# NUSIA NUSIA NOLUME 03

In this volume we discover the buildings and investments of some of the Muslim world's tycoons and philanthropist:

> Ibn al-Najid -Ibn Al-Baytar -Ahmed Ibn Yunus -Mirza Ulugh Beg -Mirza Ulugh Beg -Princess Zubaydah -Ibn Al-Awwam -Ibn Nasir Al-Shafi'i Al Biruni -

# **Princess Zubaydah:** investing in infrastructure relief projects and the Hajj

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Muslim Masterminds

Verily in the creation of the heavens and the earth and the alternation of the night and the day are signs for those of understanding.

Those who remember Allah while standing or sitting or lying on their sides and give thought to the creation of the heavens and the earth [saying], "Our Lord, You did not create this aimlessly; exalted are You; then protect us from the punishment of the Fire".

> Aal-'Imraan (The Family of Imraan) Ayaat 190 - 191



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### SHIHAB AL-DIN AHMAD IBN MĀJID AL-NAJID NAVIGATOR AND CARTOGRAPHER, 'THE LION OF THE SEA'

Shihab al-Din Ahmad ibn Majid al-Najid - was the navigator, cartographer and scholar who became famously known in Europe as the first Arab seaman for reportedly having guided the mid-15th century Portuguese navigator Vasco da Gama on his pioneering journey to India.

Remembered as *The Lion of the Sea*, ibn Majid's true legacy was the substantial body of literature on sailing that he left behind. Among his many books on oceanography, his *Fawa'dh fi-Usl Ilm al-Bahrwa-al-Qawaidah* translated as 'The Book of the Benefits of the Principles of Seamanship' is considered his greatest written work.



Ibn Majid authored several other books on the movements of ships, which helped people on the Persian Gulf to reach the coasts of India, East Africa and other destinations. His contributions to the field of oceanography are many.

Today, two of ibn Majid's famous hand-written books are now prominent exhibits in the *National Library* in Paris.

### DIYA' AL-DIN ABU MUHAMMAD IBN AL-BAYTAR AL-MALAQI Pharmacist, botanist, physician and scientist

Born in the Andalusian city of Málaga at the end of the 12th century, Ibn al-Baytār al-Mālaqī became a gifted pharmacist, botanist, physician and scientist. Ibn al-Baytār travelled throughout the Islamic world to collect various plants and samples on the way.

This ongoing study resulted in his most celebrated literary accomplishment, namely his *Compendium on Simple Medicaments and Foods* – an encyclopaedic book wherein Ibn al-Baytār catalogues nearly 1400 plants, foods, and drugs – systematically recording their properties and uses.

The book contains several references to 150 previous works by Arabic scholars and 20 from the Greek tradition. Ibn al-Baytār's lasting contribution was in his discovery and documentation of up to 400 new types of herbal medicines previously unknown to physicians of the Middle Ages. Ibn al-Baytār died in Damascus in the year 1248.



#### **'ALI IBN 'ABD AL-RAHMAN IBN AHMAD IBN YUNUS** Astronomer and mathematician. Author of 'Al-Zij Al-Hakimi'

Ibn Yunus was an astronomer and a mathematician who rose to fame in 1804 when a manuscript of his was re-discovered and studied by contemporary scholars. Ibn Yunus' greatest work was a manual known as *al-Zij al-Hakimi* (The astronomical handbook) in which he presents an advanced guide on astronomical charts describing very accurate observations.



His works are noted for being ahead of their time and based on meticulous calculations. He has often been credited with having identified 40 planetary conjunctions and 30 lunar eclipses in addition to his accurate surveys of the planetary conjunction that occurred at the turn of the first millennium.

In honour of his accomplishments, a crater on the moon has been named after Ibn Yunus.



### MĪRZĀ MUHAMAD TĀRAGHAY BIN SHĀHRUKH ULUGH BEG timurid ruler, established astronomer and mathematician

Muhammad Taraghāy ibn Shāhrukh ibn Tīmūr better known as Ulugh Beg was a Timurid ruler and the grandson of the great Asian conqueror, Tamerlane. Ulugh Beg was an established astronomer and mathematician who built the *Great observatory of Samarkand* - considered by many scholars to have been one of the finest observatories in the Islamic world and the largest in Central Asia.



Ulugh Beg's keen interest in astronomy, trigonometry and spherical geometry resulted in his discovery of several errors present in the great works of the second-century Alexandrian astronomer Ptolemy - whose theories and methodology was still very popular with contemporary astronomers.

Today Ulugh Beg is not only remembered for his distinct role as a ruler, but also for his contributions towards the development and study of astronomy through the construction of his remarkable observatory in Samarkand and his patronage of the science.

#### **PRINCESS ZUBAYDAH BINT JA'FAR AL-MANSUR** Philanthropist, patron and champion of charitable projects

Princess Zubaydah bint Abu Ja'far, the wife of Harun ar-Rashid, was the wealthiest and most powerful woman in the world of her time. She was a noblewoman of great generosity and munificence. She developed many buildings in different cities.

She was known to have embarked upon a gigantic project to build service stations with water wells all along the Pilgrimage route from Baghdad to Makkah.



On her fifth pilgrimage to Makkah she saw that a drought had devastated the population and reduced the *well of Zamzam* to a trickle of water. She ordered the well to be deepended and spent over 2 million dinars improving the water supply of Makkah and the surrounding province.

The famous *Spring of Zubaydah* on the plain of Arafat was named in her honour. It is said that Zubaidah's palace 'sounded like a beehive' because she employed one hundred women maids who had all memorized the Qur'an.

### ABŪ ZAKARIYĀ YAHYĀ IBN MUHAMMAD IBN AL-'AWWĀM Scholar of Agriculture, horticulture and animal husbandry, 'kitāb al-filāha'

Abū Zakariyā Yahyā ibn Muhammad ibn Ahmad ibn al-'Awwām, better known as Ibn al-'Awwām the Sevillian - wrote his magisterial *Kitāb al-Filāha* (The Book of Agriculture) towards the end of the 12th century. His book is without doubt - the most comprehensive agricultural treatise in Arabic.

In this encyclopaedic work, Ibn al-'Awwam gathers all the knowledge of his time concerning agriculture, horticulture and animal husbandry into a huge compendium from previous agronomical traditions and studies. His work is comprised of 34 chapters dealing with all aspects of husbandry – mentioning 585 different plants, the cultivation of more than 50 fruit trees - including valuable observations on soils, manures, grafting, plant diseases and even details of the agricultural calendar.



As well as being of great value for the study of agricultural history, Ibn al-'Awwam's *Kitāb al-Filāha* has enabled scholars to analyse the agricultural geography of 12th century Andalucia.

#### **'ABD AL-RAHMAN IBN NASR AL-NABARAWI AL-SHAFI'I** Policy writer for market regulation and author of the 'al-muhtasib'

'Abd Al-Rahman Ibn Nasr ibn 'Abdallah ibn Muhammad al-Nabarawi al-Shafi'i was an Egyptian scholar who flourished around the time of Sultan Salahuddin al-Ayyubi. Abdul Rahman Al-Shafi' authored a manual of conduct for intended use by the market inspectors and officials of the day – known as *Al-Muhtasib*.

This detailed documentation provided structure and clarification on how the officers were to verify the authenticity of commodities being traded in the marketplace, such considerations as net weight, units of measure and purity were all inspected and verified.

Abdul Rahman Al-Shafi' was effectively a 12th century market regulator who developed an early form of customer protection policy and official trade regulations.

. وَمُؤْكَد الدَّور مَا أَمَدَر اللَّجو فَارَ وَرَجْعُوا المُعْرَرُهُ والتتبوراني للدون ملاحيت المتكدوا المتنه يتحال كلن مستع ما لمسالقة الدولة معرف المعامية من من المسلمة المسلمة المسلمة المسلمة المسلمة المسلمة المسلمة المسلمة المسلمة الم مسلمة المسلمة المعرف مع مامة ما لمانا مرتباء ، والعسلم والا والا المامة من المسلمة المسلمة المسلمة المولة موجد معامة الموجد المسلمة موجد المسلمة المسلمة المسلمة المسلمة المسلمة المامة من المالة ومسلمة المسلمة عينه وكاعرم وكوميره علوا مرايل ميشوان الدينة والمدينة الوقت مل مؤاجر الأسل جزر وهر مرجز بر مربطات قدية الأثان مال الوشول رول مراد والأدير إلى طبق وتحدة بذحته فكالتقزالعتانا العلى الالماد الكري م به کامنا به ونداد موم درمقول سات مدل برناب آلعدول عرال سوب وکالوالعما بطول المتوات والارمز وصب من المراحين المارين من مريضون مريطون والمع الامارانوالعال ومااجت المرتبط المالا العام الأالط لع المالة محمة في ويدج الدل مالي مرالا العامات في تعال وتعالية والمرجو، ولو كان دلان مما أيا تقاللا الم الا بيلومين المعلمين المعلمين معادم معلمين العامين المعالية العالمين من المعالية العالمين من المعالية العالمين المتكن المحاصلة أو المعلم عن الاست (المحاص السع المالة العالمين العالم محكمة فأنه السفت من معالا إلى وصوفة حالت عادا عال المعالين العالم المعالين ما لموطلية مع العرص ذكان في المعام معالمة المحاصلة المعالين

### **ABŪ AL-RAYHĀN MUHAMMAD IBN AHMAD AL-BĪRŪNĪ** Pioneering scholar in various subjects including the field of trigonometry

Abū al-Rayhān Muhammad ibn Ahmad al-Bīrūnī was one of the most learned of Muslim scholars and scientists of his day. His interests were very wide as he laboured in almost all branches of the scientific spectrum. His literary work includes a wide range of subjects from applied and theoretical mathematics to pharmacology, geology, mineralogy, and history.

He was a polymath with a free-ranging and formidable intellect, not only did he make significant breakthroughs as a philosopher, mathematician and astronomer, but he also left his mark as a theologian, encyclopaedist, linguist, historian, pharmacist, physician, traveller and geographer.



Al-Bīrūnī spent many years studying India, its peoples, languages, faiths, cultures, and castes. He learned Sanskrit and took extensive notes, which he later published in 1030 under the title of *Tahqîq mâ li-'l-Hind* in what is now considered the most authoritative written account of medieval India.

Famously, having developed the mathematics of trigonometry, he was able to measure the circumference of the Earth to within a few miles. The only other intellectual figure in history whose legacy rivals the scope of al-Biruni's scholarship was Leonardo da Vinci.



#### **BIBLIOGRAPHY AND FURTHER BEADING** 1001 Inventions: The Enduring Legacy of Muslim Civilization

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## **RELIABLE ONLINE RESOURCES**

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