

The Monastery of St. Bishoy in Wadi Al-Natrun reveals its treasure of the unique Encaustic paintings

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ملخص البحث

على الرغم من ندرة المعلومات التاريخية، فلا شك أن دير "الابا بيشوى" ينتمي إلى أقدم المنشآت الرهبانية الموجودة في "وداي النطرون". لذا فمن المؤكد أنه قد عانى من غارات "البربر" المتعددة التي أدت إلى عمل تجديدات وإعادة بناء الكنائس والقلالي والمرافق، وفي القرن التاسع الميلادي، بُنيت الأسوار الأولى والبرج من أجل تأمين الدير. وباستثناء الترميم المكثف للكنيسة والمباني، الذي قام به البطريرك "بنيامين الثاني" ¹³⁰، لا يُعرف عن الدير في القرون التالية سوى أقل القليل. ومن خلال هذا البحث سوف يتم ألقاء الضوء على أحدث الاكتشافات التي تمت داخل الكنيسة الأثرية بالدير ما بين عام 2022م إلى عام 2024م أثناء عملية الترميم، وهي بعض الأعمدة الرخامية في صحن الكنيسة والتي تحمل تصاوير شمعية (Encaustic)، ربما تمثل بعض القديسين أو بطاركة الكنيسة القبطية والتي تشبه إلى حد كبير بورتريهات الفيوم التي ظهرت كغطاء وجه لبعض المومياءات منذ القرن الأول الميلادي بديلاً عن الأقنعة التي وُضعت على وجه وصدر المتوفى خلال العصر الفرعوني لكي تتمكن الروح من التعرف على صاحبها في العالم الآخر.

Abstract

Although historical information is scarce, the Monastery of St. Bishoy undoubtedly belongs to the oldest monastic settlements in Wadi Al- Natrun. It must therefore have suffered from the numerous Berber raids, resulting in renovations and the reconstruction of churches, cells, and utility buildings and, in the ninth century, the building of the first walls and a tower for refuge. Apart from an extensive restoration of the church and buildings by Patriarch Benjamin II (d. 1339), little more is known from the following centuries (Gabra, 2016).

This research will shed light on the latest discoveries have been made inside the archaeological church of the monastery between 2022 AD and 2024 AD during the restoration process. These include some marble columns in the nave of the church bearing encaustic paintings probably that represent the Saints or patriarchs of the Coptic church, that closely resemble the Fayum portraits that appeared as face coverings for some mummies from the 1st century AD onwards, replacing the masks that were placed on the face and chest of the deceased during the Pharaonic era so that the soul could recognize its owner in the afterlife.

Keywords: Coptic paintings, Encaustic, Wadi Al-Natrun, Conservation, Egyptian Monasteries

Introduction

Wadi Al-Natrun monasteries have a great importance in the Coptic community, hence Most of the Coptic patriarchs and bishops were chosen from among the monks of the Wadi Al-Natrun monasteries in the Coptic Orthodox Church and from among those who were chosen from the monasteries as the last popes of the Coptic Church; Pope Cyril VI (1959-1971) and Pope Shenouda III (1971-2012), and the present Pope Theodor II. Wadi Al-Natrun became the official residence of the Coptic Patriarch (The Saint Bishoy Monastery). Therefore, the area is considered one of the most important holy sites for the followers of the Coptic Orthodox.



The aesthetic value of the Saint Bishoy monastery is represented by the rare and valuable Paintings that configure religious events from the Bible and the Holy Family's journey to Egypt (Fig.1), Therefore the archeological Church of the Saint Bishoy contains a historical record from the layers of wall painting and Icons that extend descending from the different ages, those wall paintings showing many of the artistic influences: the first ages, the Middle ages, as well as the modern Coptic influences dating back to the eighteenth century.

Figure 1. A map showing the Journey of the Holy Family to Egypt (photo: Kyrilles Barsoum)

Wadi Al-Natrun

This desert region with its unusual landscapes was I famous for its salt in the Egypt of the pharaohs. It was also a land the Holy Family passed through and where the first communities of Christian ascetics were born.

Wadi Al-Natrun is a desert depression located nearly ninety kilometers northwest of Cairo (Fig.2). The deepest part of the depression, which covers an area of a hundred square kilometers, is around twenty-three meters below sea level. Wadi Al-Natrun is home to four important monasteries, all still active: the monasteries of al-Baramous (in Arabic,Baramus), the Syrians (Al-Suryani). St. Bishoy (Anba Bishoy) and St. Macarius (Abu Makar).

Each monastery (in Arabic, deir) is a self- contained entity, and is surrounded by vast green, well cultivated tracts of land that stand in contrast to the surrounding white wilderness. Today the natron is still an important economic resource used in the production of glass and also textiles (Siliotti,2007).

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Wadi Al- Natrun is one of the most attractive spots for the Christian religious tourists who come to Egypt, originally, also is considered one of the most famous valleys in Egypt. It is considered the home of asceticism and worship, with four monasteries still existing today (Kondos, 2017).

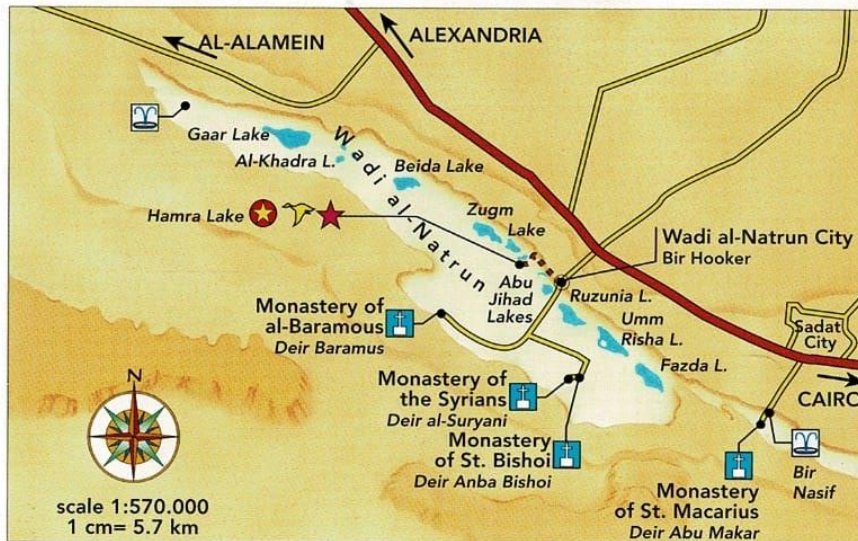


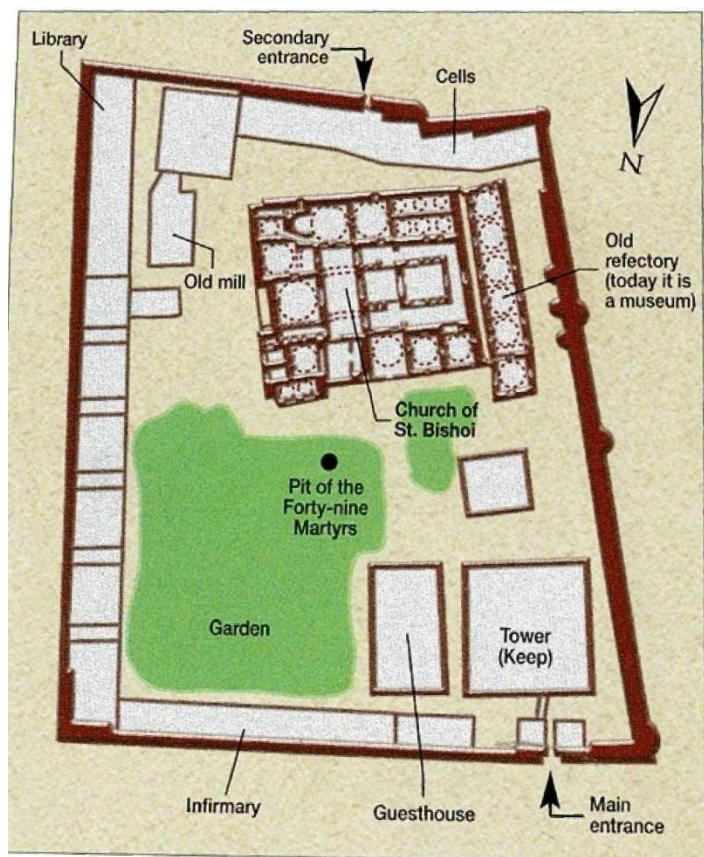
Figure 2. A map of Wadi Al-Natrun (Siliotti, 2007)

The Monastery of Saint Bishoy

The Monastery of St. Bishoy (in Coptic Anba Bishoy, or more precisely Pschoy) was named after the monk who lived between 320 and 417, and whose name means 'the Elevated. St. Bishoi retired and lived here for over forty years, founding an important community of anchorites. He later on left to retire in deeper solitude to a place where Natrun, the Monastery of St. Bishoy was plundered and destroyed several times by desert robbers. (Fig.3).

It was even ruined by termites in the 11th century. It was due to the enormous restoration work conducted by Patriarch Benjamin II during the 14th century that the monastery exists (Siliotti,2007).

Figure 3. Plan of the Monastery of St.Bishoy (Siliotti,2007)

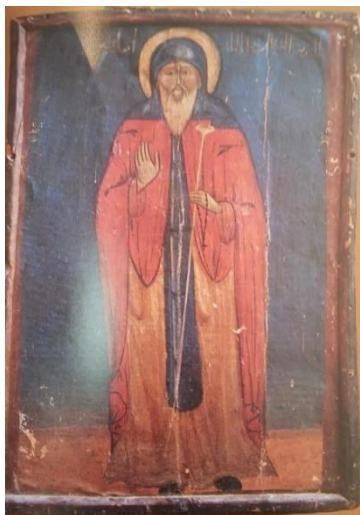


The Church of St. Bishoy (Fig.4), in the southern part of the old enclosure, most probably dates to the rebuilding of the monastery after the raids of 830-849. Originally, it was built on a basilican plan, with a deep dome and an altar room with narrow side chambers. Afterward, the southern side chamber was enlarged and used as an altar room. Still at a later date, a small church dedicated to the equestrian saint Bskhiroun was added along the south wall and an adjoining chapel was constructed in the northeastern corner, at present dedicated to Patriarch Benjamin II. During the restoration under his patriarchate, the vaults of the roofs were replaced. Remarkable are the high doors to the central altar room with their beautifully sculptured panels (twelfth century). In 1989, twelfth-century wall paintings were discovered in the Chapel of Benjamin, Saints, angels, (some of) the Twenty-Four Priests, and the Three Hebrews in the Fiery Furnace (Dan. 3:1:97) could be identified (Gabra, 2012).



Figure 4. The archaeological church in the Saint Bishoy monastery (photo: Father Matta Anba Bishoy)

The Saint Bishoy



The Monastery of St. Bishoy is one of the original monasteries of Scetis. Its counterpart monastery is that of the Syrians, which was built in the sixth century by the followers of Severus or the Theodosian monks. The Monastery of St. Bishoy is the second residence of His Holiness Pope Shenouda III, where he usually spends two or three days a week. For this reason, it is the destination of thousands of the Copts who visit Wadi Al-Natrun. The monastery's gateway, which possesses an inner gatehouse and a large, carefully built tower, is the best-preserved in Wadi al-Natrun (Gabra, 2002).

Figure 5. Icon of Saint Bishoy– The St.Bishoy Monastery (photo: Father Matta Anba Bishoy)

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Saint Bishoy of Scetis (d. ca. 417) enjoys tremendous popularity throughout the Christian East, and particularly among the Copts. "Bishūy" is a common name within that community, busloads of pilgrims visit the saint's monastery at Scetis (Shihet/Wadi al-Natrun) every week, and his life has been made into a full-length movie. The saint and his monastery only increased in popularity since the 1980s as the late Coptic Patriarch, H.H. Pope Shenouda III (Patr. 1971-2012), established his patriarchal residence adjacent to the monastery, which rendered it the leading monastery in Egypt. The historical Bishoy lived during what may be easily regarded as the Golden Age of Scetis, a remarkable era in which a litany of larger-than-life monastics lived and interacted with one another. Even among such elite company, however, Bishoy stood out as the founder of one of the four great monasteries of Scetis: those of Macarius, John the Little, Bishoy, and the Roman Fathers (al-Barāmūs).

In fact, Bishoy is the patron of two monasteries at Scetis. As the Aphthartodocetic controversy ripped through anti-Chalcedonian ranks in Egypt during the first half of the sixth century, pitting the followers of Severus of Antioch against those of Julian of Halicarnassus, monks from the Monastery of St. Bishoy likely founded the neighboring community, "the Monastery of the mother of God of the Syrians of Ava Bishoy," which is best known as "the Monastery of the Syrians" (Vivian, 2022).

Many Iconographers throughout the different ages have painted icons of this saint. An icon of him is found in his archaeological church at Wadi Al-Natrun (**Fig.5**), another can be found in the Monastery of Al-Barsha, and another icon is located in the Church of the Martyr Abu Sefein in Tamouh, Giza (**Fig 6,7**)

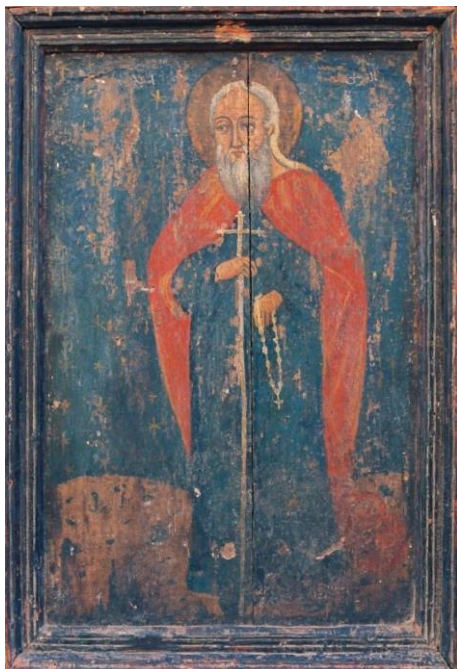


Figure 6. Icon of Saint Bishoy – Barsha Monastery in Upper Egypt (photo: Emad Nasry)



Figure 7. Icon of Saint Bishoy – Tamouh Monastery in Giza (Photo: Romany Tony)

Rains and floods are the most dangerous affecting the Saint Bishoy monastery and their architectural components as well as the surrounding areas. In 2015 there was a heavy rain fall and floods which greatly affected all the elements in the monastery leading to the collapse of the domes of the archaeological church, the floods and rains cause the rise of the ratio of the humidity and salts in the walls of the monastery which affected all the wall paintings and plaster layers inside the archaeological church (Fig 8,9,10).

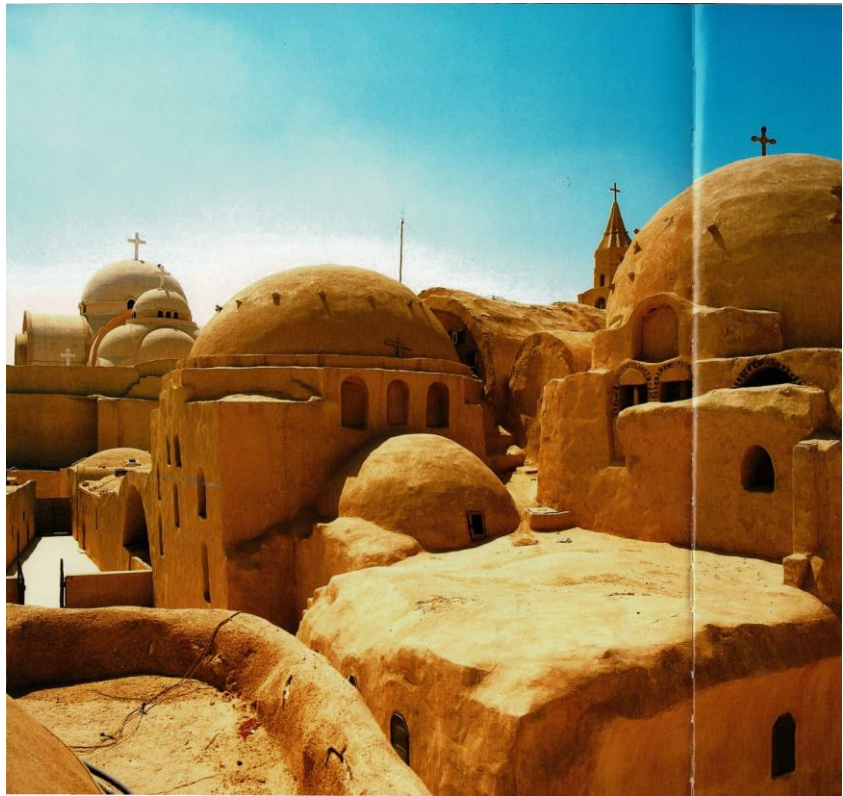


Figure.8 The effect of rain and floods on the domes of the archaeological church (Gabra, 2016)



Figure 9. Removing the damaged mortar layer due to rain and floods

(Photo: Father Matta Anba Bishoy)



Figure 10. The effect of rain and floods on the church from the inside

(photo: Father Matta Anba Bishoy)

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The Unique discoveries between 2022 - 2024 AD

In addition to the impact of rain and floods, which we discussed before, we discovered that the archeological church's interior exhibits several signs of deterioration. These include:

- Accumulation of dirt and fits due to soot from burning candles for devotional purposes.
- Loss on different parts of the old plaster layers.
- Presence of deep cracks in the plaster layers, particularly in the columns located in the nave of the church (**Fig.11**).



(A) Nave of church across from entrance

(B) Entrance to the Church

Figure11. A, B The nave of the church before the restoration (Photo Laura Watson- Joseph F. Foss- Cherif Arif)

Restoration work at an ancient church of Saint Bishoy Monastery in Wadi Al-Natrun following the 2015 AD floods, led to a unique archaeological discovery, five original marble columns with encaustic paintings were uncovered, representing one of the most important Archaeological discoveries at the church.

The discovery occurred after the removal of a layers of damaged wet mortar from the walls and internal columns of the church (**Fig.12,13**), during the cleaning of the brick courses of the columns in the nave of the church, the original marble columns were revealed beneath the brick courses. These marble columns supported the wooden roof before white ants destroyed the church's wooden ceilings. Consequently, Pope Benjamin II built elevated columns and domes. The marble columns were found in excellent condition beneath the external brick courses.



Figure 12. A, B, C represents the removal of damaged layers of mortar from the walls and columns at the church nave (Photo: Father Matta Anba Bishoy)



(A) Bishop Aghapius, Bishop of the Monastery with Father Matta Anba Bishoy and Behind them is the marble column (photo: A monk at the monastery)



(B) The appearance of the marble column (Photo: Father Matta Anba Bishoy)

Figure 13. A, B Represents the appearance of marble columns

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Abundance of Encaustic Paintings, the church of Saint Bishoy Monastery contained more marble columns with encaustic paintings than other churches, including the Hanging Church, the Church of the St. Mercurius (Abu Sefein), and the Church of St.Sargius in the religious complex of Fustat (**Fig 14,15**).



Figure 14. Encaustic Paintings in the St.Sargius Church – Old Cairo (photo: The Oldest Church in Egypt , Notebook)



Figure 15. Encaustic Paintings in Church of the St. Mercurius (Abu Sefein)-Old Cairo(Photo: Father Rweis Abdullah)

Five marble columns with Encaustic paintings were discovered, some of which are in good condition (**Fig.16**) and others in poor condition, as evidenced by the fading and near-disappearance of the paint layer. This necessitates their restoration and conservation. The significance of the discovery in the following;

-It's a unique Feature that Saint Bishoy Monastery is distinguished by the presence of marble columns with encaustic paintings, unlike the neighboring monasteries of Al-Syrians, Al-Baramous and St.Macarius in Wadi Al-Natrun.

- These Encaustic paintings probably represent the Saints or patriarchs of the Coptic Church in different ages.



Figure 16. One of the marble columns discovered in the nave of the church, in good condition (photo: Father Matta Anba Bishoy- Emil Henin)

The other marble columns were found in good condition, but the encaustic layer on top of them was incomplete (**Fig.17**). There is a significant loss, which makes it difficult for researchers and scholars interested in this type of painting to identify the artistic subjects it contains. The columns also require restoration and maintenance to protect them from deterioration.

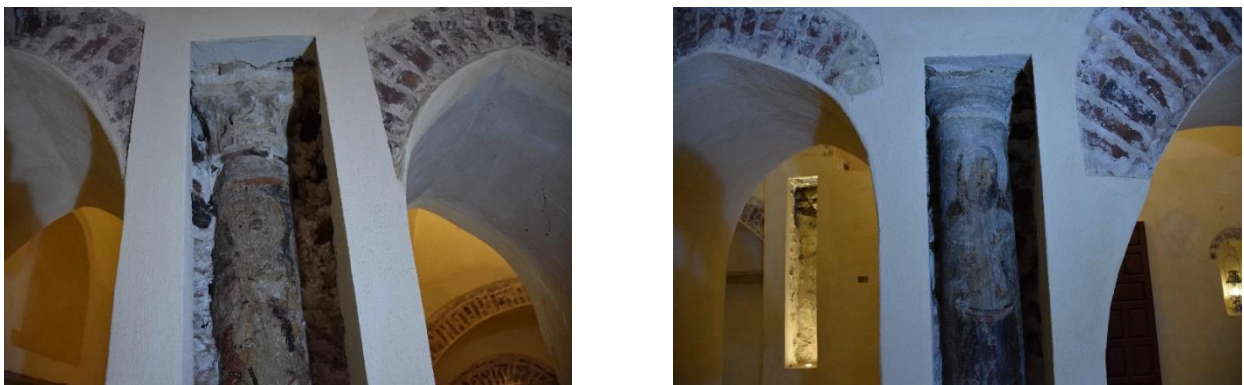


Figure 17. A, B Two marble columns bearing incomplete encaustic layer (Photo: Emil Henin)

Following the removal of the damaged mortar layers, a new mortar layer was applied, and two glass showcases were installed to protect the five marble columns. In addition to treating cracks in the walls (**Fig.18**).

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A



B

Figure 18. A, B The nave of the church after restoration and the discovery of the marble columns with encaustic layers (Photo: Emil Henin)

Following the completion of the restoration of the archaeological church, His Holiness Pope Tawadros II inaugurated the church after more than five years of closure. This inauguration was followed by an event of utmost importance: the preparation and consecration of the Myron oil for the 41st time in the history of our Coptic Orthodox Church, performed by His Holiness Pope Tawadros II and the hierarchs of the church. The sacred materials for the Myron oil (chrism oil) were presented from within the ancient church at this Monastery (**Fig.19**).



A



B

Figure 19. A, B Pope Tawadros II (Pope of Alexandria and Patriarch of the See of St. Mark) and Bishop Aghapius during the prayer of sanctification of the holy chrism oil

Encaustic Mummy Portraits

The ancient Egyptians were known to have made extensive use of waxes and resins for mummification and for forcing pigment into incised design on stone. All manner of objects were weatherproofed with wax- resin coatings (Lapham, 1980).

Mummy portraits were excavated after thousands of years of burial in Egyptian tombs and offer unique snapshots of ancient life as seen through the lens of the artisan. The individual in the portraits were members of the elite, with disproportionately large eyes that stare into the

distance or straight at the viewer. The techniques used to create them offer a rare glimpse into the progression of portrait painting, as they precede Byzantine icon portraits by hundreds of years (Mazurek, 2019)

Mummy portraits were excavated after thousands of years of burial in Egyptian tombs and offer unique snapshots of ancient life as seen through the lens of the artisan (Drandaki, 2021). So, the Encaustic painting is that method of painting which attaches color to a surface through the use of waxes, resins, pigment and heat. The word encaustic comes from the Latin encaustics and the Greek encaustics, each meaning "to burn in" and may be used as an adjective or as a noun (Lapham, 1980).

The wax-based painting technique, known as encaustic, was used in antiquity for the production of wall and panel paintings (such as the Roman period Egyptian mummy portraits), ceramics and polychrome sculpture (Stacey, 2018)

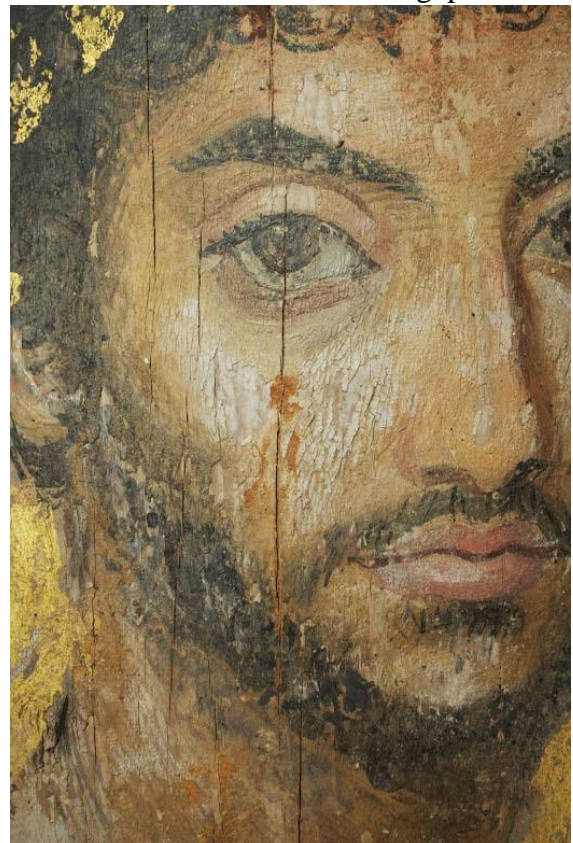
The encaustic mummy portraits from Fayum, a region of the Roman Egypt, represent a fascinating fusion among Egyptian religious rites, Roman artistic style and Greek cultural traditions {Fayum portraits are named after the part of Egypt in which they were found (Dorman, 1987).

According to the Egyptian religion, the portraits had the objective to facilitate, by means of facial recognition, the transition to the afterlife [2]. From the point of view of the history of art, the large ensemble of Fayum mummy portraits has a paramount significance because they embody in the Roman style the great Greek tradition of painting by wax (Miliani, 2010).

Romano-Egyptian mummy portraits have conventionally been divided into two groups according to binding media, described as tempera (implying an aqueous medium such as glue or egg) or wax (specifically beeswax). Prior to the development of analytical capabilities that allowed for precise characterization, these classifications were assigned largely on the basis of the portraits' surface appearance and paint handling. More recently, medium descriptions have been informed by scientific data, but even in such cases there remain substantial gaps in the technical knowledge regarding the manner in which the artists made and applied their paint media (Svoboda, 2020).

Most crucially, around the eyes and the bridge of the nose, the artist employed *tratteggio*, a layering or crosshatching technique used to convey depth and texture (**Fig. 20**)

Figure 20. Detail of Mummy Portrait of a Man Wearing an Ivy Wreath showing the use of *tratteggio* around the eyes and the bridge of the nose. Courtesy of the Art Institute of Chicago.



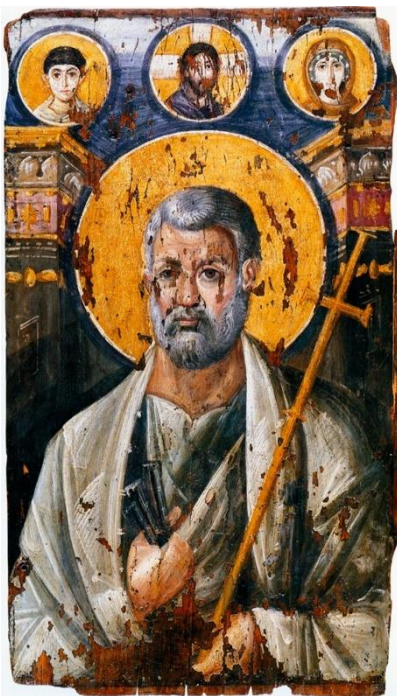
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In general Romano-Egyptian mummy portraits have conventionally been divided into two groups according to binding media, described as tempera (implying an aqueous medium such as glue or egg) or wax (specifically beeswax). Prior to the development of analytical capabilities that allowed for precise characterization, these classifications were assigned largely on the basis of the portraits' surface appearance and paint handling. More recently, medium descriptions have been informed by scientific data, but even in such cases there remain substantial gaps in the technical knowledge regarding the manner in which the artists made and applied their paint media (Svoboda, 2020).

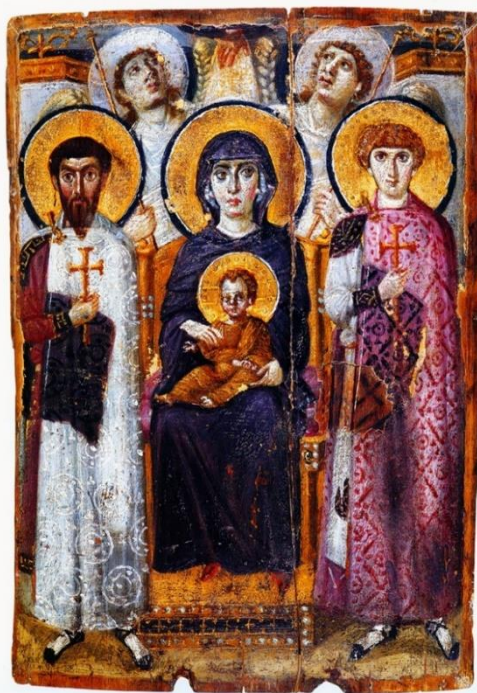
The portraits were used in Egypt from the first until the third century A.D., and disappeared gradually with the spread of Christianity in the third and fourth centuries. Because the new religion did not encourage it, mummification ceased to be practiced (Hawass, 2009).

Encaustic Paintings in Saint Catherine Monastery

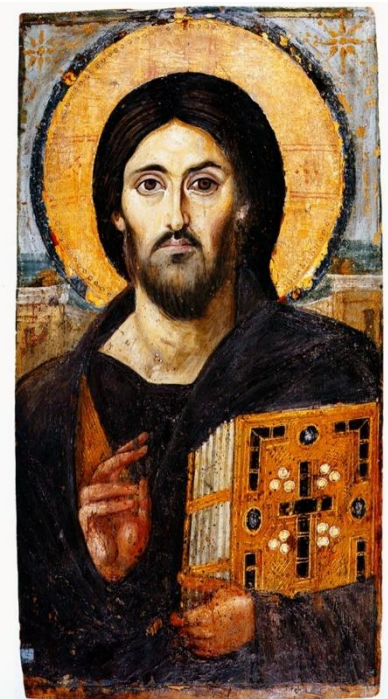
The veneration of the icons, closely related to the cult of martyrs, had already begun in Early Church despite theological conflicts, for it took some time for the Church to final accept the image as an essential component of the new faith. By the 6th century the icons were established and, above all, icons 'not made by human hands' had been accepted thereafter, religious and political reasons and conflicts of nationalities brought about the well-known iconoclastic controversy which opened in 726 and lasted nearly 120 years.



St. Peter Icon, Second half of the 6th Century-First half of the 7th Century.



The Virgin between St. Theodore and St. George, 6th Century



Bust of Christ Pantocrator, First half of the 6th Century

Figure 21. A, B, C Encaustic Icons at the Saint Catherine Monastery (photo: Nikos and Kostas Kontos)

Sinai, however, being in Islamic territory since about 640, was not touched by the iconoclastic decrees of the Byzantine emperors. During this period, when in Byzantium the icons were destroyed and their worshippers severely punished, icons continued to be produced in Sinai and in surrounding territories, especially in Palestine. Here a school of icon painting existed, the center of which must have been Jerusalem. After all it was here in the Monastery of Saint Sabbas that Saint John of Damascus declared his war against the Iconoclasts and wrote his famous treatise on the defense of the icons.

There is no other icon collection outside Sinai that enables us to study in an uninterrupted way the icons from the 6th century to the present. The earliest icons, dating from before Iconoclasm, are from Sinai. They are executed in the encaustic technique, i.e., the technique of hot wax paint (**Fig.21**). White wax-mixed with colored powder was made up into cakes which, when about to be applied, were melted on heated metal palettes. The colored wax was laid on with a brush, but when it grew cold it set quickly and it was re-touched with moderately hot irons, which fused the tints. The technique enjoyed great favor in the Hellenistic world, and it was beautifully applied on the mummy portraits. These icons make a most important contribution to the study of icon painting and to the history of the veneration of the icons. Paradoxically the triumph of Orthodoxy in 843 which restored the cult of icons and had enormous ramifications for the development of Byzantine civilization (Constantinople Konstantinos,1990).

Acknowledgments

The authors would like to thank the reviewers for the time they spent on the reading of our paper and for their valuable and constructive comments. We are grateful to Mr. **Bassem Isaac Said** at the Coptic Paintings Conservation Department at the Monasteries and Churches in Haret Zuwaila in Cairo, Egypt for providing us important comments in this issue.

Conclusion

The Monastery of St. Bishol was founded in the 5th century by the hermit monk Bishoy and destroyed several times by the Berbers. Today, it is the second residence of H.H. Pope Shenoude III.

the archeological church contains a multitude of paintings, including murals and icons, dating back to various ages. However, the recent discovery of the marble columns adorned with Encaustic paintings, considered unique and unmatched in other monasteries of Wadi El Natroun, sets this church apart. These wax paintings require further studies from both art history and restoration specialists in the future.

These Encaustic paintings probably represent saints or patriarchs of the Coptic Church. One of these portraits is in a complete state, but further studies are required to identify the person it represents. However, the other discovered columns with incomplete Encaustic paintings that are almost lost, making it difficult to determine the identities of the depicted figures.

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REFERENCES

- Alberto Siliotti, (2007): *Coptic Egypt: Egypt Pocket Guide*, The American University in Cairo Press, Drawing: Stefania Cossu – Elisa Martini.
- Abubakr Moussa, (2021): *Monitoring Coptic Masonry Affected by Clay Minerals and Microorganisms at the Church of Virgin Mary, Wadi El-Natrun (Egypt)*, MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.
- Gawdat Gabra, (2002): *Coptic Monasteries, Egypt's Monastic Art and Architecture*, The American University in Cairo press, Cairo, New York.
- Gasedat Gabera, (2012) Gertrud IM., Darlene L. Besoka ledatm, *THE CHURCHES OF EGYPT From the Journey of the Holy Family to the Present Day*, Phonographs by Sherit Senibul, The American University in Cairo Prese Cairo New York.
- Drandaki, A. (2021): *Two early icons from Egypt in the Benaki Museum*. Athens University Review of Archaeology (AURA)
- Konstantinos A.Manafis,(1990). *Sinai, Treasures of the Monastery of Saint Catherine*, publishers; George A.Christopoulos, John C, Bastias,Greece.
- Ezz Shoukry Kondos, M. (2017). *Monasteries of Wadi al-Natrun as a destination of the Holy Family Journey*. *Journal of Arts and Humanities*, 84(4), 752-779.
- Innemée, K. (2006). *Encaustic painting in Egypt. L’apport de l’Egypte à l’histoire des techniques*. Cairo: IFAO, 133-42.
- Peter F. Dorman, (1987). *The Metropolitan Museum of Art-Egypt ancient Near East*, printed and bound by Dai Nippon printing Co. Lid., Tokyo
- Lapham, M. S. (1980). *Encaustic painting revisited*.
- Mazurek, J., Svoboda, M., & Schilling, M. (2019). *GC/MS characterization of beeswax, protein, gum, resin, and oil in Romano-Egyptian paintings*. *Heritage*, 2(3), 1960-1985
- Miliani, C., Daveri, A., Spaabaek, L., Romani, A., Manuali, V., Sgamellotti, A., & Brunetti, B. G. (2010). *Bleaching of red lake paints in encaustic mummy portraits*. *Applied Physics A*, 100, 703-711.
- Svoboda, M., & Cartwright, C. (Eds.). (2020). *Mummy portraits of Roman Egypt: emerging research from the APPEAR project*.
- Stacey, R. J., Dyer, J., Mussell, C., Lluveras-Tenorio, A., Colombini, M. P., Duce, C., ... & Schilling, M. (2018). *Ancient encaustic: An experimental exploration of technology, ageing behaviour and approaches to analytical investigation*. *Microchemical Journal*, 138, 472-487.
- Tim Vivian and Maged S.A. Mikhail, (2022). *THE LIFE OF BISHOI, The Greek, Arabic, Syriac, and Ethiopian Lives, Saint Athanasius and Saint Cyril* Theological School Press, The American University in Cairo Press Cairo New York.
- Wright, S., Soriano, D., Shires, R., & Ruffell, S. E. (2020). *Examining wax chemistry through encaustics*. *Publication of the Association for Biology Laboratory Education*, 41, 88.
- Zahi Hawass, (2009). *Faces from the Past*, printed in Egypt by the SCA Press.