

Research Article

Thinker Of Ages

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Abstract

The Eastern Thinker – Abu Rayhon Muhammad Ibn Ahmad Al-Biruni Revealed The Eastern World Of Thought's Specific Direction And Clarified The Existing Ideas Surrounding Humankind's History, Development, And Decline. He Studied Different Contradictory Views And Changed His Views By Enriching Them. More Precisely, Beruni Created A School Of Study Of The Universe, Human Evolution, The Stages Of The Development Of Peoples, Historical Events, Natural Phenomena. Initially, Eastern Philosophy And Later Western Philosophy Were Interested In This School.

Keywords: Philosophy, Thought, Essence, Period, Research, History.

Introduction

Muhammad Ibn Musa Al-Khwarizmi (780-850) Is A Scientist Who Made Discoveries Of Great Importance For The Science Of His Period And Today's Science.

There Is No More Information About The Youth Periods Of The Scientist. But One Of The Lucky Stars Of Fortune Sponsored His Birthday. Because The Period In Which He Lived Was Extremely Complicated. The Arab Caliphate, Which Took Control Of Turon And Iran, Sham And Iraq, Along With The Occupation Of More Expansive Areas, Did Not Have Social Stability Due To The Frequent Riots In The Conquered Lands. However, Prince Ma'mun Was Interested In The Scientist With Deep And Comprehensive Knowledge. Prince Ma'mun Always Tried To Gather The Wise Men Around Him. Therefore, The Presence Of Khwarizmi In The Palace Was An Outstanding Achievement For Him. The Friendship Of The Prince And The Scientist Helped To Realize More Discoveries At That Time.

After The Death Of Harun Ar-Rashid, The Ma'mun Announced Marv As The Capital Of The Caliphate. Due To The Flourishing Of Marv And Its Surroundings, The Richness, Cultural Level Of The Arabs.

However, Since The Ruler Was Far From Baghdad, Frequent Riots Began In The State's Territory. Also, Mu'tazili Groups, Who Intend To Break The Religion Of Holy Islam From The Inside, Turned Into Baghdad's Great Power. These And Other Political Reasons Forced Ma'mun To Move The Capital To Baghdad Again. The Young Scientist Also Went To Baghdad With Harun Ar-Rashid. In Baghdad, He Carried Out Incomparable Scientific Research.

Al-Khwarizmi Became The Founder Of Algebra Subject. The Word Algebra Was Taken From His Treatise Titled "A Brief Book About The Accounting Of Aljabr And Al-Muqabala." The "Arithmetic" Treatise Based On Indian Numbers Caused The Decimal Counting System We Are Currently Using. This Decimal System Was Distributed First In Asia And Africa, Then In Europe, And Then All Over The World. And The Name Of Al-Khorezmi Forever Settled In Science As "Algorithm." His Book On Geography Caused That Many Geographical Works Were Written In Arabic.

Stars Catalog Of Al-Khwarizmi

"Zij" Played An Essential Role In Developing Astronomy Both In Europe And In The East Countries. "Al-Khwarizmi, Ulugbek, Beruni, Navoi, Babur, And Hundreds Of Other Scientists Did Not Appear In One Place Suddenly. It Is Necessary To Feed The Ground To Get The Harvest. It Is Necessary To Fertilize And Care For The Soil And Plant A Tree Only After That. That Is, I Mean, The Ground – The Ancient Turon And Turkestan Spiritually Nourished, Culturally Fortified."

Materials And Methods

The Bashkir Scientist Ahmad Zaki Validiy Tugon Wrote About Several Turkic Words And Phrases In Al-Biruni's Works [1].

Also, Ahmad Zaki Validiy Wrote Scientific Works Named "Scientific Cooperation Of The Muslim East And West"[2], "Travelogue Of Ibn Fazlun"[3], "Density Of The Middle Ages Population Of Central Asia"[4], "Goethe's Understanding Of The East"[5], "Biruni On The World Map"[6], "Biruni About The Peoples Of The North"[7], "Archaeological Correspondence Of India" [7]. They Were Published In The Scientific Journals Of Germany, England, France.

In This Sense, If It Is Paid Attention To The Khorezm Culture Of That Period, It Becomes Clear How Bright, Rich And Colorful The Environment In Which Geniuses Were Grown. Khorezm, Where The Great Mathematician Muhammad Ibn Musa Lived, Was Recognized As An Ancient Cultural Center. Agriculture Of That Time Is Evidence That The Knowledge Of Geometry, Astronomy, Mathematics, Which Found Progress To A Certain Extent. In Khorezm, Scientists Highly Developed Astronomy. Khorezmians Understood And Practiced The Interconnectedness Of The Sky And The Earth Much Earlier Than Other Peoples.

The Books, Which The Scientist Studied On The Same Sciences In His Youth, Were In Khorezm. For This Reason, Ma'mun Entrusted The Management Of The "Baytulhikma" (House Of Wisdom), Founded By Him, To The Group Of Scientists Of Movarounnahr. In Particular, Al-Khwarizmi Managed The Observatory, Built In The Ash-Shammosia Neighborhood Of Baghdad In 828, And Fargoniy Managed The Observatory, Which Was Built In Kasiyun Mountain Near Damascus In 831. Al-Khwarizmi And Fargoniy Also Carried Out Scientific Research In These Observatories. It Is Well Known To The People Of Science That Khorezmi Ruled The Observatory In The Ash-Shammosiya From 831 Until His Death.

Results

It Is Unknown When The Scientist Wrote The Arithmetic Treatise. But It Was Translated Into Latin In Spain In The 12th Century. The Only Copied One Of The Translations Is Kept In The Cambridge University Library. The Treatise Begins With The Phrase "Dik-Sit Algorizmi," That Is, "Al-Khwarizmi Said."

In This Work, Khwarizmi Explains The Spelling Of Numbers In A Decimal Counting System Based On The Indian Numerals. He Emphasizes The Importance Of Convenience In Writing, Especially The Use Of Zero. Khwarizmi Notified That Describing The Arithmetic Operations, Draw Attention To The Numbers' Level, And Not Forget To Write Zero. Otherwise, The Result Will Be An Error, He Says. At The Beginning Of The Treatise, Khwarizmi Noted: "...I Have Offered "A Brief Book About The Accounting Of Aljabr And Al-Muqabala," Which Includes Simple And Complex Issues Of Arithmetic.

Because It Is Necessary For People In The Distribution Of Inheritance, Goods And The Affairs Of Justice, In Trade And Any Agreements, And In The Measurement Of Land, In The Transfer Of Channels, (Practical) Geometry, And Other Similar Works.

Khwarizmi's "Arithmetic" Treatise Becomes Of Great Importance In The Spread Of The Decimal Counting System Based On Indian Numbers In Europe And The Rest Of The World. Since The Indian Numbers To Europe Passed Through The Arabs, They Are Also Called "Arabic Numbers." Until Now, We Understand Any Regular Calculation Process When We Say "Algorithm" Or "Algorithm."

The Algebraic Treatise Of Khwarizmi Consists Of Three Parts: 1) The Algebraic Part, At The End Of Which A Small Section – The Chapter On Trade Circulation; 2) The Geometrical Part, About The Measurement Using The Algebraic Method; 3) The Part About The Last Wills. The Scientist Called It "The Book Of Last Wills" With A Unique Name. The Author Did Not Bring Any Signs In His Treatise And Completely Describes The Content In Words And Forms.

This Book Consists Of 37 Chapters, 116 Tables. The Previous Five Chapters Of The Work Are Devoted To Chronology And The Rules For The Transfer Of Dates From The Years Of "Tufan," "Alexander," "Safar," And Christian To The Hijri Years. Chapter 6 Describes The Circle's Division Into – 12 Zodiacs, Zodiac – 30 Degrees, Level – 60 Minutes, Minute – 60 Seconds, Etc. Chapters 7-22 Are Devoted To The Movement Of The Sun, Moon, And Five Planets. In These Chapters, The Scientist Described Planets' Movement Based On Ptolemy's Geo Center System, Skillfully Using Ancient And First Medieval Indian, Iranian, And Greek Astronomical Data. Chapter 23 Is Devoted To Trigonometry, In Which The Scientist Introduces The Concepts "Flat" And "Mirrored Sinus," Which Brings The Tables Of Functions.

25-27 Chapters Are Devoted To Mathematical Geography. Here, The Scientist Cited The Rules For Determining The Lengths And Widths Of Geographic Areas. It Is Explained By The Fact That The Change In Coordinates Is Associated With The Difference In The Ecliptic, Equatorial Coordinates In The Sun's Annual, Night-Time Motion.

Thinker Of Ages

Khwarizmi's "Zij" Was One Of The First Astronomical Works In The Caliphate. The Work Attracted The Attention Of Scientists At First. Fergani, Al-Hashemi, And Others Highly Appreciated It. Abu Rayhon Al-Biruni Devoted His Three Works To The Interpretation Of "Zij." In The History Of Science, It Is Noteworthy That The Copy Of The Work, Which Was Copied In 1007 By The Spanish Arab Astronomer Maslama Al-Majriti. This Copy Was Translated By Adelyard Bat In 1126 Into Spanish Into Latin. In 1914 Based On Four Copies Of The Same Translation, X.Zuter Published The Latin Critical Text Of "Zij," And O. Neygubauer Published Its English Translation In 1962. Based On These Two Editions, Full Russian And Partial Uzbek Translations Of "Zij" Were Prepared For Publication¹.

Khwarizmi Chose The Meridian, Which Passed Through Arin City (Now Ujain In India) In His "Zij," According To The Indian Tradition [1]. In Europe, Roger Bacon And The Great Albert In The Xiii Century Were Also Supporters Of The Arin Meridian Idea. According To The Concept Of Arin, Pyotr (From France) Wrote His Work "The Image Of The Earth" In 1410. From One Copy Of This Work, Published In 1487, Christopher Columbus Used. According To Columbus, The Idea Of Arin Formed In His Mind That The Earth Looks Like A Pear. Columbus Imaged That It Should Have A Similar Place To Arin On The Opposite Side Of The Earth.

Discussion

There Is Another Aspect Of The Scientist's Personality And Scientific Heritage In Common With Amir Temur, Which Is Also Characteristic Of Today. In This Regard, We Again Pay Attention To Shavkat Mirziyoev's Speech, The President Of The Republic Of Uzbekistan, At The Conference Mentioned Above:

"The World Cultural Community Got Acquainted With Timurid Empire In The Middle Ages And His Activity That Attracted The Attention Of The Whole World, His Contribution To The Treasury Of The World, The Land That He Grew Up In, And The Creative Heritage Of The Great Thinkers Who Passed Many Centuries Ago. Therefore, There Is A Worthy Share Of The Timurid Empire For Spreading Our Great Scientists' Heritage Around The World."

Initially, The Population Of The Arab Caliphate Used The Works Of Khwarizmi, And The Works Later Found Popularity In The States Of Andalusia, The Territory Of Spain. In The Xi-Xii Centuries, As A Center Of Science And Culture, Andalusia Was Elevated To A Higher Level Globally. The Development Of Science Gradually Moved From The East To The West Because Scholars Established Interaction And Translations There. "Ziji Khorezmi," Which Was Translated By Adelyard Bat And Distributed To Europe, Served As The Basis For All Subsequent Works In The Same Direction. By Order Of The Roman Pope Sylvester Ii, The Decimal System, Founded By Al-Khwarizmi, Was Introduced To The Whole Of Europe.

Only 10 Of The More Than 20 Works Belonging To The Scientist Have Reached Us. They Are "A Brief Book About The Accounting Of Aljabr And Al-Muqabala" – Algebraic Work, "A Book About Indian Accounting" Or "A Book About Addition And Subtraction" – An Arithmetic Work, "Kitob Surat Al-Arz" – A Work On Geography, "Zij." Besides, Khwarizmi Wrote The Works Titled "A Book About Working With Usturlab," " Identifying Azimuth Using Usturlab," "Kitob Ar-Ruhnoma," "Kitob At-Tarix," "A Treatise About Determining The Jewish Calendar And Holidays."

Four Of These Works Are In Arabic; One Of Them Is In The Composition Of The Work Of Fergani, Two Of Them Are Preserved In Latin Translation, And Three Have Not Yet Been Found.

Conclusion

In Conclusion, Khwarizmi's "Zij" Was Also Associated With Great Discoveries In The Field Of Geography.

The Work Reached Us With A Single Arabic Copied One In 1037, And This Copy Is Kept In The Library Of The University Of Strasbourg.

The Book Contains 2402 Geographic Locations In Cities, Mountains, Seas, Islands, And Rivers. Climates Distributed Cities, Rivers, Mountains, Islands, And Other Objects.

For The First Time, Khwarizmi Described Geography In Full Compliance With The Theory Of Climates. He Divided The Earth Into Seven Climates. Unlike The Greek Scientist Ptolemy Who Described The Regions, Countries, And Geographical Areas, Khwarizmi Described Places From The First Climate To The Seventh Climate.

The Second Chapter Of The Treatise Describes The Climates' Mountains, For Example, The Coordinates Of The Beginning And End Of The Mountains. The Scientist Explains The Mountains In The Near And Middle East And The Caucasus, And Central Asia.

In The Third Chapter, Khwarizmi Describes Seas. In The Fourth Chapter, The Islands' Shores, Posts, And The Fifth Chapter, The Countries; In The Sixth Chapter, The Rivers And Lakes.

The Work Of "Kitob Surat Al-Arz" Was Studied By Many Scientists. But The Work Was Not Fully

Translated Into Any Modern Language. Respecting The Scientist's 1200th Anniversary, The Uzbek Translation Of This Work Was Published In The Composition Of Khwarizmi's "Selected Works" In 1983.

The Works Of The Scientist Are Kept In Various Libraries Around The World. They Were Translated Into Various Western And Eastern Languages. With His Works And Inventions, He Made Famous His Homeland And The Scientific Achievement Of The Arab Caliphate.

Unlike The Greek Scientist Ptolemy Who Described The Regions, Countries, And Geographical Areas, Khwarizmi Described The Places From The First Climate To The Seventh Climate.

Conflict Of Interests And Contribution Of Authors

The Authors Declare The Absence Of Apparent And Potential Conflicts Of Interest Related To This Article's Publication And Report Each Author's Contribution.

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