

Colours of Ancient Egypt – An Educational Exhibition at the Egyptian Museum, Cairo

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While the monumental buildings of Ancient Egypt have lost their once-bright and colourful enhancement, damaged by sun and wind over millennia, the tombs and the funerary equipment found in them still retain their vibrant colours, thankfully preserved in ideal conditions of temperature and humidity in the museums of today. With the help of modern computer technology and projectors, the exhibition “Colours of Ancient Egypt” brings back those lost colours via image-mapping technology. The exhibition aims to inspire children, youngsters and adults about the history and art of a unique civilization.

Visitors to the ancient sites now see the magnificent monuments mainly as bland, unicoloured / uncoloured in the stone shades of their fashioning... but the Egyptians saw colour as vitally important and used it to wonderful effect in their masterpieces. To learn about the colours they employed, and how vital those colours were, one should visit the Egyptian Museum in Cairo, which is considered a complete exposition of the development – some may say evolution – of colours from prehistoric civilizations to Roman times. It is a complete scientific encyclopaedia. Colours used by the ancients remain astonishingly fresh and bright despite the thousands of years. When you look at them you feel that the artworks could have been coloured only yesterday.

Although the ancient Egyptians are known to have used a consistent palette of colours throughout the ages, they varied these constants by also making use of added shading and lightening. By examining these additional elements we are able to identify the historical epochs in which they were created: we say, for example, that a particular shade of green was used in the era of the Middle Kingdom, or a distinctive light blue was used in the Amarna period, and so on. The main colours were not chosen at random. Each had its own particular symbolic significance! Every colour carried its own meaning, something that will be discussed below.

Colouring of Original Artefacts

Let us start with the prehistoric sections on the ground floor and the upper floor. There we find wonderful examples, right back at the beginning of the history, of how human civilization developed and flourished, blossoming into works of art. In this period man / mankind / people began to record – on the natural rocks, on pottery, and on the plaster, they used to cover the walls of his tombs – the events occurring around him and in the environment that surrounded him. The art of this early period is amazing for an age dating back to earliest history thousands of years ago!

The artistic effort used to decorate the pottery of the period was astounding, for example the coloured artwork on ceramics of the Gerzeh / Naqada periods featuring animals, birds, especially cranes, and the local environment in general.

A wonderful example of the art of Predynastic Egypt is the Nekhen mural from the so-called “Tomb 100” in Nekhen / Hierakonpolis, centre of the Horus cult, which was excavated by the English archaeologist Frederick Green in 1898–1899. It is the world’s earliest example of a tomb with painted decoration on its plastered walls and we are lucky to have it preserved at the Egyptian Museum, Cairo. The colours used here are red, black and white, all three of them part of the basic colour palette in ancient Egypt. It is immediately clear that these colours have symbolic meaning: we see different boats, people and animals depicted in different colours. Vessels / ships heading to the south carry people painted red, the colour used to identify Egyptian men. But boats heading north contain people painted in black, i. e. Nubians or Africans. That became the tradition throughout Egyptian history, and we see Africans and Nubians always represented in black or dark

brown, as for example in the 11th dynasty scenes of Queen Ashit, wife of King Mentuhotep II, on her sarcophagus (JE 47267), of about 2050 BCE.

Similarly, the noble Maiherperi, from the middle of the 18th Dynasty (1540 BCE), is shown on his well-known Book of the Dead papyrus CG 24095 coloured in black. His mummy, which is well preserved, shows a young man with unmistakably African features.

The museum's collection of Early Dynastic and early Old Kingdom periods jewellery provides several wonderful examples of the ancient development of colours and a delicate sensitivity in the use of colour / polychromy in its manufacture, such as the Djer gold bracelets found in his tomb at Umm el-Qaab, fashioned of lapis lazuli, turquoise and amethyst (JE 35054, 1st Dynasty), and the astonishingly beautiful silver bracelets of Queen Hetepheres I, mother of Cheops, found in Giza (4th Dynasty, Reign of Snefru to early reign of Khufu, ca. 2575–2550 BCE). These were lovingly created from silver, turquoise, lapis lazuli and carnelian.

Wonderful examples of the colours used – bright and fresh, as if painted yesterday – are preserved in the museum's Old Kingdom collection, including the beautiful wall painting representing six geese from the Meidum mastaba of Itet (JE 34571). Also among our masterpieces are the wonderfully lifelike painted limestone statues of two members of the ruling family, Prince Rahotep and his wife Nofret (4th Dynasty), discovered by August Mariette in 1871. Here we recognize the main colours used by the Egyptians, reddish brown for the skin of the man and yellow for the woman, pure white for the dress, and black for the hair and wig as for the hieroglyphic inscription writing on a white background. The collar Nofret is wearing is reminiscent of the actual type of jewellery worn by women at that period.

Other beautifully coloured reliefs from the Old Kingdom are seen in several different scenes, including one showing a fight between boatmen on papyrus boats (Saqqara, 6th Dynasty); and painted false doors and sarcophagi highlight the same artistic attention to detail and custom.

In the Middle Kingdom, artists continued to use basically the same colour palette, but varied slightly, using more degrees of green while mixing it with light blue. Beautifully decorated wooden models, including those from the tomb of the noble Meketre (11th Dynasty) provide a complete view of the colours used at that time. The tomb also provides us with a large model of a courtyard with a columned canopy for the inspection of cattle. The shelter's columns are picked out in green and yellow, the cattle painted brown, white and black-and-white. All the farmers shown are men, wearing short white kilts and black wigs. It looks so realistic that it could be a scene from real life.

The age's colours are highlighted by the wooden statue of a servant carrying offerings, the very finest example among painted wooden statues. The whole figure, dressed in a garment of beaded netting, is coloured: the broad collar, bracelets and anklets are painted in red, blue, green and white to imitate the beads that will have made up the actual garment itself.

Painted limestone sarcophagi like that of queen Ashit (11th Dynasty) and the painted wooden coffin of Neferi-Wahkare from Deir el-Bersha (12th Dynasty, CG 28088) reveal the skills of the artists working on different surfaces. Other examples are to be found, including various painted limestone funerary stelae like the Stela of Amenemhat, from Assasif (late 11th Dynasty, JE 45626).

From the jewellery buried to serve the kings, queens and nobles in the afterlife we can learn a lot about the colours used by the people of the Middle Kingdom and later periods to understand some of the symbolism by studying their use of semi-precious stones. The jewels were meticulously formed from gold, silver, amethyst, garnet, jasper, onyx, hematite, turquoise, lapis lazuli, copper, malachite and faience (fine tin-glazed pottery). All, with their varying panoply of colours, have their individual symbolic meanings in the religious beliefs of Ancient Egypt!

Jewellery always carried a message, offering protection from evil and believed to bring prosperity, good luck and joy in both the present and the afterlife. Gold was considered eternal and indestructible: it was used to represent the flesh of the gods and the sun, while silver, a symbol of eternal life associated with the moon and purity, assumed the role of their bones. Each of the semi-precious stones carried its own message. Amethyst, a favourite stone of the Egyptians as far back as the First Dynasty or even before, was thought to protect those wearing it against feeling fear and against witchcraft. Garnet (or carnelian), the colour of the setting sun, was believed to preserve the stability of the wearer. Many amulets, such as the Osiris Djed pillar, Isis

Tit knot, the heart amulet and the eye of Horus, were used to protect both the living and the dead. And jasper amulets carved with these symbols and inscriptions from the Book of the Dead were placed on the mummy and buried with it to ensure safe passage in the afterlife. Turquoise, which was associated with the goddess Hathor, provided powerful protection. The stone malachite was renowned for balance and protection and was thought to amplify energy of all kinds. Its green colour was associated with the power of resurrection and fertility, so it became known as the colour of eternal paradise known as the “Field of Malachite”. One of the most appreciated of the semi-precious stones was lapis lazuli, which had to be imported vast distances from Afghanistan. It was highly prized from as early as the Archaic Period, as mentioned above in connection with jewellery found in the tomb of Djer, second king of the 1st Dynasty. The pharaohs favoured this bright blue stone and, as also the nation’s supreme judges, wore it carved with the emblem of Maat, the goddess of truth. It had deep religious significance, so all kinds of memorable jewellery has lapis lazuli inlays, including of course the Tutankhamun treasures and his mask. Egyptians saw it as a divine stone, so we sometimes see the gods, and especially Ptah, represented with a head formed from lapis.

Among the vast amount of jewellery discovered in Egypt we next take a look at some examples from the tombs of the queens and princesses of the 12th Dynasty (Taf. XVII.1–2), such as the assemblages of Sathathorinet, daughter of Senwosret II, from Lahun, and of Sathathor, daughter of Senusert II or III, discovered in Dahshur. Both use gold, carnelian, lapis lazuli, turquoise, garnet and green feldspar. Another prime example is the golden crowns of the princess Khnumet, daughter of Amenemhat II, also from Dahshur, which is inlaid with semi-precious stones in a very sophisticated way.

The vital importance of using certain semi-precious stones repeats itself also in the New Kingdom, with famous examples including the mask of Tutankhamun and later the treasures of Tanis found in intact tombs by Pierre Montet in 1939–1940 in the great temple of Amenre in Tanis. Beside the masks and coffins of this dynasty, Montet found a great collection of jewellery: gold necklaces, rings and amulets inlaid with red and green jasper, lapis lazuli, black, red and blue glass and green feldspar. These were made for the kings of the 21st Dynasty including especially Psusennes I, Shosheng II, Amenemope among others (Taf. XVII.3).

With the New Kingdom we start to see the appearance on papyri of the so-called Book of the Dead, which was used instead of coffin texts, and the Egyptian artist varied his colours / chromatic palette slightly from the established palette to suit the delicate material, using thin brushes and light colours, similar to watercolour. The Egyptian Museum is fortunate to have a wonderful collection of beautifully decorated papyri, among them the abovementioned Papyrus of Maiherperi (JE 33844 – CG 24095) found in his tomb KV 36 in the Valley of the Kings by the French archaeologist Victor Loret in 1899. Maiherperi was “Fan bearer and a Child of the royal Nursery” from the time of Hatshepsut and Thutmose III. The papyrus, which is 11.75m. long, is decorated with some 26 vignettes beautifully coloured in white, black, brown, red, turquoise blue, grey-blue, rose and orange (Taf. XVII.4).

The Papyrus of Yuya is now restored and exhibited in the Egyptian Museum for the first time since its discovery in his tomb, KV46, by the American archaeologist Theodore M. Davis in the year 1905! The papyrus is 9.70 m long and contains 40 chapters written in linear hieroglyphs, a form which is a transition towards hieratic. Vignettes illustrating some of the chapters are well drawn and beautifully coloured. The papyrus has two exceptional scenes recalling some of the real-life features of Yuya: the first shows him with his wife Tuya adoring Osiris, and in the other he is seen alone approaching the Fields of Reeds (Paradise). In both cases he wears a white wig to indicate his advanced age when he died in about 1374 BC. Yuya, the father of Queen Ti, carried the title “God Father” at the time of Amenhotep III. In his papyrus the artists used the same colours as in Maiherperi, but with more intensive green.

With regard to murals the museum is exceptionally rich in wall paintings found in the King’s House in Amarna by Flinders Petrie in 1891–1892 and by John Pendlebury in 1931–1932. Because Akhenaton loved nature, many buildings in Amarna, and especially in the royal residence, had their walls and floors painted beautifully to show manifestations of the natural world surrounding him, as mentioned in his poetry. Wonderful landscapes with frescoes featuring reeds, water, birds and animals enhanced the walls, ceilings and floors of the palaces of Amarna and elsewhere. We see for example scenes in the marshes with lotus and papyrus flourishing and flying duck in vivid and delightful colours triggering electric feelings in the viewer because of their beauty and accuracy.

Regarding funerary objects the upper floor of the museum has an extensive and remarkable collection of tomb equipment and coffins from the New Kingdom to Roman times which are also rich in ancient and vivid colour.

Some of these were discovered in intact tombs and so are displayed as complete collections in separated rooms, for example that of Maiherperi with its so-called white coffins and black coffins, and that of Senne-djem, which was found in his tomb at Deir el Medina. This contained a wonderful painted wooden outer coffin and sledge (JE 27301), inner coffin and mummy-board (JE 27308), canopic box (JE 27307), two ush-abti-coffins, a unique door (JE 27303) and many other objects. All are beautifully decorated with scenes similar to those covering the walls of the Deir el Medina tomb, specifically making use of the same colours used in Deir el Medina itself with distinctive yellow background.

From the New Kingdom onwards the Egyptian artist put all his skills into decorating the coffins in colour, as on the papyri, and especially on the sets of coffins containing different coffins inside each other (like a Russian doll). The museum displays a wonderful collection of set coffins belonging to the priests of the 21st Dynasty – the so-called yellow coffins. Another example is the beautifully decorated wooden coffin of Maat-ka-ra, wife of the high priest Panedjem I and daughter of king Psusennes I of the 21st Dynasty found in Thebes at the cachette of Deir el Bahari. Its cover represents a beautiful woman carrying a heavy wig coloured in blue, reddish brown and gold. The body is completely covered with protective gods in black and blue. It is a true masterpiece of art.

An immense attraction in the Museum, alongside the treasures of Tutankhamun, Yuya and Tuya and similar masterpieces, are the so-called Fayoum portraits – mummy portraits painted as an actual realistic portrait of the deceased in distinct colours – which were placed over the faces of the mummies on burial. Most of these life-like portraits are painted on wood. The technique divides into two groups, encaustic paintings, in which the colours are mixed with wax, and tempera painting, in which the pigment is tempered with a water-soluble binder such as egg yolk. They date back to the imperial Roman era, late 1st century BC or early 1st century AD onwards. In addition, the collection of cartonnage mummy masks, made in relief, plastered, painted and gilded, shine their own light on the use of colour in the ancient world.

Many of the materials the Ancient Egyptian used in their colouring can still be seen in the Egyptian Museum: they are often classified as either semi-precious, like lapis lazuli and turquoise, or simple stones or charcoal. But the value and the rarity of the materials used were far from the only aspects that mattered in ancient times. Even though gold and silver were highly cherished, the Egyptians found the symbolic meaning of the colours and the beauty of an image just as important. Through careful selection of the colours, they worked hard to reveal the meaning of an image and to saturate it with power.

The true meaning of the colour is captured in the ancient Egyptian word *iwn*, which stands for “colour”, as well as disposition, nature and character, indicating the intense closeness of the link between the concept of colour and the essence of being. As mentioned above, six colour groups – white, black, red, green, blue and yellow – are key to ancient Egyptian art. To this day, the colours of some ancient artefacts are as vivid and stunning as thousands of years ago. Such longevity comes from the range of mineral compounds used in paint production. From prehistory until the Roman period the main colours used were red, black and white. A good example of that is the painted statue of Nephpetre – Mentuhotep II from his mortuary temple at Deir el-Bahri. The king, in the position of Osiris, wears the red crown of Lower Egypt and the traditional white short jubilee festival mantel. He is coloured black, the colour of Osiris, god of the underworld, resurrection and fertility. It is the colour of the black land of Egypt (*kemet*). Black paint was made from ground charcoal and carbon sometimes mixed with burnt animal bones. Egyptian use of black is often misinterpreted today as a sign of evil because of its modern association with darkness, death and grief.

Red, which was associated with blood and fire, had two aspects: life and destruction. It was the colour of the god Set, god of chaos. Red was also used to signify danger or anger, as in depictions of the eye of Ra, which he used for punishment. In modern Egyptian folklore it has the same meaning, that is, fury or anger. One would say, he showed the red eye as a symbol of punishment. Red paint was made from red ochre and oxidised iron.

White has the same meaning as today: it symbolized purity, cleanliness, clarity and sacredness. Modern Egyptians retain the tradition of wearing white at their festivals or rituals such as pilgrimage to Mecca, just as their ancient forebears did thousands of years ago. Priests are always depicted wearing white on the walls of the temples. White was the dress of most of the goddesses like Isis and Nephthys as well as red.

Blue was used in ancient Egypt in landscapes to express the waters of the Blue Nile. Used in painting the ceilings of temples and tombs to express the clear sky, it also symbolizes life and birth in association with the annual Nile flood and the consequent fertility and agriculture of the Egyptian land, hence the colour of the god Hapi and that of the skin of the god Amun. This colour has several sources. Azurite (copper carbonate), one of the oldest, is found in its natural state in Sinai and the Eastern Desert but not in Egypt itself, so Egyptian blue is not a natural colour but had to be artificially produced. It is considered the first synthetic pigment, made from calcium copper silicate. Blue was the most popular colour of the ancient Egyptians and because it was considered sacred we see it used for the wigs and beards of the deities, especially the god Ptah. The head of his statue was covered with real lapis lazuli, as in the Tutankhamun treasure.

Green, the colour of resurrection, life and afterlife and all good things, is still today used to express good wishes. The ancients made it from malachite mixed with copper from Serabit el Khadim in Sinai. It is the colour of paradise, or the Field of Reeds in Egyptian terms. The god Osiris, god of fertility, agriculture and vegetation as well as death and afterlife, is usually represented in green. It was also the colour of the Eye of Horus and the head of Hathor amulets for protection. In general, it was the colour of positive things and protection against red / evil.

Yellow was the colour of the sun and the gods, symbolizing gold, the flesh of the gods, and eternity, indestructible and perfection. The paint was made by mixing yellow ochre with oxides of lead. When mixed with white, it represents purity and sacredness. Yellow was also the colour in which the skin of Egyptian women was represented, indicating that they spent most of their time at home away from the strong rays of the sun, contrary to the men, who were depicted in reddish-brown. Foreigners from the north, like Asiatic and Mediterranean people, were also depicted in yellow.

In addition to these basic colours, there were also some intermediate colours that were created by mixing. These mixed colours include brown, grey, pink, orange and purple.

The museum is fortunate to have countless examples of beautiful decorated objects in its display halls. One would need several volumes to describe them all in detail, but there is one outstanding example for everything that has been discussed above about the colours of Ancient Egypt. This is the glorious chapel of the goddess Hathor found at Deir el Bahri from the 18th Dynasty (end of the reign of Thutmose III, start of the reign of Amenhotep II). It combines in its decoration, both texts and scenes, all the colours known in Ancient Egypt and it gives us a complete spectrum of the decoration of tombs and temples, of scenery, inscriptions and vibrant colours (Taf. XVIII.1).

The exhibition project “Colours of Ancient Egypt”

“Colours of Ancient Egypt” was presented by Andreas Uranowicz, a digital artist, and Hadi El Rabbat, a project designer and a member of the Children Alliance for Tradition and Social Engagement. The project is a new media exhibition that brings ancient Egyptian art back to life through the so called “image-mapping” technique. The project was carried out in the Egyptian Museum, Cairo, from November 2018 to January 2019. With this technique the exhibitors recoloured reliefs by projecting light on to the ancient objects to make them appear the way they used to look like. In other words, some of the oldest pieces of art merge with new media technology to transfigure the present into the past. Visitors from all over the world experienced a historically authentic exhibition, which displayed the evolution of colours used by Ancient Egyptians.

In this context each relevant time period is represented by one outstanding piece, which the exhibitors and a team comprising the chief archaeologists at the museum together with its general director, Sabah Abdel Razek, carefully picked out together. This collection was displayed in Room 44 (150 sq. m.) inside the Museum. For further understanding of this evolution, the exhibitors also presented original colour resources, such as minerals, plants and stones used during these time-periods.

Alongside the exhibition, workshops invite schools and universities to the colourful history of their country. The exhibitors integrate a concept that connects science, art history and social engagement. Through a timeline, the artworks presented tell the story of the evolution of colour usage in ancient Egypt and include an educational factor in which the research is presented through interactive means.

One of the education techniques used with schoolchildren was gallery talks. After the children did a scavenger hunt that led them from the Old Kingdom to the New, they then mixed colour resources in just the

same way as they were prepared millennia ago, so they could experience first-hand what kind of challenges the artists had to face when creating these magnificent pieces (this process took place in the Children's museum of the Egyptian Museum). Finally, the process of archaeological research was explained and demonstrated, and how this is transcribed into the technological art of image-mapping (Taf. XVIII.2–3).

For visually impaired visitors the exhibitors constructed a concept, in which they increased the colour contrast and intensity of the light projector. This creative process enabled the visually impaired community, for the first time in their lives, to get a feel for what the colours in ancient Egypt were.

With university students, the exhibitors explained the technique behind “image-mapping”, and then gathered in a meeting room in which they discussed the future of archaeology, the transmission of archaeological knowledge to the public in the technological age, and the future of archaeological tourism. Some students came up with ideas for apps that could be used for education in the museum, or from home. Others asked if one could make a missing hand of a statue appear by using the light-projector (which is possible). This discussion gave the participants several ideas about how one could improve the educational experience in a museum and what museum education may look like in the near future.

“Image-mapping” is a projection technology used to colour objects by drawing with visible light through a computer and a projector. The light-projected shapes appear coloured step by step as the digital artists carefully fill out the hieroglyphics and the depicted scenes. While doing this the exhibitors work hand in hand with curators and conservators in the museum to ensure a colour accuracy with accordance to originality. During this procedure the exhibitors inspired curators to scientifically research each chosen object to find out what the true colours were. This generated historical scholarship for each relevant time period and motivated the academic practice of young archaeologists. Moreover, projected light is no different than other visible light therefore will create no damage to the objects (Taf. XVIII.4–XX.1).

For example, one of the objects the team used for the exhibition is the uncoloured relief block / piece of Amenhotep II (JE 55301). As the conservators found yellow colour pigments on the stela, they then had to find out whether this yellow was a grounding colour or the colour of the finished piece. Comparing it with the New Kingdom stela of Amenhotep, ÄS 178 at the Kunsthistorisches Museum in Vienna, the conservators predicted that JE 55301 could in fact have been painted yellow.

Conclusion

This unique project has the power to enhance curiosity among both visitors and academics in the museum. With this new technology, the exhibition attracted new visitors and pulled them back emotionally into the time of ancient Egypt with all its glory. Even the conservators and archaeologists were able to see a new door opening for how archaeological education may look in the near future. Furthermore, this event enabled a new form of communication with the spectators and a grants path to a new level of educational engagement.

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