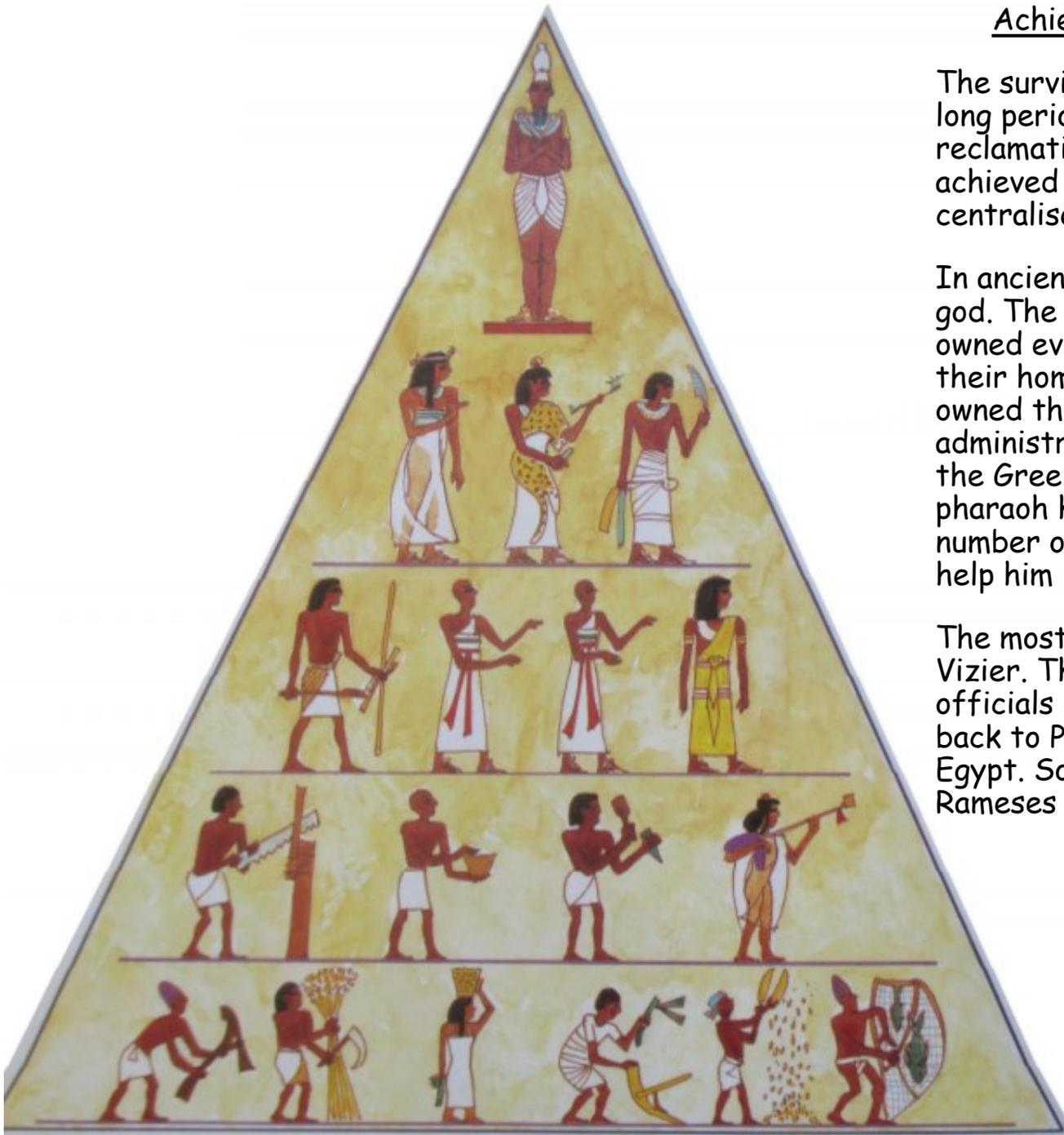


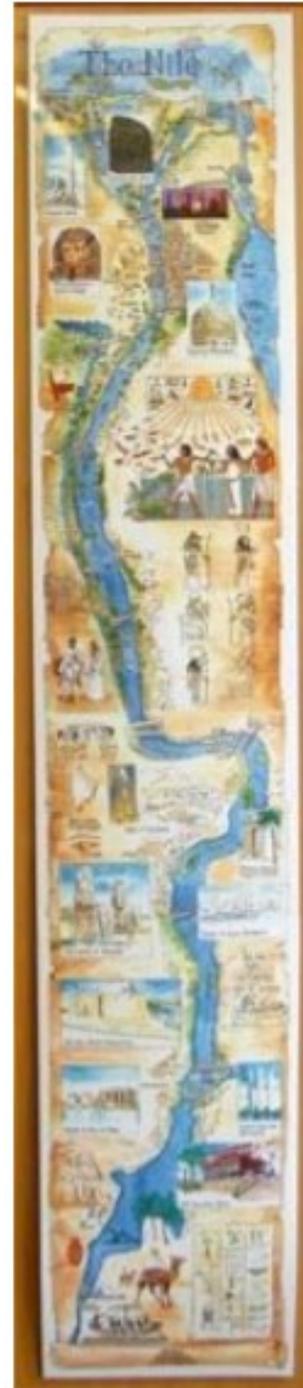
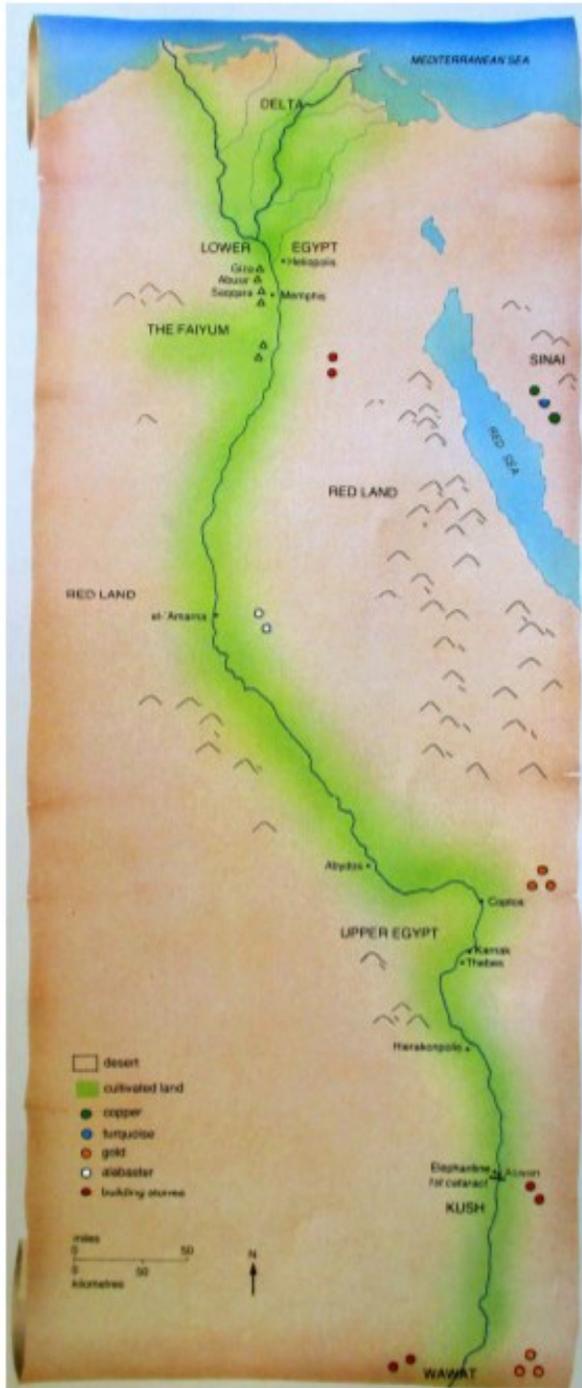
Achievement: Governance and Ruling Egypt

The survival of the Egyptian civilization for such a long period and the development of irrigation, land reclamation and pyramid building could only be achieved by a civilization with a strong, centralised government.

In ancient Egypt the pharaoh was regarded as a god. The pharaoh was in charge of everything and owned everything, Egyptian people did not own their homes or food or anything else, pharaoh owned them all. Egypt was divided into 42 administrative provinces, (later called nomes by the Greeks) all under the Pharaoh's rule. Each pharaoh had an army, a police force, and a huge number of ministers and government officials to help him rule the country.

The most important of these officials was the Vizier. The Vizier received reports from top officials every day from which he could report back to Pharaoh on what was happening all over Egypt. Sometimes Viziers became pharaohs, e.g. Rameses I and Amenemhet I.





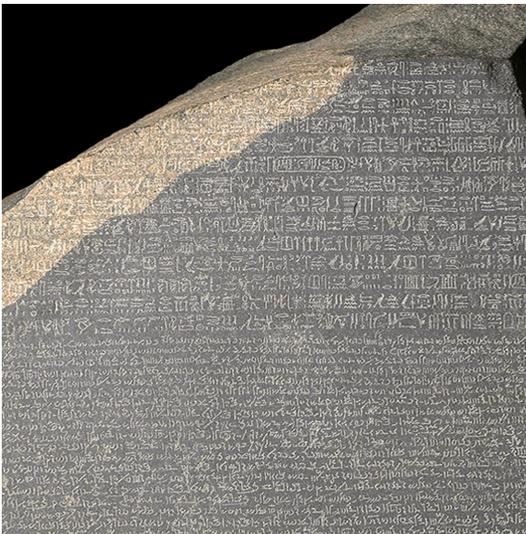
Achievement: Farming

The fertile soil it deposited every year in the annual flood went a long way to allowing Egyptian society to thrive and survive for so many centuries. This is because food production was so easy that agriculture did not need to involve the majority of the population just to produce enough food to feed everyone.

As a result, many Egyptians could be spared for other work, such as the building the pyramids etc with all the trades and knowledge these required to complete, producing metals, making goods such as jewellery, tools, foodstuffs, leather goods, papyrus items etc.

Nile water was used for irrigation using a system of canals to distribute water and lagoons and reservoirs to trap and store receding floodwater for use in drought conditions. The invention during the New Kingdom of the shaduf, (a bucket at the end of a counter-weighted pole), meant water could easily be lifted from the Nile or lagoons etc to the level of the fields or irrigation canals.

Despite mechanisation, these are still used in Egypt today. The Nile also helped trade. It was much easier to travel by boat than by any other method, but more than that, whilst its currents ran in one direction, the prevailing winds in Egypt blew the other, so giving free power going in either direction, up or down the Nile.



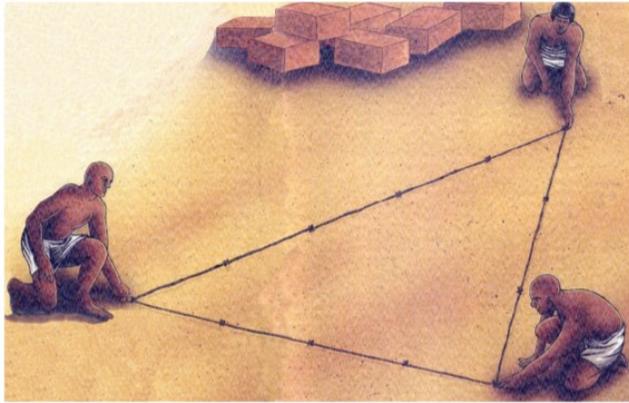
Achievement: Language, Papyrus, and the Rosetta Stone

The complexity of Egyptian society required a means of recording official matters relating to e.g. taxes, land occupation etc. Hence Egypt developed one of the earliest forms of writing. Originally this consisted of about 700 hieroglyphs. Hieroglyphs were not suited to speedy recording of figures and lists etc so a script called demotic was developed to speed up the writing of official records and documents. Towards the end of the Egyptian civilization, Greek was used too as Egypt was governed by Greece.

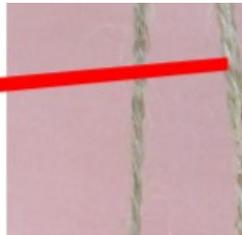
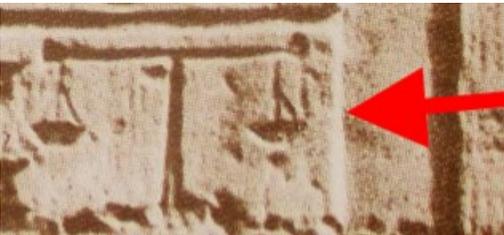
Scribes in Egypt were of quite high status because they were employed by the state to record official matters and tallies of goods, livestock, harvests etc. The number of scenes they appear in attests to their importance in Egyptian society and shows how wide ranging their work was. Scribes pens were made from reeds. Paints or coloured inks were made by grinding different rocks and minerals to powder.

Papyrus is where our word 'paper' comes from. It is made from the papyrus reeds that grew along the Nile. Although fragile, it is stable, so some papyri have survived many centuries! Pupils are tasked with researching how papyrus paper was made, and finding out what other uses the Egyptians had for papyrus.

By the 6th Century BC, no one could read Egyptian hieroglyphs. So the inscriptions found in tombs and on monuments were indecipherable. However, the discovery of the Rosetta stone in 1799 allowed eventual translation of hieroglyphs as it has the same inscription in Greek, Demotic and Hieroglyphs.



The Egyptians knew about right angled triangles. Once the angles had been defined the next two sides could be marked out. The final side of the square base was then simple to mark. They could use this technique to help them build the pyramids.



The ancient Egyptians use scales to measure the weight of objects. The Egyptians had a standard set of weights, which pupils are asked to research.

They also need to explain why standard measures were important. They were used to stop people lying about the metal that was in their metal products as the Egyptians could tell which metal it was from the weight!

Achievement: Mathematics

Egyptians have one of the earliest measurement systems we know of. Measurements were required for all sorts of things, building works, measuring land and cropped areas for tax purposes and more routine matters like making furniture.

Tax was charged on the area of land farmed, so a fair measurement system was important. Surveyors would also have to reinstate field boundaries periodically if they were washed away by the annual floods.

The Egyptian measurement system was based on human hands and arms and had three different units: the smallest, the digit, was from the width of a finger, next there was the palm which was the width of the palm of a hand. Finally the cubit was the distance from the tip of a man's middle finger to his elbow. The Egyptians were aware these measurements would vary from person to person so had a control cubit 'the Royal Cubit' which was a black granite rod against which all cubit rulers were calibrated. It measured about 52/53 cms in today's terms. Cubit rulers were divided into 28 digits. One palm = 4 digits, one cubit = 7 palms or 28 digits (4x7). For measuring long stretches ropes with knots tied every cubit were used. The distance between the knots had to be measured against cubit rulers.

Mathematics would be required to calculate angles of elevation for pyramids, which may be what the section of papyrus shows, calculate volumes of materials etc and more mundane matters like numbers of workers and supplies for them. However they were also concerned with other forms of mathematics. They would find the value of fractions. For major constructions, like pyramids, they would work out the perimeter of the base of the pyramid before it was built. Next, the sides that would run perpendicular to this had to be marked out.



Achievement: Tombs and Burial Customs

The ancient Egyptians' quest for a happy afterlife unintentionally resulted in the huge resource that gives us our knowledge of ancient Egyptian achievements - the decoration and furnishing of tombs with scenes of everyday life and goods such as tools, jewellery, furniture, food, model granaries or workshops etc. tell us virtually everything we know about ancient Egyptian's lives and achievements.



Tomb illustrations can give lots of information about farming practices, although it is unlikely any farmer could afford a tomb.

The Egyptians were also aware of the role of cleanliness in preventing some illnesses. This is also the reason bodies were buried well away from where people lived.





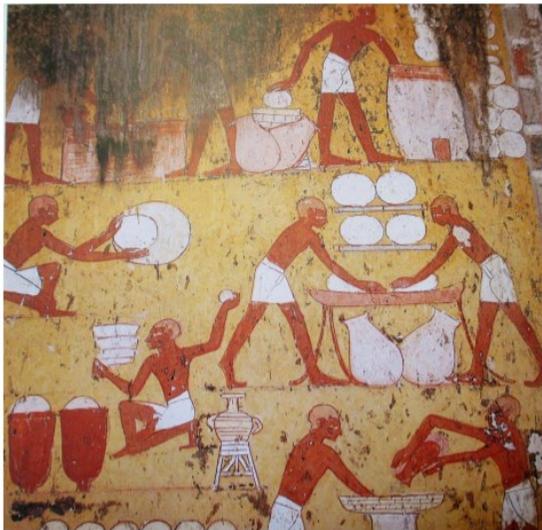
Achievement: Baking/Toothbrush and Toothpaste

Bread as we know it, using yeast to make it rise, is believed to have been first produced by the ancient Egyptians, the Greeks also credit them with first producing beer. In ancient Egypt, production of both was strongly linked and often carried out on the same premises.

Crumbled loaves were used to make beer rather than grain and yeast, since both were already in the bread, this is not as strange as it sounds).

Until the 13th dynasty (1753-1633 BCE) bread was baked by housewives at home, by servants on the noble estates and by specially recruited workers on the great construction sites. By the early New Kingdom were there commercial bakeries serving a lot of customers.

Because of the hard bread, the Egyptians invented toothbrushes and toothpaste to keep their teeth strong.





Achievement: Making Glass

There is some doubt as to when and where glass was invented. In Egypt, the first glass was a glaze or skin used on faience ware, like the hippopotamus included in this collection.

Faience dates from as far back as the turn of the 5th and 4th millennia BCE. Faience is made from a mixture of silica (sand), lime and soda, coloured with minerals like copper (for greenish blue) which is heated to a high temperature so it melts. The Egyptians had easy access to sand because of the desert.

At first the Egyptians painted the mixture onto sand and clay, or stone objects then heated them until the mixture melted to make a turquoise glaze like the shabti. Pure glass came later, in the form of translucent beads.



Later still, glass jewellery, amulets, little animal figures, mosaic stones and similar things made their appearance. Glass bottles etc did not appear until the in the New Kingdom, probably due to the Egyptians expanding their territory into the Middle East where they would have come across advanced ways of making glass objects. They probably brought back local craftsmen, maybe as slaves. However glass vessels were only ever for the pharaoh's court, top dignitaries and the high priesthood, not for ordinary Egyptians.



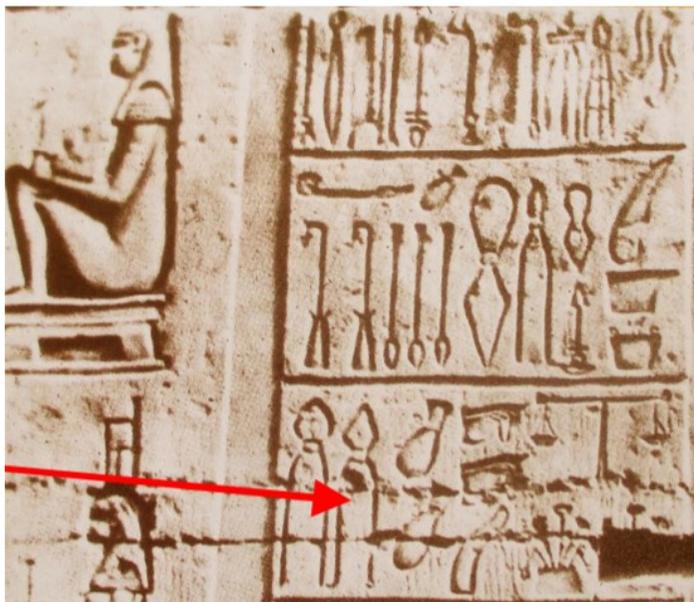
Achievement: Medicine

We know the Egyptians developed all sorts of medical implements from evidence decorated on tombs that featured medical equipment.

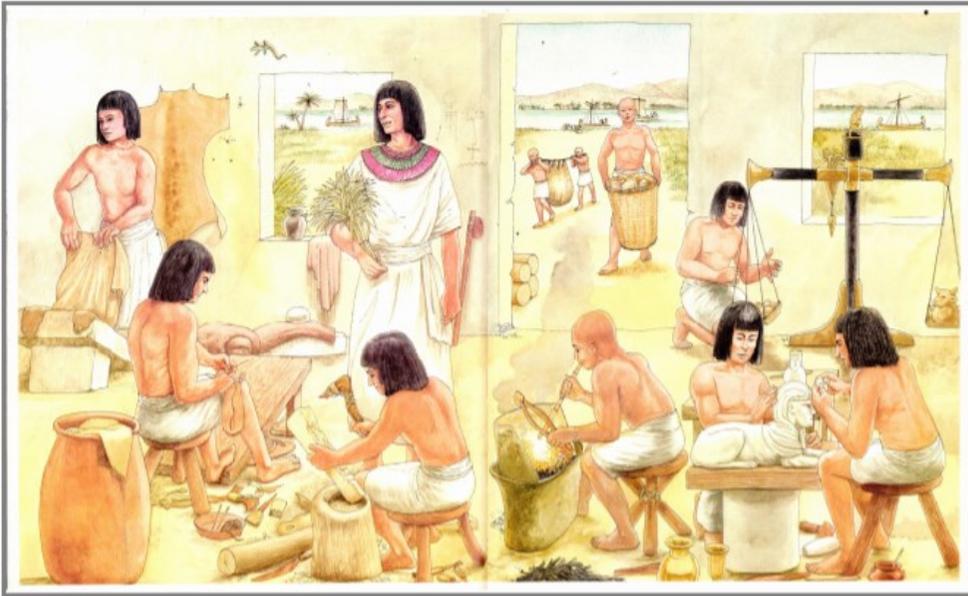
However, care should be taken to explain that Egyptian doctors were not involved in the mummification process - it was performed by priests. Much of our knowledge of Egyptian medicine comes from surviving papyri that give details of medical cases. One contains details of 48 cases. For each of these the illness is described, diagnosed and treatment explained. Today these would be called clinical observations. The same papyrus describes the way the heart works (although not circulation of the blood) and identifies pulse points.

Medical procedures described on other papyri are startlingly similar to today: deep cuts were stitched; broken bones were splinted and bandaged; operations were carried out with the patient sedated with drugs such as opium. Doctors used plants and minerals to extract or make drugs to treat illnesses, for example, copper salts were used as an antiseptic.

Many of their herbal cures such as garlic, used in cooking and as a medicine, are still widely used today. The drugs were measured into precise doses using balance scales and patients were given instructions on when and for how long the medicines were to be taken.



Achievement: Metal work and metal tools



The development of metal-working and the resulting use of metal tools is key to other developments in ancient Egypt, such as the building of pyramids, food production etc. Scenes featuring the stages of production of metals and metal objects appear in many ancient tombs. The smelting process used a crucible (stone/ceramic bowl with pouring spout) over an open fire burning charcoal. Metal ore was processed at source so the material used in the metal workshops was in the form of fairly pure cylindrical metal ingots or rings rather than ore-bearing lumps of rock. The ore was heated over fires burning charcoal.

The ability to make metals helped other aspects of Egyptian life particularly where tools were concerned, be it tools used to make other things e.g. stone working tools for basic buildings and huge projects, furniture making, jewellery production or things like medical implements.

Materials such as bone was still used for some tools (needles in this case). This links to the Stone, Bronze and Iron Age cultures in Britain and Europe where the advent of bronze and iron did not wipe out the use of bone, antler, flint etc as these items were readily available and easy to fashion into the required tools, which metals were not.

Both men and women wore jewellery which was made in specialist metal workshops.

Gold for jewellery was smelted like copper. Gold was mined in Egypt and many semiprecious minerals like carnelian (orange-red), feldspar (green) and amethyst (mauve) and small deposits of turquoise were also found there. They did not know of diamonds, emeralds or rubies. Lots of gold was used in Egyptian jewellery although most gold items were made of fired paste covered in gold leaf rather than being made of solid gold. This also applies to large gold items such as furniture, figures and statues which would be made of wood/stone/cartonnage covered in gold leaf. To make gold leaf small amounts of pure gold were beaten to make them thinner and thinner, until tissue-like gold leaf was created.

