Islam

AP World History Notes
Chapter 6
The Homeland of Islam

- Originated on the Arabian Peninsula
- Had long been inhabited by nomadic Arabs = the Bedouins
- Located along important trade routes → Indian Ocean, Mediterranean Sea, etc.
- Gave rise to large commercial cities
The Eastern Mediterranean

- Rome had been overtaken by the Goths and Vandals and the East Roman Empire (Byzantine) was spreading its influence into northern territories.
- The Sasanid Empire (224-600 C.E.), which was led by warrior elites, main purpose was to serve as military strong points protecting long distance trade.
  - The Silk Road brought many new crops to Mesopotamia and the Sasanid’s reestablished Zoroastrianism as the faith of the empire. (2nd Persian Empire)
- The proclamations of both Zoroastrianism and Christianity as official faiths marked the emergence of religion as an instrument of politics both within and between empires.
- This politicization of religion greatly affected the culture of the Silk Road and would shape governments to follow.
Breakdown of Traded Goods

<table>
<thead>
<tr>
<th>Region</th>
<th>Imports</th>
<th>Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>North India</td>
<td><img src="North_India_Imports.png" alt="Icons" /></td>
<td><img src="North_India_Exports.png" alt="Icons" /></td>
</tr>
<tr>
<td>South India</td>
<td><img src="South_India_Imports.png" alt="Icons" /></td>
<td><img src="South_India_Exports.png" alt="Icons" /></td>
</tr>
<tr>
<td>China</td>
<td><img src="China_Imports.png" alt="Icons" /></td>
<td><img src="China_Exports.png" alt="Icons" /></td>
</tr>
<tr>
<td>Arabia</td>
<td><img src="Arabia_Imports.png" alt="Icons" /></td>
<td><img src="Arabia_Exports.png" alt="Icons" /></td>
</tr>
<tr>
<td>East Africa</td>
<td><img src="East_Africa_Imports.png" alt="Icons" /></td>
<td><img src="East_Africa_Exports.png" alt="Icons" /></td>
</tr>
</tbody>
</table>
Bedouins

- Herded sheep and camels
- Lived in fiercely independent clans and tribes
- Often engaged in violent wars with each other
- Variety of gods and ancestor/nature spirits
- Valued personal bravery and group loyalty
Mecca

- Major commercial city
- Site of the Kaaba = most important religious shrine in Arabia
  - Housed representations of about 360 deities
- Ruling tribe of Mecca = the Quraysh
  - Controlled access to the Kaaba
  - Gained wealth by taxing local trade
Arabia – Connections to the World

- Participation in long-distance trade
- Location between the Byzantine Empire (to the northwest) and the Persian Empire (to the northeast)
- Result = many Jews, Christians, and Zoroastrians lived among the Arabs in Arabia
- Many of their monotheistic ideas began to influence the Arabs
The Messenger

- Muhammad (570 – 632 CE)
- Born in Mecca
- From a Quraysh family
- A shepherd and a trader
- Troubled by the religious corruption and social inequalities of Mecca
- Often withdrew into the mountains to meditate
- 610 CE = he had an overwhelming religious experience
  (Similar to the Buddha and Jesus)
- Became convinced he was Allah's messenger to the Arabs
Muhammad

Born ca. 570 A.D.
Merchant family, Hasimites of the Qurayshis tribe, who dominate Mecca
- controlling much of the religious pilgrim trade
raised by relatives
- father and mother died by age six
- raised by an impoverished uncle

Formal education ?? We don’t know
Normally only the Poets of the Tribes could read and write

Commercial agent for a wealthy widow: Khadijah
- Supervising caravans from Mecca, north to Jerusalem
- Contact with both Jews and Christians
The Messenger

- Muhammad claimed to be the “seal of the prophets”
- Meant he was the last in a long line of prophets, including Abraham, Moses, Jesus, and others
- Said he had God’s FINAL revelation to humankind
- Wasn’t trying to start a new faith
- More of an invitation to return to the old and pure religion of Abraham
The Message

- Muhammad’s revelations began in 610 CE and continued for the next 22 years
- Recorded in the Quran = the sacred scriptures of Islam
- Monotheistic → Allah is the only God
  - All-powerful Creator
  - Good, just, and merciful
  - Rejected the other deities housed in the Kaaba
  - Rejected Christian idea of the Trinity
The Message

- The Quran rejected:
  - Hoarding of wealth and materialism
  - Exploitation of the poor
  - Corrupt business practices
  - Neglecting widows and orphans
  - Abuse of women
- The Quran demanded:
  - Social justice
  - Equality
  - Aid to the poor
The Quran

- Record of revelations received during visions
- Committed to writing c. 650 CE, compiled (Muhammad died in 632)
- Under the third Caliph, Uthman ibn Affan
- Tradition of Muhammad's life: hadith
The Message

- Primary obligation of all believers = submission to Allah
- Not only an individual or spiritual act, but also involved the creation of a whole new society
- Umma = the community of all believers
- Just and moral society of Islam
- Would replace tribal, ethnic, or racial identities
The Message: 5 Pillars of Islam

1) Faith: “There is no god but Allah, and Muhammad is the messenger of God.”

2) Prayer: Should be performed 5 times daily while facing in the direction of Mecca.

3) Almsgiving: Supporting the poor and needy of the community.

4) Fasting: Occurs during month of Ramadan; no food, drink, or sexual relations from dawn to sundown.

The Message: The 6th Pillar

- **Jihad** = “struggle”
  - “Greater jihad” = interior personal effort to avoid greed and selfishness, and to strive toward living a God-conscious life
  - “Lesser jihad” = “jihad of the sword” = belief that the Quran authorized armed struggle against the forces of unbelief and evil
- In order to: establish Muslim rule and defend the *umma* from the threats of infidel aggressors
Transformation of Arabia

Muhammad’s message soon attracted opposition from Mecca’s elite families; they didn’t like his:
- Claim to be the “messenger of Allah”
- Strict monotheism
- Call for social reform
- Condemnation of business practices
- Disloyalty to his own tribe (the Quraysh)

Caused Muhammad and his followers to go to Medina
- This is where the umma took shape
The Hijra

- Flight from Mecca, to Yathrib (Medina)
  - tradition: invited by the Jews of Medina
- 622 A.D.
- Beginning of the Islamic calendar
- Forms the *umma* (community)
- Welcomed, then resisted
- Mohammed becomes an absolute theocrat
Muhammad’s Return to Mecca

- Attack on Mecca, 630 -- *jihad*
- Conversion of Mecca to Islam
- Destruction of pagan sites, replaced with mosques
- Ka'aba preserved in honor of importance of Mecca
- Holy war against Mecca
- Ten year blockade
- A deal was made
The Deal

- Mecca preserved as a holy city and place of pilgrimage
- to preserve the economic prosperity
- the Ka’aba preserved as the central shrine
- idols and icons destroyed
- story of its origins emphasized the role of Abraham in its placement
- pilgrimage as an act of faith, at least once in your life
The Islamic Community

Muhammad = both religious and political leader; also led the military

Islamic community expanded throughout Arabia by:
- Military conquest
- Marriage alliances with leading tribes
- Voluntary conversion

By 632 (time of Muhammad’s death), most of Arabia had come under Islamic control
Islamic Law

- No distinction between religious law and civil law
- ONE LAW = the *sharia*
- Regulated every aspect of life
Additional teachings

- Dietary laws
- No gambling or drinking
- No sexual irregularities, as defined by tradition and custom
- No faulty weights or usury
- No infanticide
- Elaborate rules concerning inheritance and property
- Improvement in the status of women and children
Changing Status of Women

- Qu’ran improves status of women
- Outlawed female infanticide
- Brides, not husbands, claim dowries
- Yet male dominance preserved
- Patrilineal descent
- Polygamy permitted, Polyandry forbidden
- Veil adopted from ancient Mesopotamian practice
THE ARAB EMPIRE

AP World History Notes
Chapter 7
The Arab Empire

- Stretched from Spain to India
- Extended to areas in Europe, Asia, and Africa
- Encompassed all or part of the following civilizations:
  - Egyptian, Roman/Byzantine, Persian, Mesopotamian, and Indian
- With the expansion of the Arab Empire came the spread of:
  - Islamic faith
  - Arabic language
  - Culture of Arabia
War and Conquest

650s = Arab forces defeated the Persian Empire and took over about half of Byzantium’s territories.

Both had been weak for a long time due to fighting with each other.

Early 700s = Arab forces swept through North Africa, conquered Spain, and attacked southern France.

Early 700s = Arab forces reached the Indus River and took over some major oases towns in Central Asia.
Map 11.1 The Arab Empire and the Initial Expansion of Islam, 622–900 C.E.
Chapter 11, Ways of the World: A Brief Global History with Sources, First Edition
Copyright © 2011 by Bedford/St. Martin's
Page 481
War and Conquest: Motives

- Merchants wanted access to profitable trade routes and wealthy agricultural regions.
- Individuals wanted to gain wealth and social promotion.
- Expansion provided a common task for the Islamic community (*umma*) that was on the verge of falling apart after Muhammad’s death.
- Spread of Muslim faith and righteous government across the world.
War and Conquest

Conversion to Islam not forced on anyone in the Arab Empire
In fact: Zoroastrians, Jews, and Christians all considered “people of the book” and were given the status of dhimmis (protected subjects)
In the 400s years following Muhammad’s death, millions of individuals and many whole societies with the Arab Empire adopted Islam
Widespread Conversion to Islam – WHY?

- Not such a dramatic change for many Zoroastrians, Jews, and Christians
  - Already familiar with ideas of: monotheism, heaven, hell, final judgment, divine revelation, fasting, ritual prayer, etc.
- Islam sponsored by a powerful state → Wealth and prestige of Arab Empire attracted people

- Successful conquest called into question the power of old gods; perhaps Allah really is all-powerful
- Many incentives for converting
  - Ex: Didn’t have to pay *jizya* = tax on non-Muslims
  - Ex: Could hold official positions; social mobility
Divisions and Controversies

The “Rightly Guided Caliphs” (632 – 661)
- First 4 caliphs after Muhammad
  (Caliph = the political and religious leader of the Islamic community)
- Close companions of Muhammad
- Chosen by Muslim elders of Medina
- Division surfaced almost immediately
- Sunni vs. Shia Muslims

Abu Bakr
The 1st Rightly Guided Caliph
Sunnis vs. Shi’ites

Believe the caliph is the rightful political and military leader of Islam
Believe the caliph should be chosen by the Islamic community
Believe the caliph can be any devout Muslim
Religious authority comes from the larger Islamic community; particularly

ulama = religious scholars

Imams
Imams = only ones that can correctly interpret divine revelations and Islamic law

Believe that the leader of the Islamic community should be a blood descendant/relative of Muhammad
Religious authority comes from prayer leaders called imams
Islamic Caliphs

- As the Arab Empire grew, caliphs were transformed from modest Arab chiefs into absolute, all-powerful monarchs
  - Elaborate court rituals
  - Complex bureaucracy
  - Standing army
  - Centralized systems of taxation and money
- 2 major ruling dynasties came to control the Arab Empire during this time = Umayyad dynasty and Abbasid dynasty
Umayyad Dynasty (661 – 750)

- Vast expansion of Arab Empire
- Caliphs became hereditary rulers
- Empire’s capital moved from Medina to Roman/Byzantine city of Damascus in Syria
- Ruling class = Arab military aristocracy

The Dome of the Rock
Built in Jerusalem in 691 CE
Built by Umayyad Caliph Abd al-Malik
Umayyad Dynasty (661 – 750)

Overthrown because:
- Non-Arabs resented their status as second-class citizens
- Shia Muslims believed Umayyad caliphs were illegitimate
- Many Arabs protested the luxurious living of their rulers
Fatimid Dynasty

910-1171
Fatimid Dynasty
Fatimid Empire

- Arab Shia Empire eventually replacing the Umayyad Empire in the Magreb, Egypt, and the Levant.
- Founded the city of Cairo and consolidated the Caliph. Islam was briefly united under one caliph.
- Promoted religious tolerance to Sunnis, Jews, and Coptic Christians.
- Established a massive trade network in the Mediterranean, Indian Ocean, and East Asia during the Song Dynasty of China.
Fatimid Decline

- Like elsewhere, the Fatimids gave select groups governorship positions. These groups mainly the Zirids in North Africa would eventually declare themselves independent of the Fatimids.
- Turkish invaders especially in the Levant and the Crusaders would capture even more land.
- For their political system, they had moved toward military rule and eventually a nephew of one of the generals, a man named Saladin would take control.
- The Sunni Ayyubid Dynasty (Kurdish) under Saladin would rule the lands of modern-day Egypt, Syria, Palestine, and western Saudi Arabia.
- Crusades had little effect on Fatimids and Ayyubid Dynasties.
The Abbasid Dynasty (750-1258)

- Abu al-Abbas Sunni Arab, allied with Shia, non-Arab Muslims
- Seizes control of the Levant, Persia and Mesopotamia
- Baghdad
- Defeats Umayyad army in 750
- Invited Umayyads to banquet, then massacred them
- Only Spain remains Umayyad
- North Africa is disputed territory, ultimately Fatamid and later Ayyubid under Saladin.
Abbasid Dynasty (750 – 1258)

- Built up a new capital for the empire in Baghdad
- Non-Arabs now played a prominent role
- Persian culture became the culture of Islamic elites
- Political unity didn’t last long
- By the mid-800s = many local governors or military commanders asserted autonomy over their regions
- Islamic world fractured into multiple “sultanates”
- Dynasty officially ended when conquered by the Mongols in 1258

And no, we can’t watch Aladdin OR Mulan in class.
Abbasid Dynasty
Nature of the Abbasid Dynasty

- Diverse nature of administration (i.e. not exclusively Arab)
- Militarily competent, but not bent on imperial expansion
- Dar al-Islam-  House of Submission which was all the lands ruled by Islamic rule
- Growth through military activity of autonomous Islamic forces
- Golden Age of Islam-Cauldron of Cultures
Abbasid Decline

- Civil war between sons of Harun al-Rashid
- Provincial governors assert regional independence
- Dissenting sects, heretical movements
- Abbasid caliphs become puppets of Persian nobility
- Later, Seljuk Turks influence, Sultan real power behind the throne
- Almost all of their buildings are now lost to time
Rise of the Turks

Seljuks to the Delhi Sultanate
Turkish Migrations

- Consolidation of Tang Dynasty (7th-8th C) pushes nomadic peoples of inner Asia westward just like the Han did to the Huns and others
- Nomadic peoples begin to convert to Islam as a result of contact with Muslim scholars and mystics
- The Turkish-speaking people gained control of Bukkara and Samarqand and began to sponsor the development of the Turkish language and a Turkish-Islamic civilization
Turkish Migrations

One of the Turkish-speaking groups was the Seljuks who entered Central Asia and conquered Afghanistan and Iran.

The Seljuks defeated the Abbasid Caliph but left them on the throne and ruled in their name.

They titled themselves sultans, claiming authority over the secular side of government while leaving the administration of religious affairs in the hands of the caliph.
Assault from within and without

- The role played by Turkish Mamluks in the decline of Abbasid power established an enduring stereotype of the Turk as a ferocious, unsophisticated warrior.
- The Sunni Seljuks would go onto conquer the lands of Syria and Anatolia.
- By the early 12th Century, unrepaired damage from floods, fires, and civil disorder had reduced much of the Empire into ruins.
- Baghdad would lose a substantial number of its population during this time and would never regain its geographical importance.
Islam spreads to India

While conquerors brought Islam to the Sind (Indus River), Muslim merchants took their faith to coastal regions in both northern and southern India.

These long lasting business ties and the intermarriage of many Muslim men made the introduction of Islam more gradual.

Islam also spread a third way to India with the migrations and invasions of Turkish-speaking peoples from Central Asia.
Turkish invasions

Some of the Muslim Turks entered into the Abbasid realm as mercenaries or migrated into Byzantine Anatolia, while others moved into Afghanistan where they established an Islamic state.

The Turks soon turned to rich lands of the south and between 1001 and 1027 mounted seventeen raids into India.

The Mahmud Turks demolished Hindu and Buddhist sites and hastened the decline of Buddhism in India. They frequently built mosques on the sites of destroyed temples.
Crusades

- First Crusade 1095-1099
- Second Crusade 1147-1149
- Third Crusade 1189-1192*
- Fourth Crusade 1202-1204
- Children’s Crusade 1212
- 5th-8th Crusades 1218-1291
- Crusaders driven from SW Asia
Enemies from beyond...

- The Seljuk Turks (Abbasid) were best by internal quarrels when the first crusading armies reached the Holy Land.
- The Crusades had little long lasting impact of Islamic lands.
- Muslims would eventually rise up and face the European enemy in the mid-twelfth century.
- The Mongol invasions especially their destruction of the Abbasid Caliphate in Baghdad in 1258, shook the world of Islam.
Ottoman Empire

A Short Preview
The Ottoman Empire, also called Osmanian Empire or Uthmaniyah Empire (1299–1922) was a multi-ethnic and multi-religious Turkish-ruled state.

The state was known as the Turkish Empire or Turkey by its contemporaries and was succeeded by the Republic of Turkey, which was officially proclaimed in 1923.
Ottoman Empire

- The Ottoman Empire was at the center of interactions between the Eastern and Western worlds for six centuries.
- The Ottoman Empire was, in many respects, an Islamic successor to earlier Mediterranean empires — namely the Roman and Byzantine empires.
Osman I (r. 1299-1326)

- Declared independence from Seljuk Turks in 1299
- “Bone-breaker”
- Mongol invasions pushed many groups westward into Byzantine Empire
- Continuous war with Byzantine Empire
- Warriors for the faith or Ghazis
Ottoman Conquest and the Balkans

In the century after the death of Osman I, Ottoman rule began to extend over the Eastern Mediterranean and the Balkans. After defeat at the Battle of Plocnik, the Turkish victory at the Battle of Kosovo paved the way for Ottoman expansion into Europe.

With the extension of Turkish dominion into the Balkans, the strategic conquest of Constantinople became a crucial objective.
Mehmet I (r. 1413-1421)

- After the defeat of the Ottomans by the Turko-Mongol/Tatar Tamerlane, the Ottoman Empire went into a period of chaos and civil war.
- The disorder ended with Mehmet I emerged and restored Ottoman power.
Mehmet II, The Conqueror

- Mehmet I’s grandson reorganized the structure of both the state and military and captured Constantinople in 1453.
- The city became the new capital of the Ottomans and Mehmet II assumed the title of Kayser-I-Rum or Roman Emperor.
- Attempt after his death to take Rome failed.
The End of the Byzantine Empire
Central Question in the Empire: What does it mean to be a Muslim?

Answer = strict adherence to the *sharia* = Islamic religious and civil law

*Sharia* created based on the Quran, the life and teachings of Muhammad, deductive reasoning, and the consensus of the *ulama* (Muslim scholars)

*Sharia* addressed virtually every aspect of life; Examples:

- Guidance for prayer and ritual cleansing
- Treatment of slaves
- Rules for political life
- Rules for marriage, divorce, and inheritance
- Rules for business and commercial practices
Sufis

- Muslims who believed that the wealth and success of Islamic civilization was a deviation from the purer spirituality of Muhammad's time
- Searched for a direct and personal experience with the divine
- Rejected the material world
- Meditated on the words of the Quran
- Believed teachings about the law and correct behavior didn’t bring people closer to Allah
Believed many ulama had been corrupted by their association with worldly and corrupt governments. Often challenged the religious authority of these ulama and charted their own course to Allah.
Women and Men in Early Islam

According to interpretations of the Quran made by Muslim scholars:

- Spiritually → men and women are equal
- Socially (especially in marriage) → women are inferior to men and should obey them

The Quran provided a mix of rights, restrictions, and protections for women
Women and Men in Early Islam

Examples of rights & protection for women within the Quran include:
- Rights to dowries and some inheritances
- Control over their own property
- Marriage = must be consensual
- Women could divorce men; especially if they weren’t pleased in the bedroom
Growing Restrictions

- Occurred during the **Abbasid dynasty**
- Arab Empire grew in size, wealth, and splendor
- Result = role of women became more limited
- Applied to upper-class women
- Lower-class women = didn’t have servants; had to leave the house for shopping or work
- These restrictions stemmed from the traditions and cultures within the Arab Empire; NOT the Quran itself
Examples of the Growing Restrictions

Women now expected to pray at home instead of in public mosques
Veiling and seclusion of women became standard practice
Separate living quarters in wealthy homes for women
“Honor killing” = women killed by male relatives if they violated a sexual taboo
Clitorectomy = female genital cutting
The Hadiths

- The Hadiths = traditions about the sayings or actions of Muhammad
- Became an important source of Islamic law
- Negative view of women → weak, deficient, etc.
The Islamic Civilization

- Even after the Arab Empire fell apart, the Islamic civilization continued to grow.
- Major areas of Muslim expansion: India, Anatolia, West Africa, and Spain.
India

- Islam brought to India by Muslim Turks from Central Asia
- Violent invasions → destruction of Hindu and Buddhist temples
- Their conquests led to a series of Muslim-led governments in India
India

- Islam never became the dominant faith in India like it did in the Middle East, North Africa, and Persia
- Very sharp cultural divide between Islam and Hinduism → prevented mass conversion
Islam vs. Hinduism

- Monotheistic
- No representation of Allah
- Equality of all believers
- Sexual modesty

- Polytheistic
- Endless statues and images of the divine
- Caste system
- Sexual openness
Sikhism

- Blended Islam and Hinduism
- Devotion to one God
- Hindu concepts = karma and rebirth

Guru Nank
Founder of Sikhism
Anatolia

- Modern-day Turkey
- Was governed by Byzantine Empire at the time
- Filled with Christian & Greek-speaking people
- Invaded by the Turks
  - Result = huge cultural transformation
  - By 1500 = 90% of the population was Muslim and Turkic-speaking
Conversion of Anatolia

- Small population of about 8 million people = easy to convert
- Extensive disruption of Anatolian society when the Byzantine Empire weakened
  - Enslavement, famine, massacres, church properties destroyed, many discriminations
  - Many Christians came to believe that these disasters were proof that Islam was the true religion
Conversion of Anatolia

- Cultural barriers to conversion were less severe in Anatolia than in India
  - Most people in Anatolia already monotheistic (Christian)
  - Muslim respect for Jesus and the Christian scriptures
- Divide between Islam and Christianity not as major as the one between Islam and Hinduism
- Sufi missionaries also built: schools, mills, orchards, hospices, and rest places for travelers
West Africa

- Islam spread by Muslim traders across the Sahara
- Peaceful and voluntary acceptance of Islam
  - Mainly in urban centers of West African empires → Ghana, Songhay, Mali, etc.
West Africa

- Many West African cities became major centers of Islamic religious and intellectual life
- Especially Timbuktu
  - More than 150 Quranic schools
  - Several major centers of higher education
  - Libraries with tens of thousands of texts
  - Construction of huge mosques
  - Adopted Arabic as the language of religion, education, administration, and trade
Great Mosque at Jenne
Spain

- Conquered by Arab and Berber forces in the early 700s
- Early Muslim Spain:
  - Vibrant civilization
  - Astronomy, medicine, the arts, architecture, and literature flourished
  - Harmony and tolerance between Muslim rulers and Christian and Jewish subjects
  - Freedom of worship
Spain

- 10th and 11th centuries = end of the era of toleration
- Warfare with remaining Christian states in northern Spain picked up
- More rigid forms of Islam entered Spain from North Africa
Spain: New Intolerance

- Muslims avoided contact with Christians
- Christian homes built lower than Muslim homes
- Priests forbidden to carry crosses or Bibles
Spain

- Christians started to regain Spain after 1200
  - Many Muslims forced out
  - No more: call to prayer, public practice of Muslim faith, pilgrimages
- Christians officially reconquered Spain in 1492
  - ALL Muslims (and Jews!) expelled from Spain
Islam as a New Civilization

- Even after the fall of the Arab Empire: Islamic beliefs and practices preserved and transmitted by the *ulama* (Muslim scholars)
- Passed on core teachings of the faith in their homes, mosques, shrines, and Quranic schools
- *Madrasas* = formal colleges set up in the 11th century = offered more advanced instruction in the Quran
Islamic Civilization

- Islamic Civilization = not only a network of faith, but also a network of exchange
  - Exchange of: goods, technologies, food products, and ideas
Trade and the Bazaar

- Muslims traded spices, carpets, glass & textiles
- Traded for silk (China); rubies (India); ivory and slaves (Africa)
- Goods were sold in city **bazaars** = marketplaces
The House of Wisdom

- Founded by the caliph al-Mamun
- Was a research center in Baghdad
- Scholars translated texts from Greek, Persian & Indian into Arabic
- Performed scientific experiments
House of Wisdom
Mathematics

- Invented algebra & equations for curves and lines
Astronomy & Geography

- Improved the Greek astrolabe = determines the position of the stars, the movement of the planets, and the time
- Astrolabe made navigation easier and safer
Chemistry

- Developed **alchemy** = attempting to turn lead into gold
- Al-Razi classified chemical substances as animal, mineral, or vegetable
- Created the science of **optics** = study of light & its effects on sight
Medicine

- Physicians al-Razi and Ibn Sina = accurately diagnosed many diseases
  - Hay fever, measles, smallpox, diphtheria, rabies, diabetes
- Arab doctors started:
  - Hernia operations
  - Cataract operations
  - Filling teeth with gold
Islamic influence today

- Southwest Asia
- Balkan Peninsula and Transcaucasia
- North Africa and Swahili Coast
- South Asia and Southeast Asia
- East Asia and Oceania