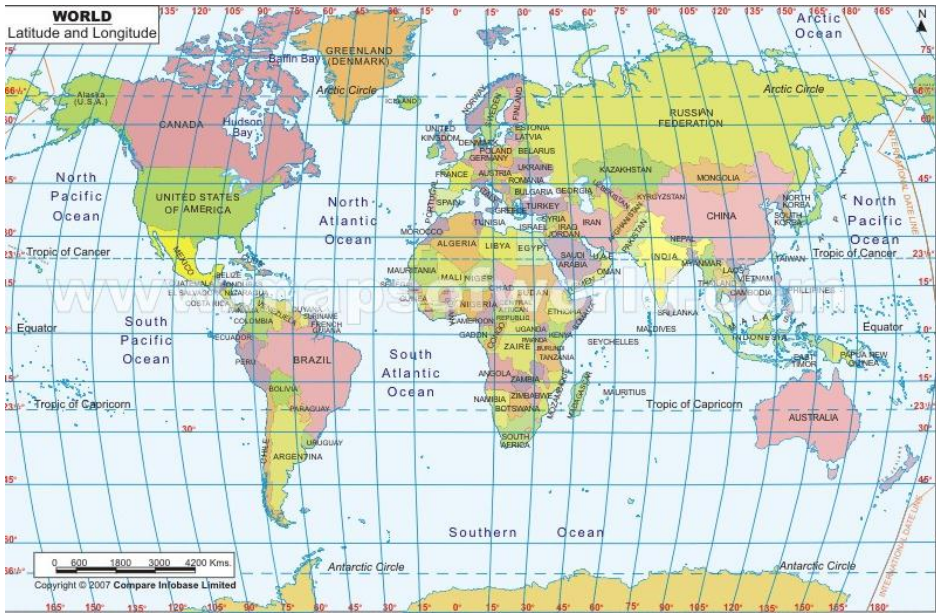
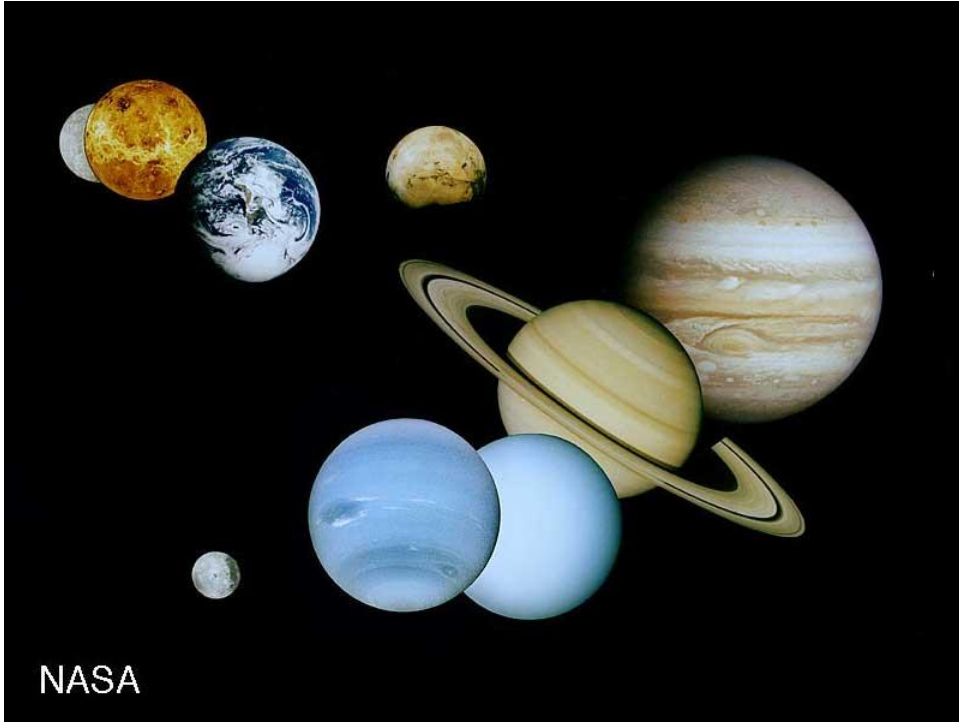
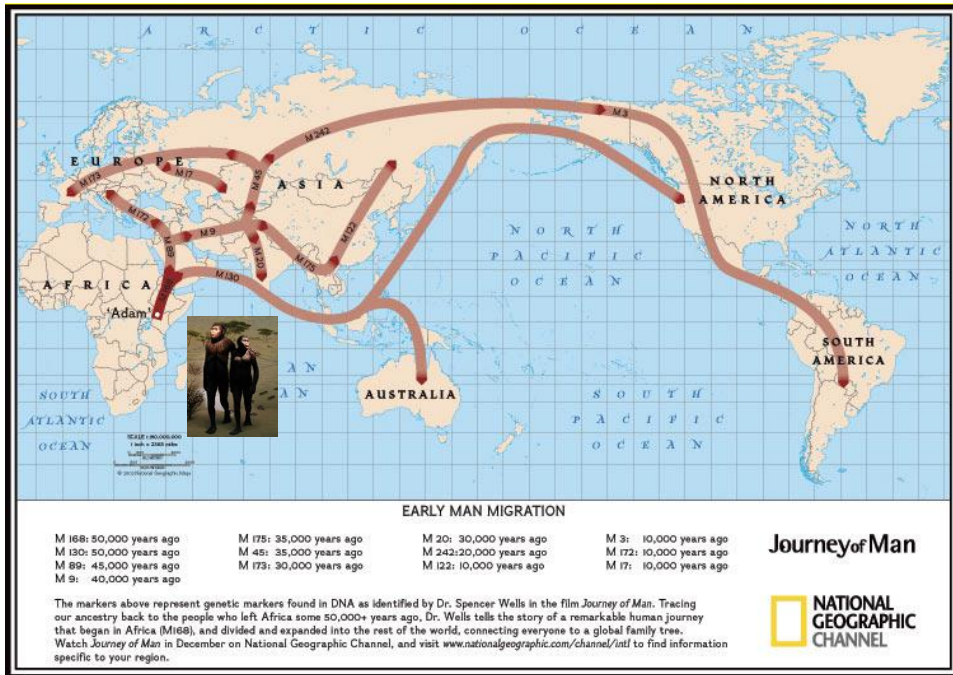


How Natural Forces Affected Egyptian Civilization







Greeks

Romans

Persians

Egyptians

Mesopotamians





Pyramids(118) of Egypt



Acropolis, Athens



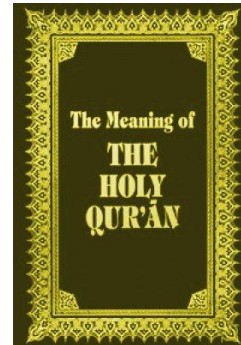
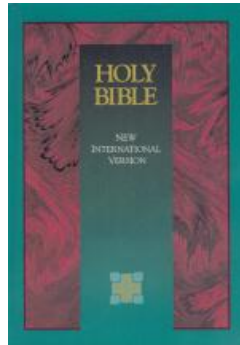
Persepolis, Iran



The roots of Judaism date back to around 2000 B.C., when Abraham refused to worship the idols, which were common during that period. He is considered by Jews to be the first to believe in a single god. Judaism in its more organized form has begun with Moses, who is believed to have received the Ten Commandments from God on Mt. Sinai after the Israelites' Exodus from Egypt, around 1500 B.C. In the Bible, Abraham was called the first Hebrew. Judaism is perhaps the oldest religion on the earth tracing its beginnings back to Abraham, when nearly 4,000 years ago when God chose Abram to be his special servant.

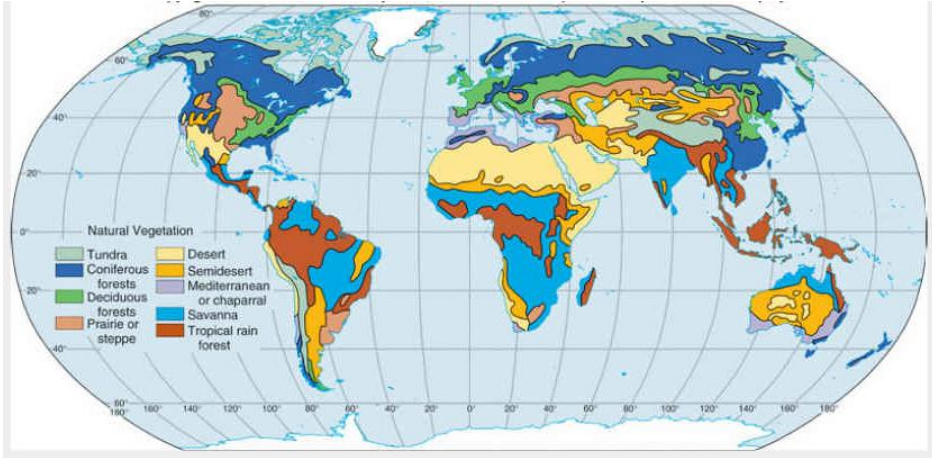


TORAH



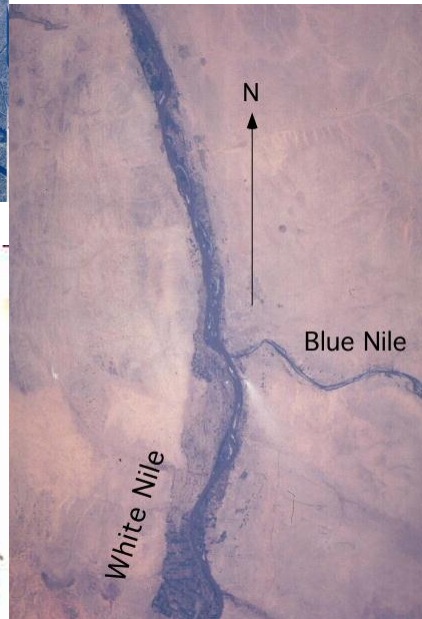
Panoramic view of the walled city of **Jerusalem** from the Mount of Olives

A mountainous walled city with a 5,000-year history, **Jerusalem** is sacred to the three great monotheistic religions of **Judaism (western wall)**, **Christianity (Chapel of the Ascension)** and **Islam (Al-Aqsa Mosque)** - which means it is sacred to more than a third of the world's population. For Jews, Jerusalem is the site of the Temple, now in ruins except for the Western Wall; for Christians, it is the site of Christ's death and resurrection; for Muslims, it is the site of the Prophet's night journey to heaven. Jerusalem is therefore a major site of pilgrimage for all three religions as well as, unfortunately, a place of religio-political tension over this important piece of land. The city is also popular destination for non-religious travelers, thanks to its unmatched historical and spiritual importance, its network of museums and concerts, and the archeological treasures that are continually discovered here.



Annual Rainfall

- **Aswan** **0-5 mm**
- **Alexandria** **200 mm** (7.9")
- **Cairo** **10 mm** (0.4")



The **Nile** is a major north-flowing river in North Africa, generally regarded as the longest river in the world. It is 6,650 km (4,130 miles) long. It runs through the ten countries of **Sudan**, **South Sudan**, **Burundi**, **Rwanda**, **Democratic Republic of the Congo**, **Tanzania**, **Kenya**, **Ethiopia**, **Uganda** and **Egypt**

The Nile has two major **tributaries**, the **White Nile** and **Blue Nile**. The latter is the source of most of the water and **fertile soil**. The former is the longer. **The White Nile** rises in the **Great Lakes** region of central Africa, with the most distant source still undetermined but located in either **Rwanda** or **Burundi**. It flows north through **Tanzania**, **Lake Victoria**, **Uganda** and **South Sudan**. The Blue Nile starts at **Lake Tana** in **Ethiopia** at **12°02'09"N 037°15'53"E** and flows into Sudan from the southeast. The two rivers meet near the **Sudanese capital of Khartoum**.

The northern section of the river flows almost entirely through **desert**, from **Sudan** into **Egypt**, a country whose civilization has depended on the river since ancient times. Most of the population and cities of Egypt lie along those parts of the Nile valley north of Aswan, and nearly all the cultural and historical sites of Ancient Egypt are found along riverbanks. The Nile ends in a large **delta** that empties into the **Mediterranean Sea**.

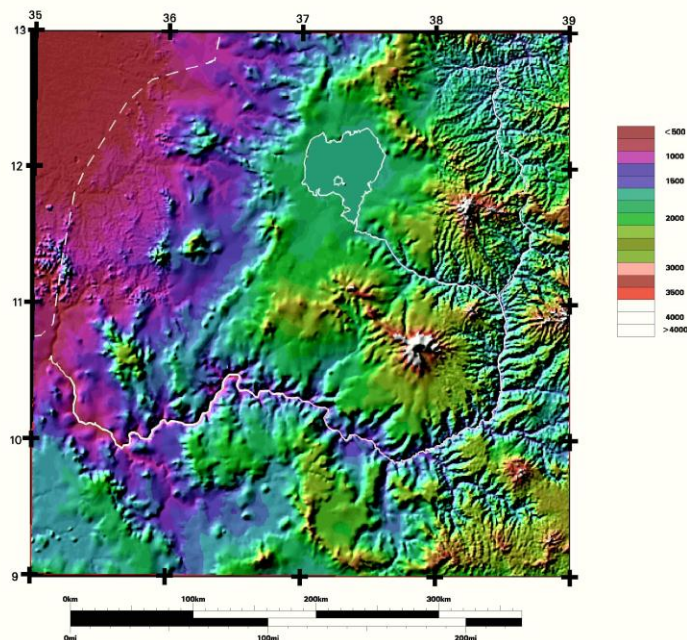
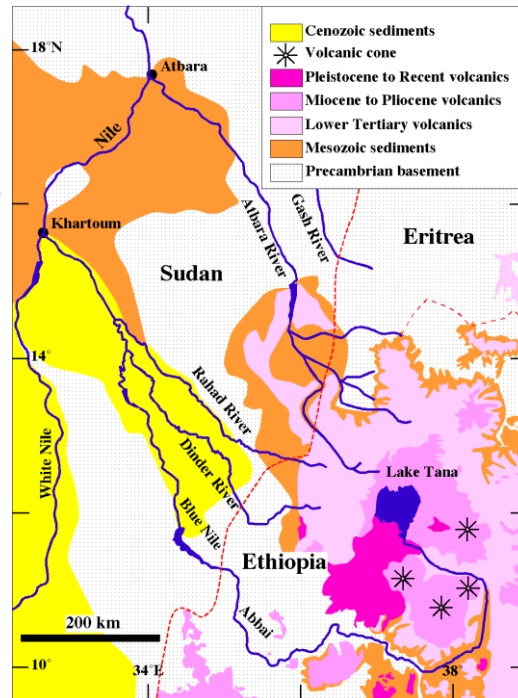
The Nile is famous as the **longest river in the world**. The river got its name from the Greek word Neilos, which means valley. The Nile floods the lands in Egypt, leaving **behind black sediment**. That's why the ancient Egyptians named the river **Ar**, meaning black



The Nile has two major [tributaries](#), the [White Nile](#) and [Blue Nile](#).

The latter is the source of most of the water and [fertile soil](#). The former is the longer. The White Nile rises in the [Great Lakes](#) region of central Africa, with the most distant source. It flows north through [Tanzania](#), [Lake Victoria](#), [Uganda](#) and [South Sudan](#).

The Blue Nile starts at [Lake Tana](#) in [Ethiopia](#) and flows into Sudan from the southeast. The two rivers meet near the Sudanese capital of Khartoum.



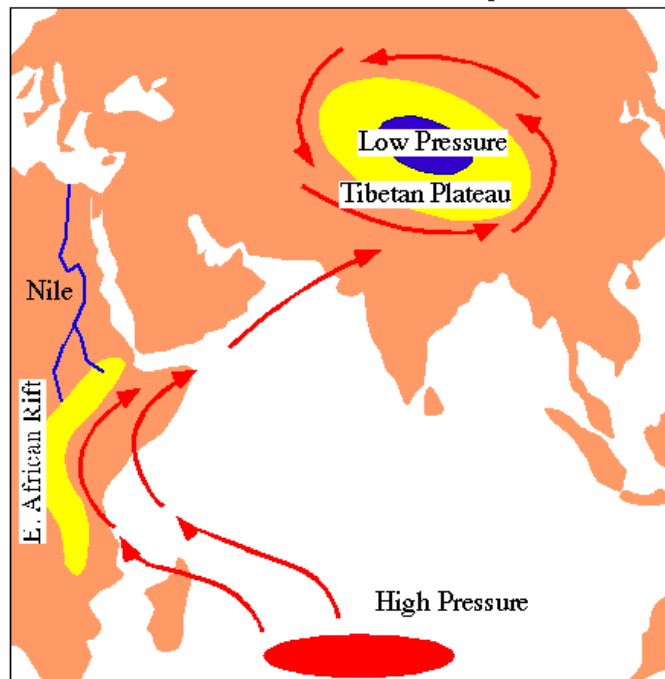
Digital Elevation Model of the Blue Nile in Ethiopia. The lake in the center right outlined in white is Lake Tana. –Blue Nile

Why should the river that tumbles out of the Ethiopian highlands and joins the White Nile at Khartoum be called the **Blue Nile**? It is not particularly blue. Perhaps it should be called the Summer River, because for most of the year it provides little water compared to the White Nile, **but in Summer it is very much the dominant tributary.**

In the summer, winds from the SE bring moist air from the Indian Ocean. This is forced to rise over the Ethiopian Plateau, half of which is over 2 km high; the highest point in Ethiopia - Ras Dejen - is about 4.5 km high. The moist air cools as it rises, and this wrings out the moisture in torrents known as **monsoon.** Monsoon rains wash the Ethiopian highlands in summer, filling every dry wash that drains down to the Blue Nile.

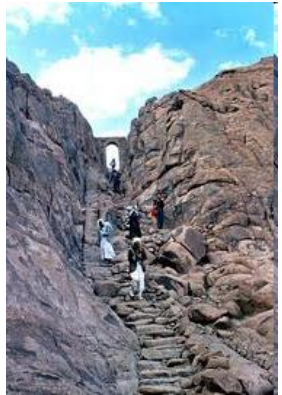
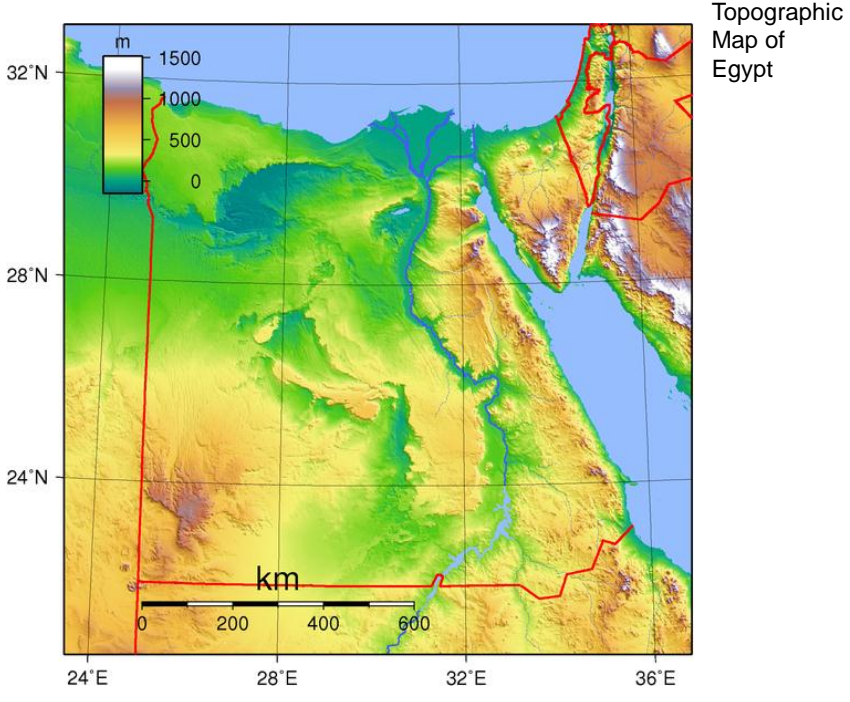
The river itself swells so with water that at the confluence with the White Nile it causes its more sedate partner to dam back on itself. It is this annual flooding of the Blue Nile along with that of the Atbara to the north, which also flows out of the Ethiopian highlands, that caused the Nile to rise each year in Egypt. It is erosion of the basalt lavas of the Ethiopian highlands that allows the river each year **to bring a fresh varnish of fertile black mud to its floodplain.**

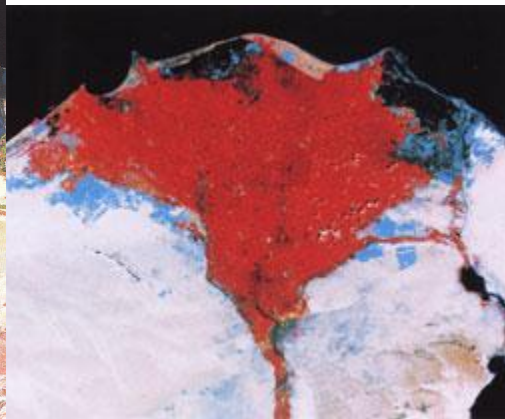
Monsoonal Circulation, N. Hemisphere Summer





Nile in Egypt-River of Destiny

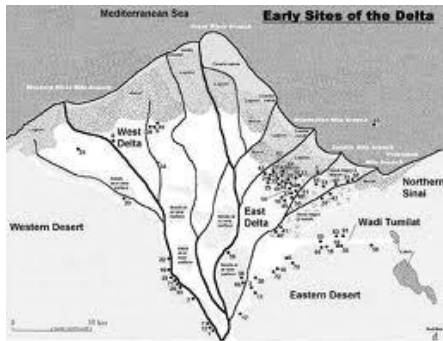




False color satellite image of the Nile Delta, **Red means Water**, **Blue means buildings**, and white is desert.

The **Nile delta** is irrigated by the Nile and its many distributaries **and has some of the richest farm land in the world.** It is home to some **45 million people**, over half of Egypt's population. The other half live along rest of the river.

Cairo is at the apex of the delta. Just across the river from Cairo you can see the three big **pyramids** and the **sphinx at Giza**. The **Suez Canal** is just to the right of the delta.



Nile Delta Distributaries



Nile Delta at Night



Even today, the population of Egypt – now numbering more than 70 million – is concentrated almost exclusively within the cultivated land area, while the desert regions, which account for **96 percent of the land surface, are practically empty.** In Upper Egypt, on account of the morphology of the Nile Valley, the fertile cultivated area is restricted to a narrow strip only a few miles wide, while the Nile Delta opens out in a northward direction towards the Mediterranean in a triangle whose sides are some 100 miles in length. The capital city, Cairo, lies at the intersection between Upper and Lower Egypt, which is crucial for the country's physical structure. As can be clearly seen from the map, population distribution in Egypt is characterized by extreme contrasts in density. Some 80 percent of all Egyptians live in the Delta and in the Cairo metropolis.



The Nile Valley is a canyon with a flood plain running across Egypt



Map of empire of Egypt



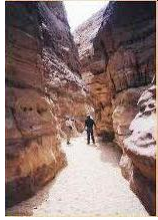
[The Nile at Cairo](#)



A courtesy coach takes you to The **Nile River**



The **Nile river** at Luxor, Egypt .



Whirlpools of the Murchison falls on the Nile river north west of Uganda



Blue Nile River and Canyon.



The Blue Nile Falls fed by Lake Tana near the city of Bahir Dar,



"smoking water"

Tis Issat Falls is the 5th Largest in the world. Niagara is the third



The power of the Blue Nile may best be appreciated at [Tis Issat Falls](#), which are 45 meters (148 ft) high, located about 40 kilometers (25 mi) downstream of Lake Tan



Tis Issat Falls on Blue Nile River

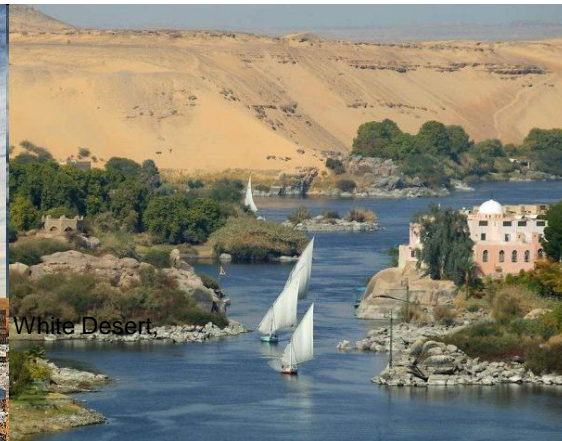


The **Blue Nile** originating at [Lake Tana](#) in [Ethiopia](#). With the [White Nile](#), the river is one of the two major tributaries of the [Nile](#). The upper reaches of the river is called the [Abbay](#) in Ethiopia, where it is considered holy by many, and is believed to be the [River Gihon](#) mentioned as flowing out of the [Garde of Eden](#)

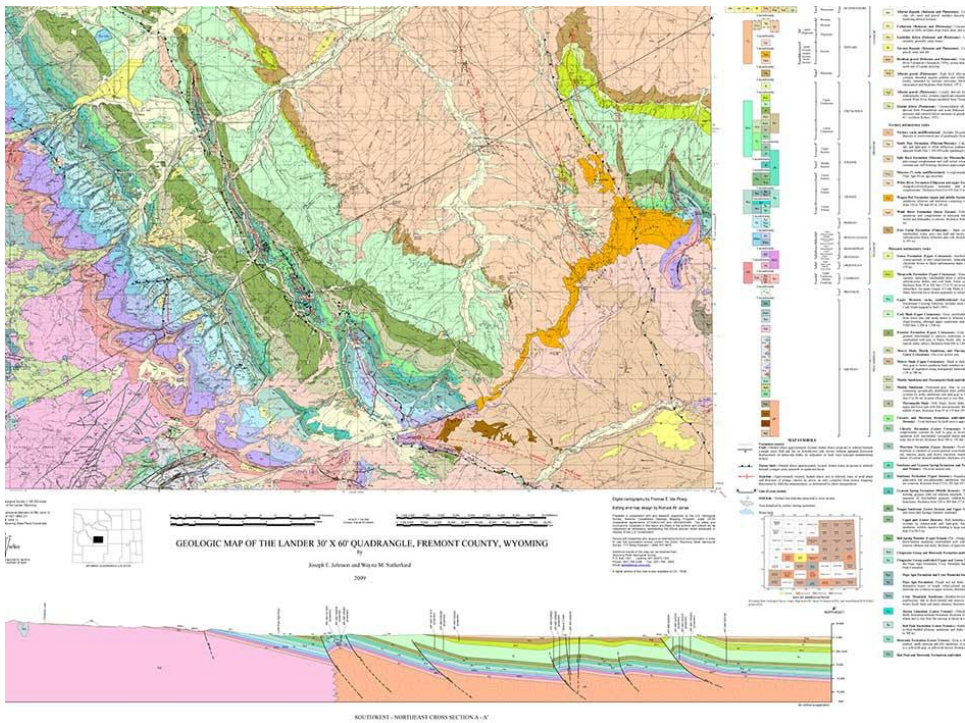
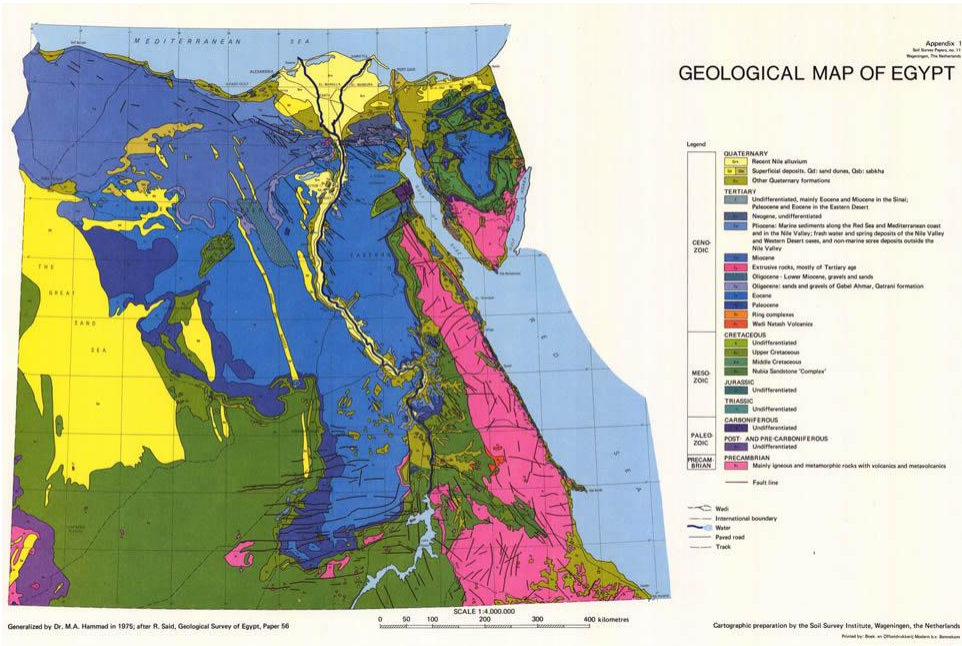
Confluence of Blue and White Nile near Khartoum



White Desert,

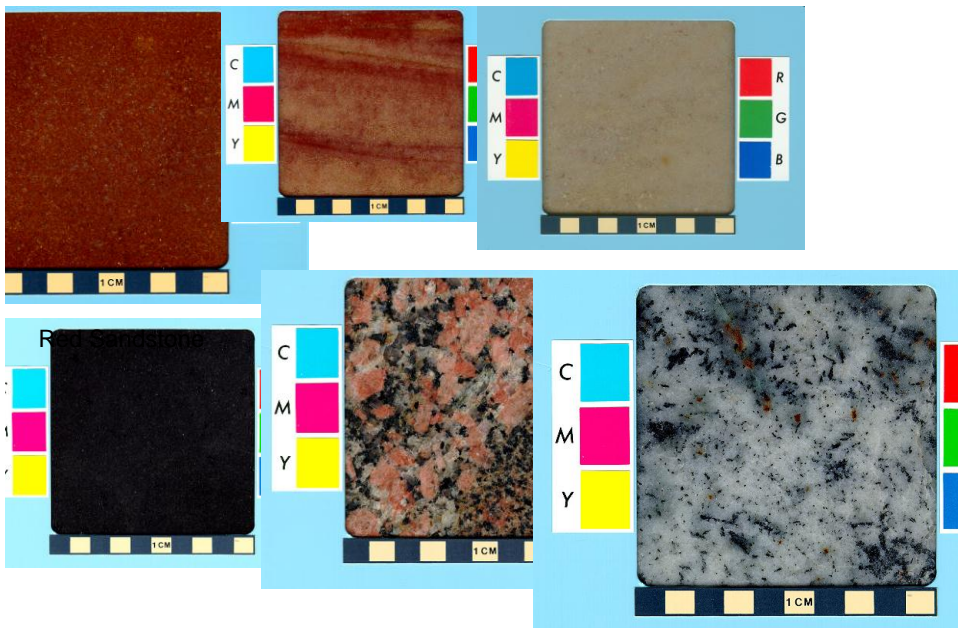


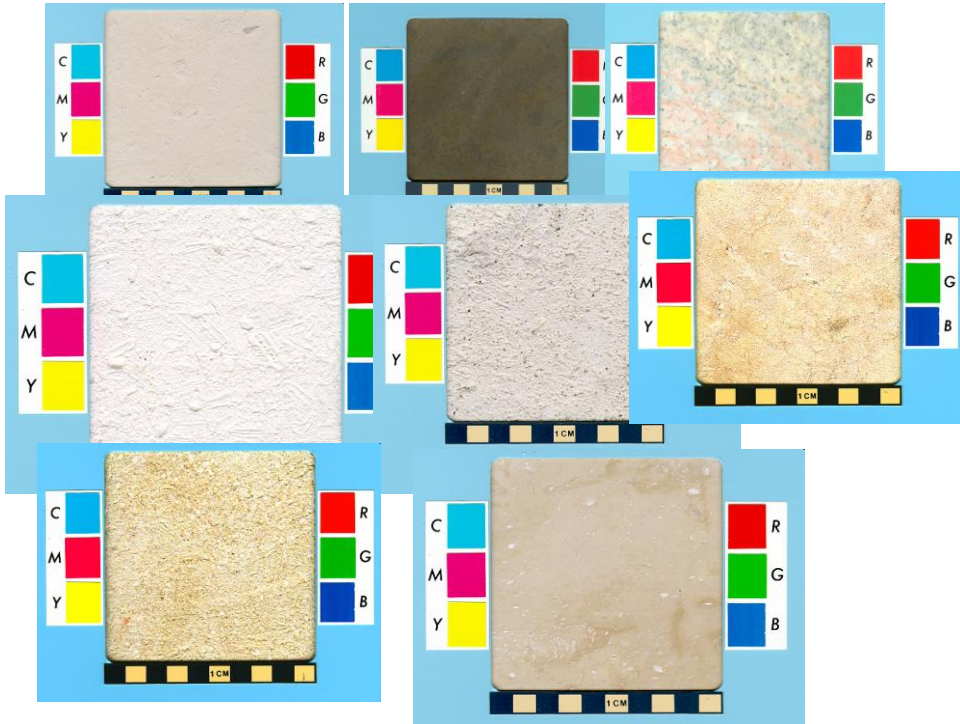
The [Nile River](#) near [Aswan](#).





Nile River Canyon-113 W 36N





Too tired to move & erect it?



Unfinished granite obelisk



Pyramid Heights

Menkura = 213 ft

Khaefra = 471 ft

Khufu = 481 ft

Pyramid Slope

The angle is 51.8°



HIEROGLYPHS: inscribed vs. bas relief



inscribed



bas relief

Hieroglyphics

Etched vs. **bas relief**

**Either style affected by
rx type** (& what about 'typos')



The built of Egyptian pyramids has remained a **mystery** for several thousand years. Throughout history there have been a number of theories offered to explain the mystery, but no one seems to have devised a concept that has been completely accepted. While the question of how were the pyramids built remains unanswered there is no doubt to the complex beauty of the ancient Egypt pyramids.



Mastaba



Step Pyramid



Bent Pyramid



Red Pyramid



Great Pyramid of Giza, is the largest ever built of Egyptian pyramids. Standing at an impressive height of 481 feet



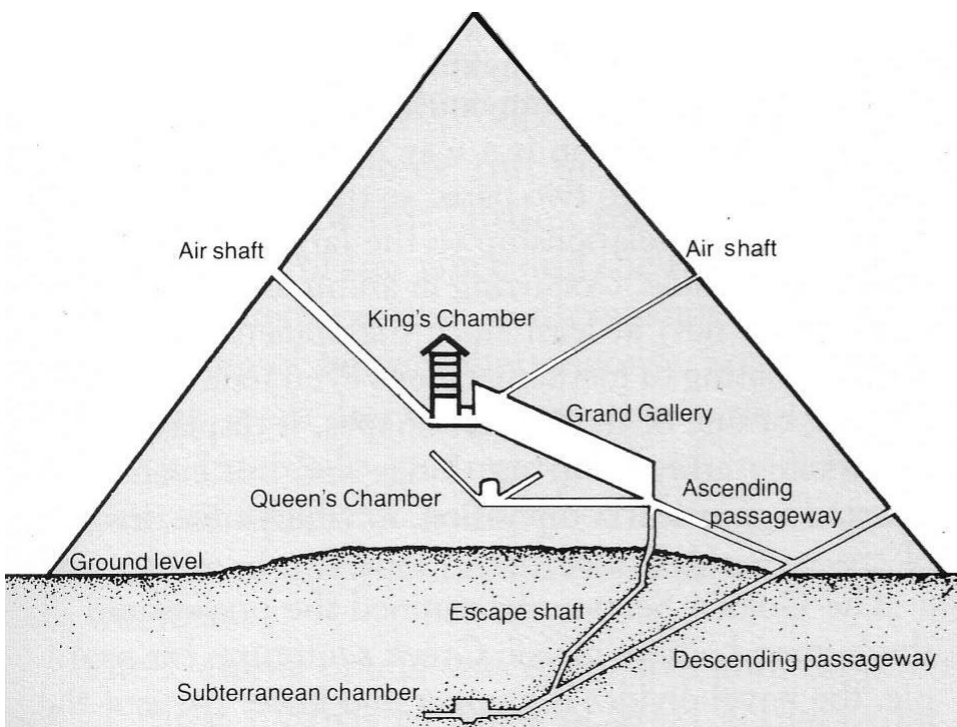
The Great Sphinx
With dimensions of 65 feet high, 260 feet long, and 20 feet wide, the Great Sphinx of Giza is the largest structure created from a single piece of stone.



Giza Pyramids



The [Great Sphinx](#) and the [Pyramids of Giza](#), built during the [Old Kingdom](#), are modern national icons that are at the heart of Egypt's thriving tourism industry





New Blue Nile River suspended bridge completed in 2009 by [Bridges to Prosperity](#) serves over 250,000 Ethiopians. It is the only pedestrian cable bridge over the Blue Nile in Ethiopia.

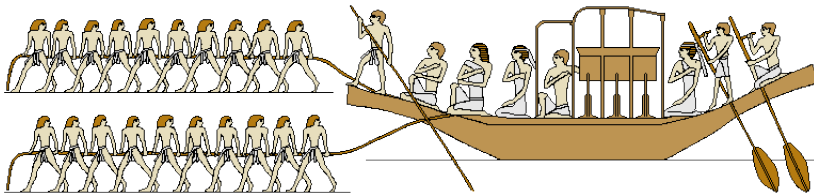
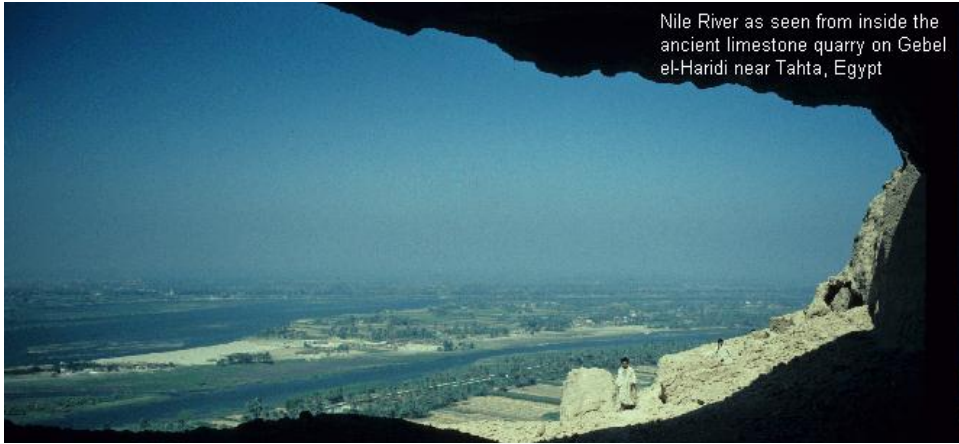


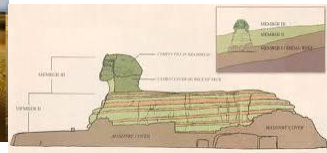
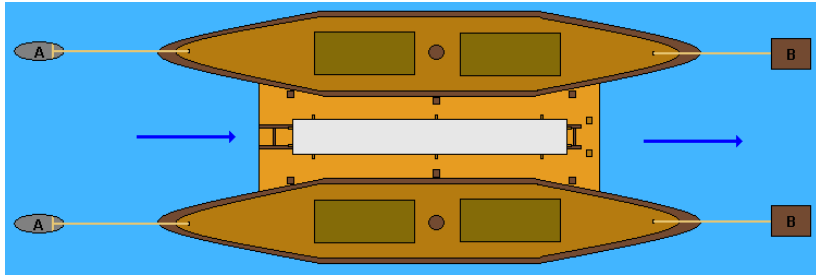
Men pull each other across Blue Nile River by rope prior to [Bridges to Prosperity](#) building new bridge

EQ wrecked 1 'god'











Mining In Ancient Egypt for Metals & precious Stones

With the Nile cutting through various rock formations, Egyptian quarries are often close to the river. Metal and precious stones on the other hand were found mostly in the desert, where living conditions were difficult and the security situation often precarious

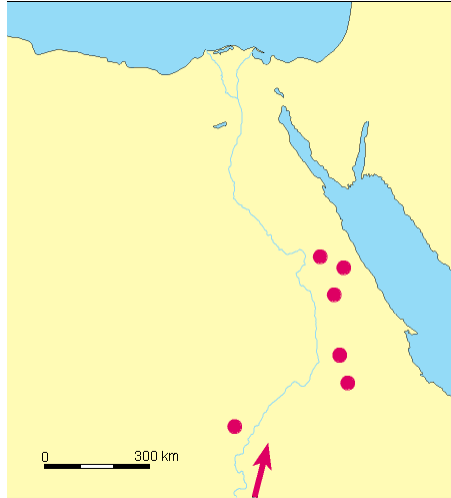
Work in the mines was therefore often seasonal

Gold was one of the first metals to be exploited. The *gold of the mountains*, as the scribes of Ramses III called it, was found mainly in the Eastern Desert and Nubia. Egyptian gold-mining site has been archaeologically studied and is one of the few documented gold sources within the Byzantine Empire
Copper, Iron, Silver also were mined later.

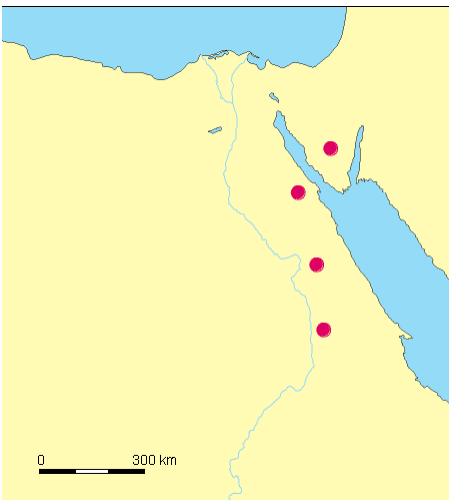




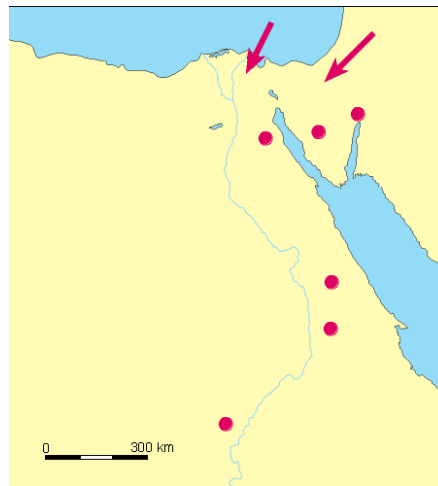
An Old mine opening



Gold Mines



Iron Mines



Copper Mines



Cleopatra **Mines** in **Egypt**



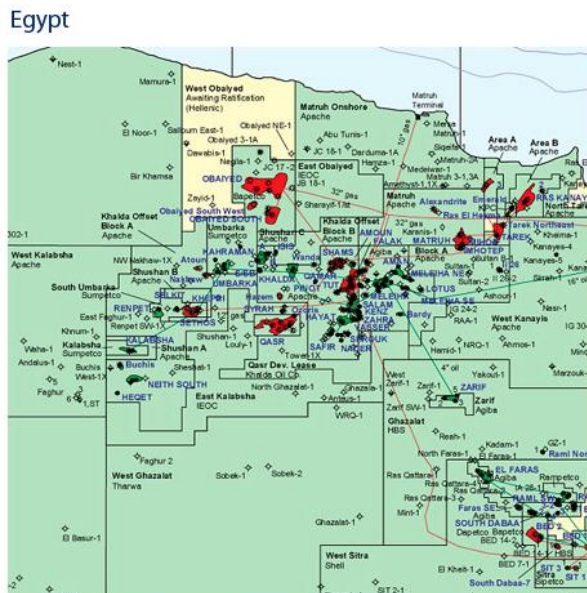
Metal-Workers' Workshop in Old **Egypt**. Copper and Iron Extraction.





Elizabeth Taylor as Cleopatra

wallmap shows active oil and gas fields, refineries, LNG plants, active and open blocks. This map of Egypt also gives locations of existing and planned pipelines.



With 18.3 billion barrels of oil, Egypt has achieved its highest-ever proven oil reserves during the 2009-2010 fiscal year ending last June, the state's official Egyptian agency announced.

Crossing the 18 billion barrels margin, despite increasing local consumption, is an impressive national milestone



the first oil field was discovered in Egypt in 1869 and it came into production in 1910. At this time, Anglo-Egyptian Oilfields (a joint venture between BP and Shell) was the major operator in the area and continued exploration and development until it was nationalised in 1964..

Energy plays an important role in Egypt's economy with Egypt being a net exporter of oil. The country also began exports of liquefied natural gas (LNG) from its first terminal in January 2005, adding another hard currency revenue stream, The Suez Canal and Sumed Pipeline are strategic routes for Persian Gulf oil shipments, making Egypt important from an oil transit point of view.

Other oilfields are located in the area bordering Libya known as the Western Desert which accounts for 16% of production, in the Sinai Peninsula (5%), in the Eastern Desert (3%) and offshore Port Said on the Mediterranean coast. Until the first major discovery in the Western Desert in 1966, activity was almost exclusively centred on the Gulf of Suez region. After this, exploration increased in the Western Desert area which became the site of most discoveries during the 1980's.



Egypt's petroleum ministry has decided to start production from 12 natural gas fields in 2010/2011 in order to meet growing domestic demand for natural gas, pan-Arab Asharq Al Awsat daily reports.

This will bring the country's output of sales gas to 6.7 billion cubic feet a day, the paper reports.

Average production of sales gas rose 9% in the first three years of Egypt's five-year plan running from 2007 to 2012 to about 5.8 billion cubic feet a day, a report by state-owned Egyptian Natural Gas Holding Co. "EGAS", said according to the daily.

Impact of Egyptian climate on the Egyptian national prides and treasures- monuments



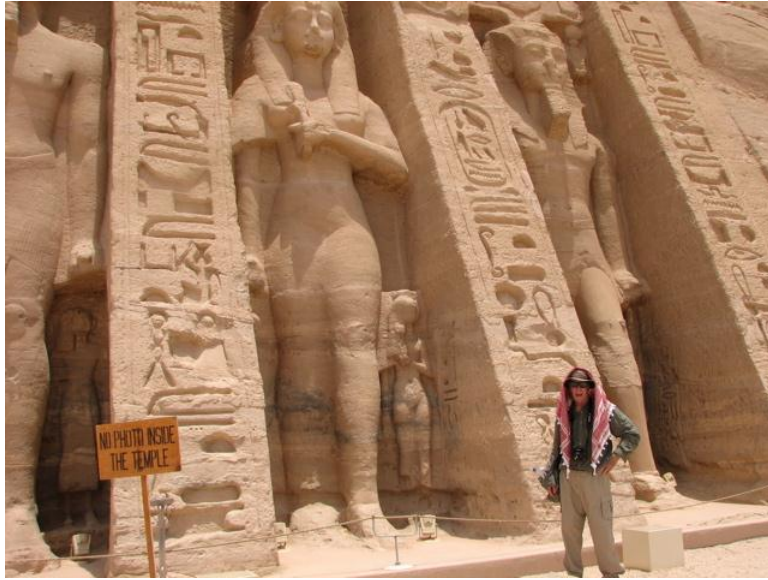






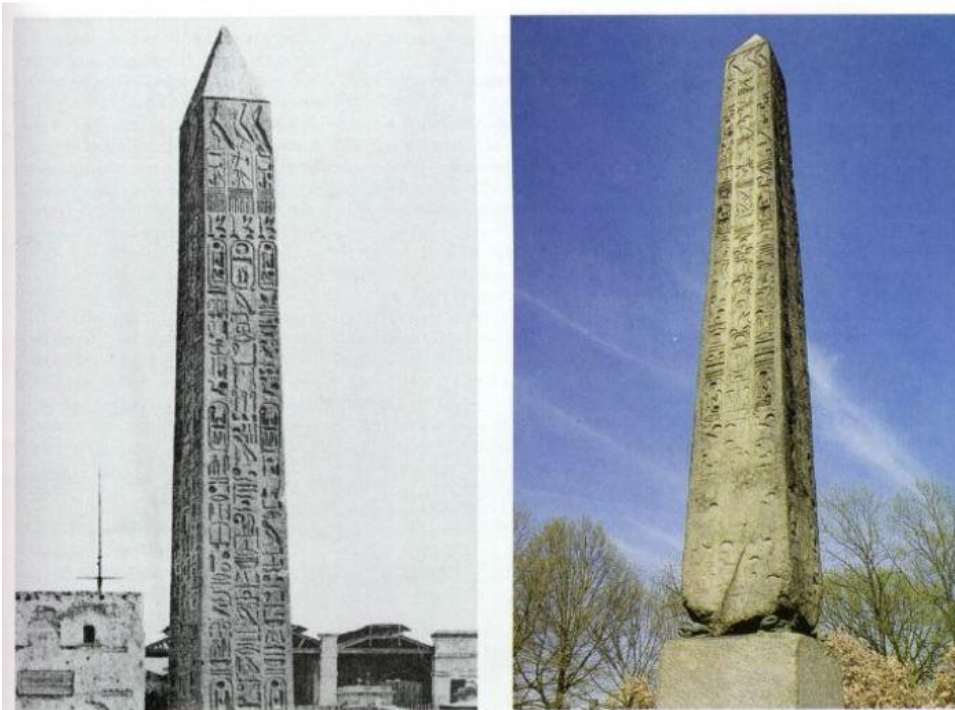
Figure 23.15 A monument before and after deterioration caused by acid rain. [*Westfälisches Amt für Denkmalpflege.*]



FIGURE 9.27 Atmospheric acids, especially sulfuric and nitric acids, have almost completely eaten away the face of this medieval statue. Each year, the total losses from air pollution damage to buildings and materials amount to billions of dollars.



Cleopatra's Needle, which was gifted to the United States government by [Egypt](#) as a token to commemorate the opening of the Suez Canal. The obelisk has stood in Central Park since 1881 [Egypt's](#) Supreme Council of Antiquities, Zahi Hawass, wrote in January that the obelisk's time in New York has degraded it, wearing away its hieroglyphs because of the city's acid rain. Hawass threatened to "take the necessary steps to bring this precious artifact home."



Since the delta no longer receives an annual supply of nutrients and sediments from upstream due to the construction of the [Aswan High Dam](#), the soils of the floodplains have become poorer, and large amounts of fertilizers are now used. [Topsoil](#) in the delta can be as much as 70 feet (21 m) in depth

People have lived in the Nile Delta region for thousands of years, and it has been intensively farmed for at least five thousand years. The Nile River used to flood on an annual basis, but this ended with the construction of the [Aswan Dam](#). Records from ancient times ([Pliny the Elder](#)) show that the delta had seven [distributaries](#): (from east to west)

About half of Egypt's 80 million people live in the Nile Delta region. Outside of major cities, population density in the delta averages 1,000 persons/km² or more. [Alexandria](#) is the largest city in the delta with an estimated population of more than 4 million

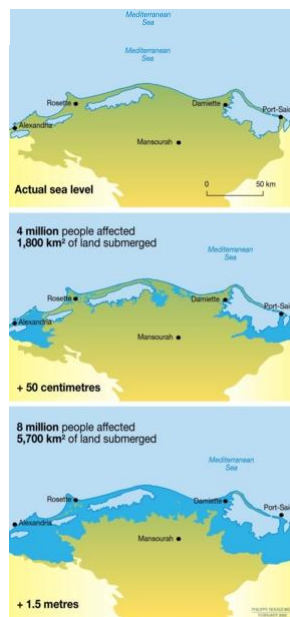
During Autumn, parts of the Nile River are red with [lotus flowers](#). The Lower Nile (North) and the Upper Nile (South) have plants that grow in abundance. The Lower Nile plant is the Egyptian lotus, and the Upper Nile plant is the [Cyperus papyrus](#) (papyrus sedge), although it is not nearly as plentiful as it once was, and is becoming quite rare.

The Nile Delta is eroding at a rate of 50 km² per year[], and it has been predicted that this Delta will have vanished by the year 2550 CE.

P
e

Furthermore, Egypt's Mediterranean coastline is being swallowed up by the sea because of [global warming](#) and the rise of the sea level, in some places as much as 100 yards a year.⁵ As the polar ice caps melt, much of the northern delta, including the ancient port city of [Alexandria](#), will disappear under the [Mediterranean](#). A 30 centimeters rise in sea level is expected to occur by 2025, flooding approximately 200 square kilometers (77 sq mi).⁶ The Nile Delta is turning into a salty wasteland by rising sea waters, forcing some farmers off their lands and others to import sand in a desperate bid to turn back the tide. Experts warn that global warming will have a major impact in the delta on agriculture resources, tourism and human migration besides shaking the region's fragile [ecosystems](#). Environmental damage to the Nile Delta is not yet one of Egypt's priorities, but experts say if the situation continues to deteriorate, it will trigger massive food shortages which could turn seven million people into "climate refugees" by the end of the century.

In north eastern [Egypt](#), the [Nile Delta](#) is where most Egyptian economic activity takes place. In the last 30 years, the government has reformed the highly centralized economy it inherited from President [Gamal Abdel Nasse](#)



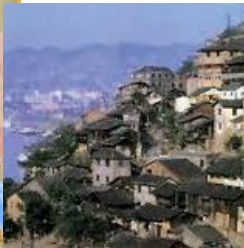
Impact of sea level rise on the Nile delta



TURIN PAPYRUS MAP FROM ANCIENT EGYPT



**The Western Canyon
Blue Nile Rive**



**canyon in the western wall
of the Nile River valley, not
far from Luxor**



**Great Pyramid of Giza,
the Valley of the Kings**



The Nile from Cairo

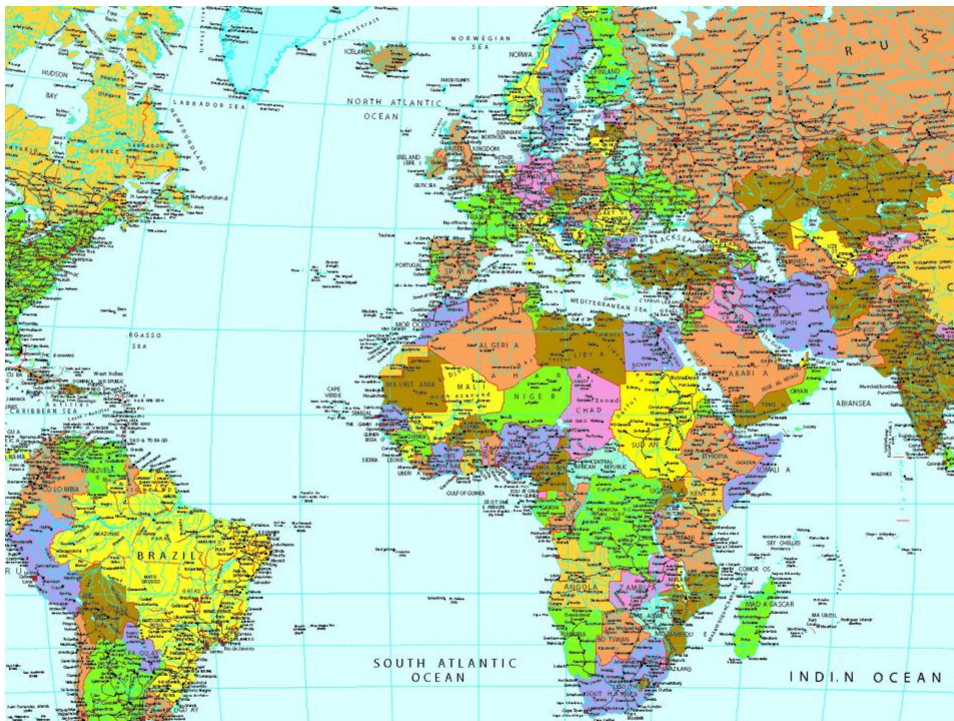
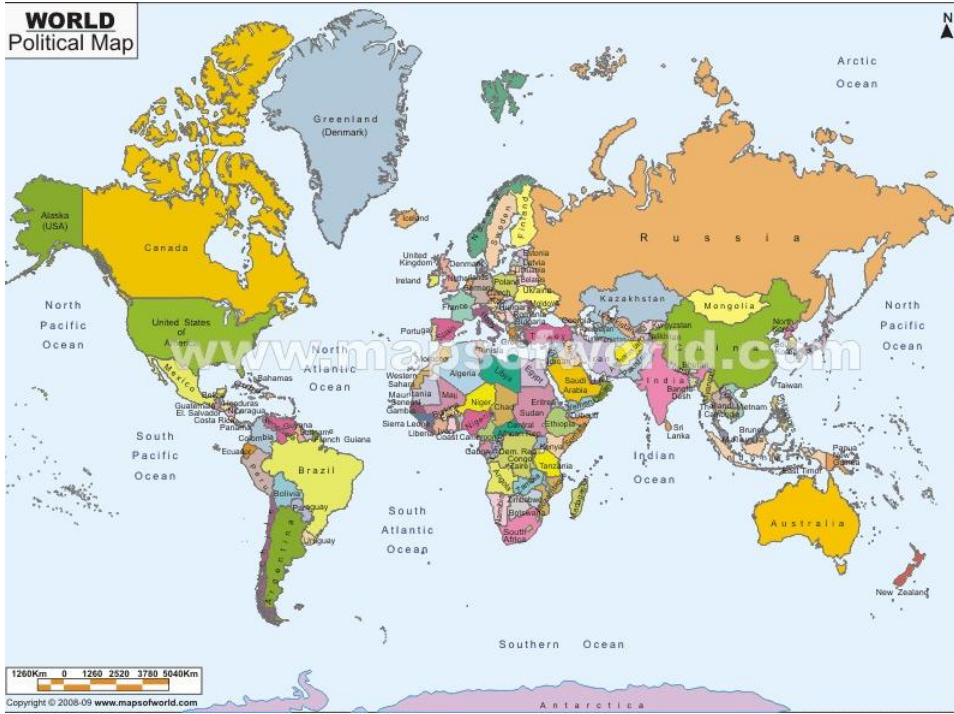
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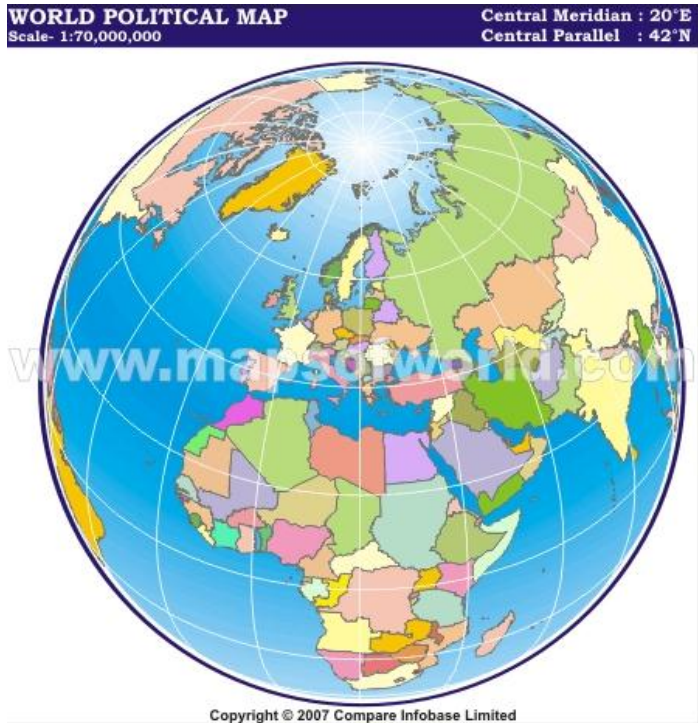
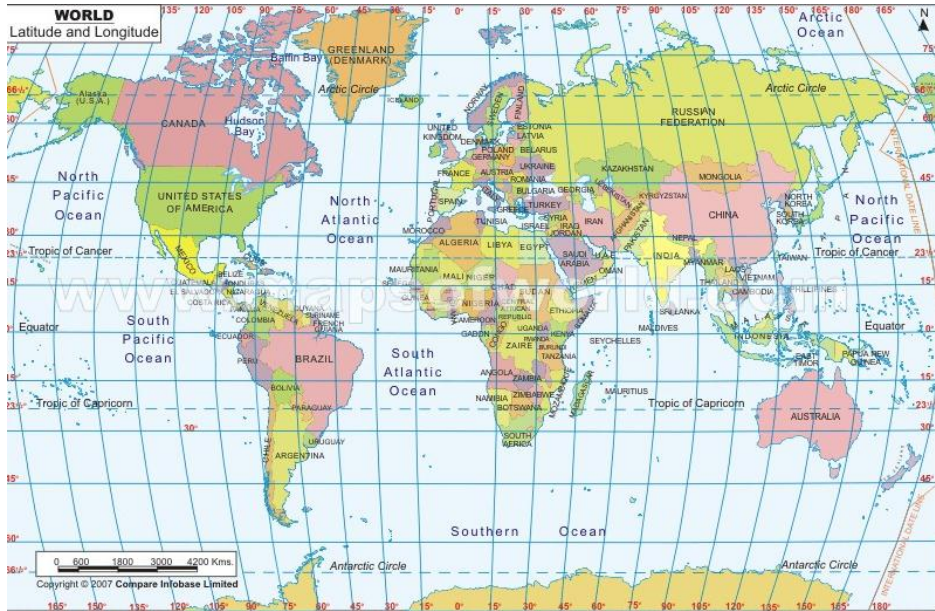


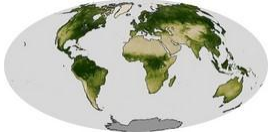
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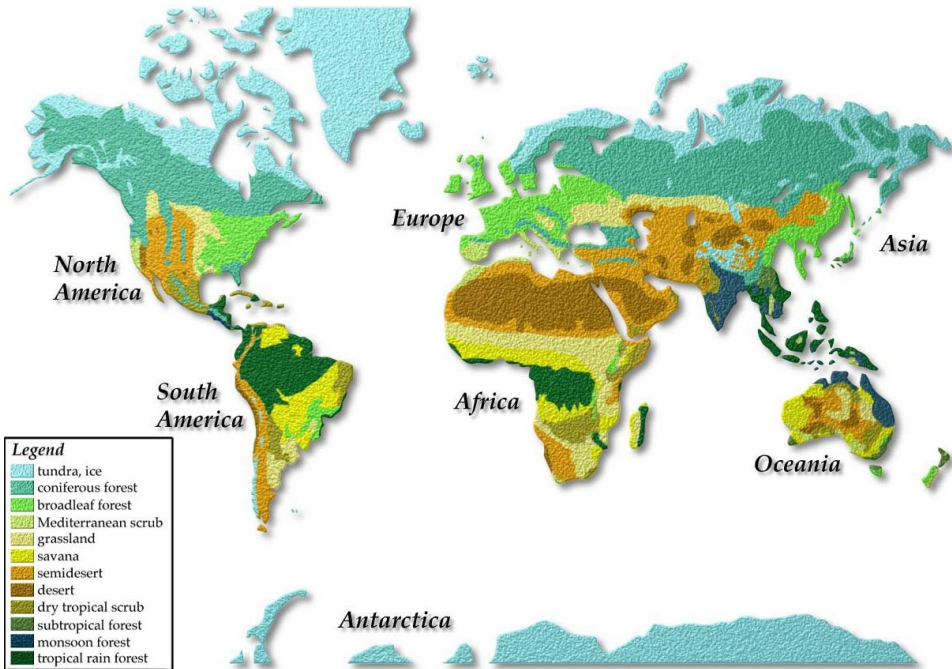


[Cairo skyline](#), as seen from the [Cairo Tower](#)





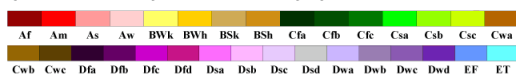






World Map of Köppen–Geiger Climate Classification

updated with CRU TS 2.1 temperature and VASCLimO v1.1 precipitation data 1951 to 2000



Main climates

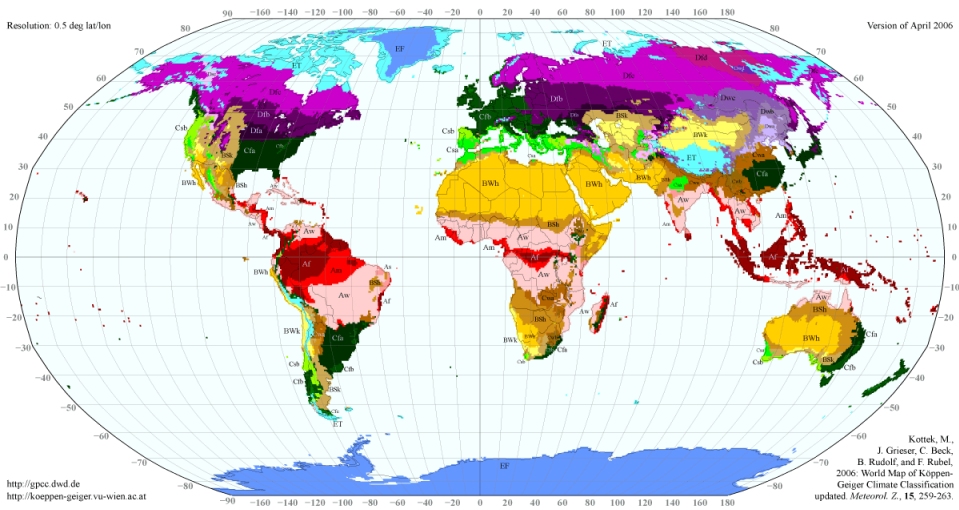
- A: equatorial
- B: arid
- C: warm temperate
- D: snow
- E: polar

Precipitation

- W: desert
- S: steppe
- f: fully humid
- s: summer dry
- w: winter dry
- m: monsoonal

Temperature

- h: hot arid
- k: cold arid
- a: hot summer
- b: warm summer
- c: cool summer
- d: extremely continental
- F: polar frost
- T: polar tundra



<http://gccc.dwd.de>
<http://koeppen-geiger.vu-wien.ac.at>

the river. Metal and precious stones on the other hand were found mostly in the desert, where living conditions were difficult and the security situation often precarious
Work in the mines was therefore often seasonal

Gold -Not only houses and outbuildings survive, but also streets, paths, roads, cemeteries, wells, guardposts, and mines and quarries. It is the first time an ancient Egyptian gold-mining site has been archaeologically studied and is one of the few documented gold sources within the Byzantine Empire.

Copper

Copper is probably the first metal to be worked in Egypt during the Neolithic (6th millennium BCE).

Iron, Silver, precious Stones



Maybe it should be called the Canyon Nile, because over half of its 800 km course from Lake Tana to Khartoum is through an impenetrable gorge. The canyon over much of its length is over 1500 m deep, just as deep as the Grand Canyon of the Colorado River in Arizona, U.S.A. Like the Grand Canyon, the Blue Nile Gorge exposes layers of rock laid down over hundreds of millions of years of earth history, with 150 million year old sandstones and limestones sandwiched between 800 million year old granites below and 20 million year old lava flows at the top. In spite of these similarities, the Blue Nile gorge is the more intimidating feature. Within 30 km of its source at Lake Tana the river enters a canyon which it does not leave for 400 km. This gorge is a tremendous obstacle for travel and communication from the north half of Ethiopia to the southern half. There is another difference between the two rivers: many people enjoy the raft ride down the Colorado through the Grand Canyon, but no one has ever floated down the Blue Nile and lived to brag about it

Etched vs. **bas relief**

Hieroglyphics

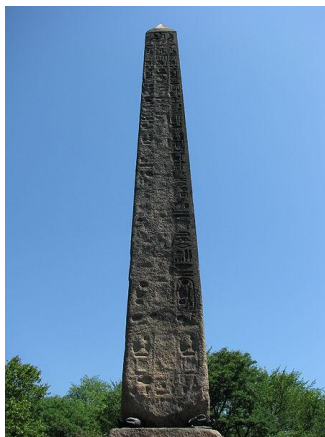
Aswan's unfinished obelisk

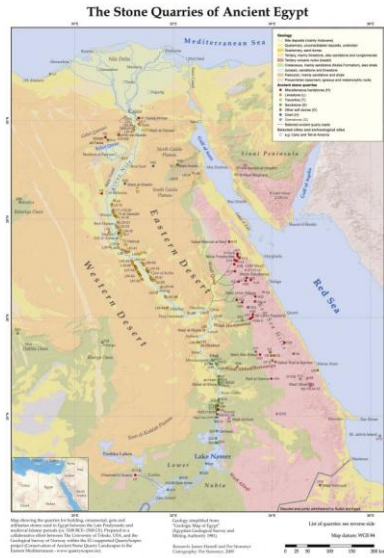


Cracked - worthless



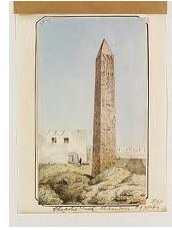
Cleopatra's Needle: **NYC**





Room w/view \$440/nite





In Egypt



Cleopatra's Needle as it stood at Alexandria in 1880





Cleopatra's Needle, a 3000-year-old

Cracked - worthless



Aswan's unfinished obelisk



Aswan's unfinished obelisk



Cleopatra's Needle: NYC



The **Nile** is a major north-flowing river in North Africa, generally regarded as the [longest river](#) in the world.^[3] It is 6,650 km (4,130 miles) long. It runs through the ten countries of [Sudan](#), [South Sudan](#), [Burundi](#), [Rwanda](#), [Democratic Republic of the Congo](#), [Tanzania](#), [Kenya](#), [Ethiopia](#), [Uganda](#) and [Egypt](#).^[4]

The Nile has two major [tributaries](#), the [White Nile](#) and [Blue Nile](#). The latter is the source of most of the water and [fertile soil](#). The former is the longer. The White Nile rises in the [Great Lakes](#) region of central Africa, with the most distant source. It flows north through [Tanzania](#), [Lake Victoria](#), [Uganda](#) and [South Sudan](#). The Blue Nile starts at [Lake Tana](#) in [Ethiopia](#) and flows into Sudan from the southeast. The two rivers meet near the Sudanese capital of Khartoum.

The northern section of the river flows almost entirely through [desert](#), from [Sudan](#) into [Egypt](#), a country [whose civilization](#) has depended on the river since ancient times. Most of the population and cities of Egypt lie along those parts of the Nile valley north of [Aswan](#), and nearly all the cultural and historical sites of [Ancient Egypt](#) are found along riverbanks. The Nile ends in a large [delta](#) that empties into the [Mediterranean Sea](#).

The Nile is famous as the **longest river in the world**. The river got its name from the Greek word Neilos, which means valley. The Nile floods the lands in [Egypt](#), leaving behind black fertile sediment. That's why the ancient Egyptians named the river **Ar**, meaning black

Why should the river that tumbles out of the Ethiopian highlands and joins the White Nile at Khartoum be called the Blue Nile? It is not particularly blue. Perhaps it should be called the Summer River, because for most of the year it provides little water compared to the White Nile, but in Summer it is very much the dominant tributary. In the summer, winds from the SE bring moist air from the Indian Ocean. This is forced to rise over the Ethiopian Plateau, half of which is over 2 km high; the highest point in Ethiopia - Ras Dejen - is about 4.5 km high. The moist air cools as it rises, and this wrings out the moisture in torrents known as monsoon. Monsoon rains wash the Ethiopian highlands in summer, filling every dry wash that drains down to the Blue Nile. The river itself swells so with water that at the confluence with the White Nile it causes its more sedate partner to dam back on itself. It is this annual flooding of the Blue Nile along with that of the Atbara to the north, which also flows out of the Ethiopian highlands, that caused the Nile to rise each year in Egypt. It is erosion of the basalt lavas of the Ethiopian highlands that allows the river each year to bring a fresh varnish of black mud to its floodplain.