'mun, (since al-Ma'mun appointed him at the head of his bookcase, and entrusted him with collecting and translating Greek books, al-Khwarizmi took advantage of the books that were available in al-Ma'mun's treasury and studied mathematics, geography, astronomy, and history, in addition to being briefed on Greek and Indian knowledge.)¹

Al-Khwarizmi has completed many works, the most important of which are:

1. The book of algebra and the interview in which he dealt with several topics related to algebra,
2. The book of pictures of the earth in which he drew the first map of the earth,
3. The equation of the second order through which he worked on the development of rules as a method of solving unknown squares in a geometric manner,
4. The trigonometric proportions in which the algorithm presented tables of pockets and shadows of the angles of triangles translated into Latin.

Abu Yusuf Yacoub, son of Isaac al-Kindi:

Abu Yusuf Ya'qub, son of Isaac al-Kindi, was born in 185 and died in 256 in Kufa, (al-Kindi received his initial education in Kufa,

¹ - Success stories and life of the most famous Muslim scholars,
-<https://www.annajah.net/%D9%82%D8%B5%D8%B5-%D9%86%D8%AC%D8%A7%D8%AD-%D9%88%D8%AD%D9%8A%D8%A7%D8%A9-%D8%A3%D8%B4%D9%87%D8%B1-%D8%A7%D9%84%D8%B9%D9%84%D9%85%D8%A7%D8%A1-%D8%A7%D9%84%D9%85%D8%B3%D9%84%D9%85%D9%8A%D9%86-article-25420>

and then moved to Baghdad, where he received the attention of the caliphs al-Ma'mun and al-Mu'tasim, where al-Ma'mun made him the supervisor of the House of Wisdom that had been newly established to translate ancient Greek scientific and philosophical texts in Baghdad, al-Kindi was also known for the beauty of his calligraphy, so that al-Mutawakkil made him his own calligrapher.

Al-Kindi was a scholar of various aspects of thought, and although his works were opposed by the works of Farabi and Avicenna, he was considered one of the greatest Muslim philosophers of his time, and the historian Ibn al-Nadeem said of him "the virtuous of his age and the one of his time in the knowledge of the entire ancient sciences," and the Italian Renaissance scholar Girolamo Cardano considered him one of the greatest of the twelve minds of the Middle Ages.) ²

Al-Kindi excelled in mathematics, physics, chemistry, astronomy, medicine, psychology and music.

Al-Kindi has completed many books and the number of books written by Al-Kindi has reached about 280 books, and those books have been divided into many different fields of science, the most important of which are:

- Nine books on logic,
- Twenty-two books on medicine and philosophy,
- Thirty-two books on engineering,
- Twelve books on physics,

In addition to many books and letters in science translated from Greek, hundreds of manuscripts he wrote in the field of music, and cryptography.

[Fourth: Abu Bakr Al-Razi:](#)

² - Ibid.

Abu Bakr Muhammad ibn Zakaria al-Razi was born in Tehran in 250 and died in 311, and al-Razi was one of the most famous Muslim scholars who lived in the golden age of science, and Abu Bakr al-Razi studied many sciences, most notably medicine, pharmacy, chemistry, astronomy and mathematics, as well as philosophy, literature and logic.

Al-Razi was named the Imam of his time in medicine, and many students from different countries were disciples of him, and he also served as the head of the doctors of Bimarstan al-Rai, and was invited to Baghdad and served as the head of the Pimarstan founded by the Mu'ta'din Billah. Read also: 8 of the most famous books of the scientist Dr. Abu Bakr Al-Razi and Al-Razi presented many important scientific achievements that no one has ever preceded him, where he explained the mechanism of vision with the eye, discovered some chemical processes related to separation and purification such as anatomy and distillation, invented the priming used when performing surgical operations, as well as the use of fermented sugars to prepare alcohol, and founded the science of first aid provided in cases of accidents, and made mercury ointments, and he was the first to introduce laxatives in pharmacology, as he was the first Who created differences between arterial bleeding and venous bleeding. Among the most important books he has written are: The Book of Physician's Ethics, The Book of Chemistry and It Is to Health Closer, An Essay on Pleasure, The Book of Layers of Sight, The Book of the Body of the World, The Book of Doubts Galen, The Book of Phlebotomy and Cupping, The Book of Spiritual Medicine, The Book of Introduction to Logic, The Book That the Slave Has a Creator.

[Some of the world's most famous books, Dr. Abu Bakr al-Razi, wrote:](#)

Abu Bakr al-Razi is one of the most famous and greatest doctors of all time who lived in the prime of his youth in the city of peace and studied medicine in the Iraqi city of Baghdad, Abu Bakr al-Razi wrote many famous books that we still benefit from to this day, the most important of which are:

1. Al-Hawi's Book of Medicine: This book is one of the most famous books of Al-Razi because it contains many summaries belonging to Indian and Greek authors, and contains his own writings and observations on diseases, and this book was translated from Arabic into Latin in 1488 and reprinted in Venice in the sixth century AD.

2. The Book of the Great Mosque: One of the most famous medical books of Al-Razi in which he collected talk about many diseases, methods of treatment, diagnosis, medicines allocated to them, and the method of preparation and manufacture of medicines, as he talked in this book about the surgical methods used to treat some serious diseases.

3. The Book of Spiritual Medicine: One of the books written by Al-Razi and devoted to research on the subject of psychiatry and the pains of man, in which he said that the greatest pain is the pain of the human soul, and Al-Razi was interested in this book in psychiatric clinics and the role of music in the treatment of the patient and his spiritual healing.

4. The Book of Layers of Vision: The Book of Layers of Vision is one of the most famous books of Abu Bakr al-Razi, in which he talked about the human eye and sight, and drew an important conclusion, which is that sight occurs as a result of external light and that the eye can only see in the presence of light, while scientists before him believed that the eye is the source of vision only.

5. Book of Chemistry: Al-Razi devoted this book to talking about chemistry and minerals, and divided them into several types

and recipes, and also divided them into several sections such as mineral materials, plant materials, animal materials, and extracted sulfuric acid and the method of extracting it.

6. The Introduction to Logic: One of the important books written by Al-Razi and dedicated to research in the science of logic, but unfortunately this book was burned in the House of Wisdom in Baghdad and no copy of it was found at all.

7. The Book of the World Body: It is one of the most famous physical books written by Abu Bakr al-Razi in which he talked about the universe and the world around us in general, as well as talked about the qualitative densities of liquids, the size of the universe, and the natural balance of things.

8. The Book That the Slave Has a Creator: Al-Razi was not only interested in the books of medicine, but also in doctrine and religious sciences, which is why he wrote the book The Slave has a Creator.

This was a collection of the most famous books written by Abu Bakr al-Razi this famous doctor and scientist whose valuable books we still benefit from to this day.

Fifth: Ibn al-Haytham:

Ibn al-Haytham, Abu Ali al-Hasan ibn al-Hasan ibn al-Haytham, one of the most famous scholars of Arabs and Islam, was born in Basra in 354, during the Golden Age of Islam, and then moved to Cairo, where he spent most of his life, and died in 430 at the age of 75.

Ibn al-Haytham studied the scientific method and excelled in many sciences, and made many scientific contributions in several fields such as mathematics, optics, and physics, and also left clear traces in astronomy, engineering, ophthalmology and philosophy.

Growing up in Basra, Ibn al-Haytham focused at some point in his youth on the study of differences of religious opinion, was

appointed minister of Basra and neighboring regions, and shortly thereafter gave up his job to devote his efforts to the study of science, particularly mathematics and physics.

Ibn al-Haytham had made many discoveries and works such as proving that light comes from objects to the eye and not vice versa, and he is also credited with inventing the camera, in addition to some manuscripts that talked about the effect of melodies on the behavior of animals, and it is worth mentioning that Ibn al-Haytham has about 200 books in various scientific fields.

Ibn Al-Haytham has completed many works and books, the most important of which are:

1. The book of binoculars, which he divided into seven volumes, presents experimental and mathematical studies of light and its properties, the spaces of stars, the moon, and the rainbow.

2. The sweetness of the difficulties of the Euclidean elements, in which he presented investigations into some cases of Euclid's theories, and replaced some proofs with others.

3. The Book of the Life of the World, dedicated by Ibn al-Haytham to the study of astronomy, included a non-technical description of the way abstract mathematical models were understood.

Other works such as: Precise Determination of the Pole, Completion of Cones, Incendiary Mirrors with Circles, Essay on Starlight, Doubts in Zigzag Motion, Models of Movements of the Seven Planets, Motion of the Moon, Columns of Triangles, and the Saying Known as Strange in the Calculation of Coefficients.

Al-Biruni:

Born in 362 and died in 440, Abu al-Rayyan Ahmad ibn Ahmad al-Biruni was one of the greatest minds known in the Islamic Middle Ages, and al-Biruni was proficient in mathematics, astronomy, geology, geography, philosophy, history, and pharmacy, and was

additionally proficient in many languages. It is worth mentioning that Al-Biruni's father died at a young age, so he had to work to support his mother, until one day he met a famous scientist from Greece, who offered to work for him to teach him and give him enough pay for his and his mother's livelihood, and this scientist was amazed by Al-Biruni's knowledge of Arabic and Persian, and began to teach him Greek and Syriac. Al-Biruni made many important practical contributions, writing on the age of the Earth, volcanoes, earthquakes, and other theories that talked about the formation of the Earth's crust, and he has many researches through which he concluded that the speed of light is greater than the speed of sound, as well as describing the phenomenon of eclipses and eclipses, pointing to the rotation of the Earth around its axis, and explaining how natural springs and wells work. Some of the most famous books he has written include:

1. Book of Masoudi Law,
2. Book of fulfillment of India's saying acceptable in the mind or vice,
3. Book of Pharmacy in Medicine,
4. Book of the masses in the knowledge of jewels.

Seventh: Jaber bin Hayyan:

Jaber ibn Hayyan was born in 101, and there were many disagreements about the year of his birth, and its place, some say that he was born in Syria, others say in the cities of Khorasan, and Jaber was from Hayyan, a Muslim scientist who excelled in medicine, pharmacy, engineering, astronomy, philosophy, logic, and chemistry. Jaber bin Hayyan made many important scientific achievements where he used more than 20 types of chemical laboratory equipment such as the impecion, the distillation furnace, described many chemical processes, such as crystallization, discovered the fact that heating the metal increases its weight, and

was also the first to discover manganese dioxide that is used to make glass. Jaber bin Hayyan has written several books, the most important of which are:

1. Secrets of Chemistry,
2. The end of mastery,
3. the origins of chemistry,
4. Body science, mercy,
5. Earned
6. small yeasts,
7. Wisdom Fund,
8. King's Book,
9. Book of Large Properties,
10. Book of Abstractions,
11. Book of the Pure,
12. Book of Seventy,
13. Book poisons and pay their harms.

VIII. Ibn al-Nafis:

Abu al-Hasan Alaa al-Din ibn Abi al-Hazm, nicknamed Ibn al-Nafis, is one of the most famous Arab doctors, Ibn al-Nafis was born in Damascus in 607 for the Hijra and lived there for most of the early stages of his life, where he learned the basic principles and sciences of medicine, and then traveled to Cairo.

Ibn al-Nafis was interested in many sciences other than medicine, such as his interest in philosophy, language, and jurisprudence, in addition to his search for monitoring facts and observing medical errors among the doctors who were present at that time.

Ibn al-Nafis has made many practical discoveries, including a discovery of microcirculation, the author of the book Explaining the Anatomy of the Law, in which he talked in detail about diseases and physiology, and completed many other books such as Al-Shamil in

the medical industry, which is one of the largest encyclopedias in history.

Ninth: Jacob ibn Ishaq al-Kindi:

Ya'qub ibn Ishaq al-Kindi, Abu Yusuf Ya'qub ibn Ishaq al-Kindi, one of the most famous Arab and Muslim scholars, was born in Iraq in the city of Kufa where he received his primary education, before moving to Baghdad where he received the attention of the caliphs al-Mu'tasim and al-Ma'mun. Al-Kindi excelled in many sciences especially philosophy, chemistry, astronomy, medicine, music, mathematics, psychology, and logic. Al-Kindi had made great efforts to transfer ancient Greek philosophy and translate it into Arabic, and he also developed philosophy and introduced philosophical vocabulary into the Arabic language, in addition to laying down some basic rules for music in the Arab world, and he was the one who added the fifth chord to the oud.³

Tenth – Al-Ghazali:

He is Abu Hamid ibn Muhammad ibn Muhammad al-Ghazali al-Tusi, born in Tus in the year (450) AH from a poor family working in wool yarn, studied and learned in his town the principles of science and then traveled to Nishapur and received education in front of the two mosques Abi al-Ma'ale al-Juwaini in front of Shafi'iyah, and Najm al-Ghazali has shone and became one of the scholars of Shafi'ism as he was famous for his erudition, intelligence and ability to debate, Ghazali moved to teach in the regular school in Baghdad which was one of the institutes The highest school where he joins the elite of students in various sciences, literatures, research and knowledge, and after traveling to Mecca, Damascus

³-<https://www.annajah.net/3-%D9%85%D9%86-%D8%A3%D8%B4%D9%87%D8%B1-%D8%B9%D9%84%D9%85%D8%A7%D8%A1-%D8%A7%D9%84%D8%B9%D8%B1%D8%A8-%D9%88%D8%A3%D9%83%D8%AB%D8%B1%D9%87%D9%85-%D8%AA%D8%A3%D8%AB%D9%8A%D8%B1%D8%A7-%D9%81%D9%8A-%D8%AD%D9%8A%D8%A7%D8%A9-%D8%A7%D9%84%D8%A8%D8%B4%D8%B1%D9%8A%D8%A9-article-24281>

and Alexandria he returned to his homeland and spent the rest of his life teaching and preaching.

Al-Ghazali left a scientific, spiritual, and religious wealth that exceeds seventy books on jurisprudence, debate, and defense of Islam, including: The Savior from Shadows, The Balance of Work, and The Opening of Science. His book Revival of the Science of Religion is also a reference for every researcher of heritage and culture throughout the ages.

The most important educational opinions of Al-Ghazali:

- 1- The amenability of morality to modification.
- 2 - Failure to declare punishment for the learner.
- 3 - Progression in education during the education of the child.
- 4- Taking into account the individual differences between learners.
- 5 - Education should not be limited to males only.
- 6 - The need for recreation and play during education.
- 7 - The importance of learning at a young age and the importance of the kindergarten stage.
- 8 - The need to pay attention to spiritual education (mysticism) and morality.

Delusion is half the disease, reassurance is half the medicine, patience is the first steps to healing. The one who is ready for something is enough for his weakest reasons. The power of thought is capable of bringing about illness and healing from it. Make your food every day once and beware of food before digesting food. Saying that the transfer is weighted over the mind is impossible, because reason is the origin of transport, if we lied to the mind we would have lied about the origin of the transfer, and when we lied about the origin of the transport we lied to the transfer, we knew that the mind must be weighted and one realizes that death is more profitable for him, when he no longer gets hurt, because the harm is

a sense, the sense is only for the living, and the living gets hurt all his life, so the situation that has no harm is better than the situation in which there is harm. It is God who has endowed man with reason and reason the cause of everything, the mind is light and science is the result and so all science is light. As you have seen, my dear, history is replete with many Muslim scientists who have made great scientific discoveries that we continue to benefit from to this day. ⁴

Prof. Dr Moustafa El-Abdallah Al Kafry
Faculty of Economics - University of Damascus
Damascus, Syria, PO Box 12341
Email: moustafa.alkafri@gmail.com

⁴ - Ibid.