

## Mechanical Engineering in Ancient Egypt, Part 76: Alabaster Products Inscription

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### ABSTRACT

*This work investigated the evolution of writing in ancient Egypt through studying inscription of alabaster products during the Early Dynastic through the Late Periods. The inscription features of various alabaster products are studied through examples including: material, dimensions, inscription, text type and present location (if known). The purpose of each alabaster product is highlighted (if known) and the style of the inscription is analysed.*

**Keywords:** Mechanical engineering, ancient Egypt, Alabaster products, Alabaster inscription, Early Dynastic to Late Periods.

### INTRODUCTION

This paper is the 76 one in a series of research papers aiming at investigating the evolution of Mechanical Engineering in ancient Egypt through studying the inscription of alabaster products manufactured during a historical era from Early Dynastic to the Late Periods.

Lilyquist (1995) in her book about the Egyptian stone vessels presented the data of a large number of ancient Egyptian stone vessels including English translation of each vessel inscription. The catalogue she presented had a number of inscribed alabaster vessels [1]. Teeter (2003) in her book about ancient Egypt presented an alabaster game board from the Old Kingdom [2]. Saint Louis Art Museum (2005) in their study of the art of ancient Egypt presented alabaster canopic jars of the Royal Scribe Khera from the Late Period [3].

Uranic (2006) in his paper about the collection of the Museum of the city of Varazdin at Croatia analysed alabaster canopic jars of Ketjen from the 26<sup>th</sup> Dynasty and another stone canopic jar of an un-defined stone [4]. Hawass, Manuelian and Hussein (2010) in their book about perspectives on ancient Egypt presented six alabaster offering dishes all in display in the Museum of Fine Arts at Boston and an alabaster cylinder jar [5]. Lesuer (Editor, 2012) in her book about between heaven and earth presented an inscribed alabaster jar from the 5<sup>th</sup> Dynasty in

display in the Oriental Institute Museum [6]. Forshaw (2013) in his Ph. D. Thesis presented an alabaster jar from the 26<sup>th</sup> Dynasty in display in the Metropolitan Museum of Art at NY [7]. Liang (2014) pointed out that a green waxy paint was found on some fragments of alabaster jars at the Metropolitan Museum of Art dated to the 19<sup>th</sup> Dynasty of ancient Egypt [8].

Hassaan (2016) in his study of the stone cutting techniques in ancient Egypt presented an unfinished alabaster vessel marked on its top for boring in display in the Petrie Museum at London [9]. Hassaan (2017) in his study of the alabaster products in ancient Egypt during the eras from Predynastic to New Kingdom presented an inscribed alabaster jar from Early Dynastic, inscribed bowls from the 1<sup>st</sup> Dynasty, inscribed vase from the 5<sup>th</sup> Dynasty, inscribed jars from the 6<sup>th</sup> Dynasty [10]. He presented also stelae from the 18<sup>th</sup> Dynasty, inscribed amphora, goblet, vase, drinking cup perfume jar from the 18<sup>th</sup> Dynasty, inscribed sarcophagus, vase, shabti from the 19<sup>th</sup> Dynasty [11]. Hassaan (2018) in his investigation of the utensils industry in ancient Egypt presented an inscribed alabaster jars from the 6<sup>th</sup> Dynasty, an inscribed alabaster canopic jar from the 12<sup>th</sup> Dynasty, inscribed alabaster kohl jar, ointment jar, canopic jar, from the 18<sup>th</sup> Dynasty, canopic jars from the 21<sup>st</sup> Dynasty, alabaster jars from the 27<sup>th</sup> Dynasty, inscribed alabaster vases from the 1<sup>st</sup>, 2<sup>nd</sup>, 5<sup>th</sup>, 6<sup>th</sup>, 18<sup>th</sup> Dynasties, alabaster vessels

from the 2<sup>nd</sup>, 5<sup>th</sup>, 6<sup>th</sup> Dynasties, inscribed bottles from the 19<sup>th</sup>, 26<sup>th</sup> Dynasties and goblets from the 18<sup>th</sup> Dynasty [12].

### EARLY DYNASTIC ALABASTER INSCRIPTION

The Early Dynastic Period of ancient Egypt comprised the 1<sup>st</sup> and 2<sup>nd</sup> Dynasties over a time period from 3150 to 2686 BC [13]. The ancient Egyptians succeeded to inscribe alabaster to authorise their knowledge from more than 4700 years ago as presented in the following examples:

- The first example is a 120 mm height alabaster jar for King Den from the 1<sup>st</sup> Dynasty (3000-2750 BC) sold by Christies in 6 July 2016 at London for 12,037 US \$ and shown in Fig.1 [14]. The inscription was carved on the jar body.
- The second example is an alabaster pot for King Hotep-Sekhemwy, the founder of the 2<sup>nd</sup> Dynasty (2890-2865 BC) in display in the Los Angeles County Museum of Art at Los Angeles and shown in Fig.2 [15]. The accurately carved pot was inscribed by carving the Serekh of the King on the external surface of the pot.



**Figure1.** Jar of King Den from 1<sup>st</sup> Dynasty [14].



**Figure2.** Pot of King Hotep-Sekhemwy from 2<sup>nd</sup> Dynasty [15]

### OLD KINGDOM ALABASTER INSCRIPTION

The Old Kingdom of ancient Egypt comprised four Dynasties from the 3<sup>rd</sup> to the 6<sup>th</sup> over a time span from 2686 BC to 2181 BC [16]. The ancient Egyptians continued to inscribe some of

their alabaster products manufactured during the Old Kingdom as depicted in the following examples:

- The first example is a 160 mm height alabaster vase of King Unas from the 5<sup>th</sup> Dynasty (2375-2345 BC) in display in the Louvre Museum at Paris and shown in Fig.3 [17]. The vase was inscribed by the Serekh of the King and hieroglyphic text around it with a two scenes near its neck.
- The second example is a 120 x 57 x 10 mm alabaster tablet for seven oils from the 5<sup>th</sup>-6<sup>th</sup> Dynasties (2400-2200 BC) in display in the World Museum at Liverpool and shown in Fig.4 [18]. Each oil had a spherical sector engraved near the bottom surface and its name was inscribed in hieroglyphic just above the oil cavity.



**Figure3.** Vase of King Unas from 5<sup>th</sup> Dynasty [17]



**Figure4.** 7 oils tablet from 5th-6th Dynasties [18].

- The third example is a 265 mm alabaster sistrum from the 6<sup>th</sup> Dynasty inscribed with the names of King Teti (2345-2333 BC) in display in the Metropolitan Museum of Art at NY and shown in Fig.5 [19]. The sistrum was inscribed on a rectangular area near its top-end using the hieroglyphic script.



**Figure5.** Sistrum inscribed for King Teti from the 6<sup>th</sup> Dynasties [19].

- The fourth example is a 127 mm height alabaster vase of King Pepi I from the 6<sup>th</sup> Dynasty (2331-2287 BC) sold by Christies on 6 December 2007 at NY for 91,000 US \$ and shown in Fig.6 [20]. The vase was inscribed in three columns including the Cartouche of the King and using the hieroglyphic script.
- The fifth example is a 372 mm height alabaster jar of King Pepi I from the 6<sup>th</sup> Dynasty (2331-2287 BC) in display in the Metropolitan Museum of Art at NY and shown in Fig.7 [21]. The jar was inscribed on its shoulder in one row including the Cartouches of the King and using the hieroglyphic script.



**Figure6.** Vase of King Pepi I from the 6<sup>th</sup> Dynasty [20]



**Figure7.** Jar of King Pepi I from the 6<sup>th</sup> Dynasty [21]

- The sixth example is a 150 mm height alabaster ointment jar of King Pepi I from the 6<sup>th</sup> Dynasty (2331-2287 BC) in display in the Metropolitan Museum of Art at NY and shown in Fig.8 [22]. It was inscribed on its body using the hieroglyphic script with a text surrounding the Cartouche of the King..
- The seventh example is an alabaster jubilee vessel of King Pepi I from the 6<sup>th</sup> Dynasty

(2331-2287 BC) in display in the Walters Art Museum at Baltimore and shown in Fig.9 [23]. It was inscribed using the hieroglyphic script with text written inside a square contour including the Cartouche and Serekh of the King.



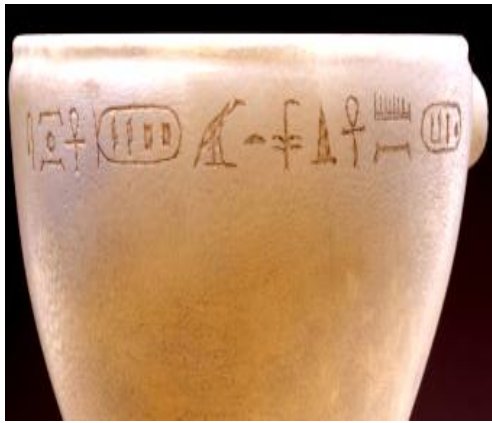
**Figure8.** Ointment jar from the 6<sup>th</sup> Dynasty [22]



**Figure9.** Vessel of King Pepi I from the 6<sup>th</sup> Dynasty [23]

- The eighth example is a 173 mm height alabaster brewer's vat of Queen Mother Ankhenes-Pepi from the 6<sup>th</sup> Dynasty, reign of King Pepi II (2278-2184 BC) in display in the Metropolitan Museum of Art at NY and shown in Fig.10 [24]. It was inscribed on its body near its rim using the hieroglyphic script with a text written in one row and the Cartouche of King Pepi II.
- The ninth example is an alabaster jubilee vessel of King Pepi I from the 6<sup>th</sup> Dynasty (2331-2287 BC) in display in the Metropolitan Museum of Art and shown in Fig.11 [25]. It was inscribed using the hieroglyphic script with text written inside a semi-rectangular contour including the Cartouche and Serekh of the King.





**Figure10.** Brewer's vat from the 6<sup>th</sup> Dynasty [24]



**Figure11.** Vessel of King Pepi II from the 6<sup>th</sup> Dynasty [25]

#### MIDDLE KINGDOM ALABASTER INSCRIPTION

The Middle Kingdom of ancient Egypt comprised the 11<sup>th</sup> and 12<sup>th</sup> Dynasties over a time span from 2050 to 1710 BC [26]. The evolution of alabaster inscription through this historical era is investigated through the following three examples:

- The first example is an 80 mm diameter cosmetic jar with inscribed lid from the Middle Kingdom (2055-1650 BC) in display in the World Museum at Liverpool and shown in Fig.12 [27]. The lid was inscribed by a hieroglyphic text carved in one un-bounded row.
- The second example is a 62 x 30 x 9 mm alabaster tablet from the 12<sup>th</sup> Dynasty, reign of King Senusret I (1971-1926 BC) in display in the Museum of Fine Arts at Boston and shown in Fig.13 [28]. The tablet was inscribed within a decorating contour using the hieroglyphic script with text carved in two columns including the Cartouche of King Senusret I.



**Figure12.** Inscribed lid from Middle Kingdom [27]



**Figure13.** Tablet from the 12<sup>th</sup> Dynasty [28]

- The third example is a 355 mm height alabaster jar of Princess Sithathoryunet from the 12<sup>th</sup> Dynasty, reign of King Senusret II and Senusret III (1887-1813 BC) in display in the Metropolitan Museum of Art at NY and shown in Fig.14 [29]. Jar was inscribed on its shoulder with a hieroglyphic text Fig.14 shows a zoomed part of it.



**Figure14.** Canopic jar of Sithathoryunet from the 12<sup>th</sup> Dynasty [29]

#### NEW KINGDOM ALABASTER INSCRIPTION

The New Kingdom of ancient Egypt comprised the 18<sup>th</sup> to 20<sup>th</sup> Dynasties over a time span from 1570 to 1077 BC [30]. The evolution alabaster

inscription through this historical era is expected to be great since this was the most powerful era in the ancient history of ancient Egypt as will be depicted by the following examples:

- The first example is a 75 mm height alabaster jar inscribed for Pharaoh Thutmose III from the 18<sup>th</sup> Dynasty (1479-1425 BC) sold by Christies in 27 October 2009 at London for 6,398 US \$ and shown in Fig.15 [31]. It was inscribed using the hieroglyphic script with text carved in two columns including the Serekh and Cartouche of the Pharaoh and painted in blue.
- The second example is a 207 mm height alabaster amphora inscribed for Pharaoh Amenhotep II from the 18<sup>th</sup> Dynasty (1425-1398 BC) in display in the Metropolitan Museum of Art and shown in Fig.16 [32]. It was inscribed by the Cartouche of the Pharaoh and painted in black as clear in the zoomed image of Fig.16..
- The third example is a 40 x 90 mm alabaster grinder inscribed for Pharaoh Amenhotep II from the 18<sup>th</sup> Dynasty (1425-1398 BC) in display in the Brooklyn Museum at NY and shown in Fig.17 [33]. The grinder was inscribed on its front face using the hieroglyphic script with text carved in one row including the Cartouche of the Pharaoh.
- The fourth example is a 445 mm length alabaster scribe palette inscribed for Amenhotep from the 18<sup>th</sup> Dynasty, reign of Pharaoh Amenhotep III (1388-1350 BC) in display in the Metropolitan Museum of Art and shown in Fig.18 [34]. The palette was inscribed using the hieroglyphic script with text carved in tow rows covering its whole length.



**Figure15.** Jar of Thutmose III from 18<sup>th</sup> Dynasty [31]



**Figure16.** Amphora of Amenhotep II from the 18<sup>th</sup> Dynasty [32]



**Figure17.** Grinder of Amenhotep II from 18<sup>th</sup> Dynasty [33]



**Figure18.** Palette of Amenhotep from the 18<sup>th</sup> Dynasty [34].

- The fifth example is a 140 mm height alabaster goblet inscribed for Pharaoh Akhenaten and his Royal Great Wife Nefertiti from the 18<sup>th</sup> Dynasty (1351-1334 BC) in display in the Metropolitan Museum of Art at NY and shown in Fig.19 [35]. The goblet was nicely carved and inscribed on its body in a rectangular contour using the hieroglyphic script with text carved in five columns each column included a Cartouche as shown in the zoomed image of the inscribed zone of the goblet.



**Figure19.** Goblet of Akhenaten and Nefertiti from 18<sup>th</sup> Dynasty [35]

- The sixth example is a 75 x 62 x 60 mm alabaster tablet from the 18<sup>th</sup> Dynasty, reign



of Pharaoh Akhenaten (1351-1334 BC) in display in the Museum of Fine Arts at Boston and shown in Fig.20 [36]. The tablet was inscribed using the hieroglyphic script in the form of the Cartouche of the Pharaoh.



**Figure 20.** Tablet of Akhenaten from 18<sup>th</sup> Dynasty [36]

- The seventh example is a 183 mm height alabaster drinking cup in the shape of a lotus flower of Pharaoh Tutankhamun from the 18<sup>th</sup> Dynasty (1332-1323 BC) in display in the Egyptian Museum at Cairo and shown in Fig.21 [37]. This is a wonderful alabaster piece reflecting the high technology using in cutting, finishing and inscription of alabaster products during the 18<sup>th</sup> Dynasty. The whole perimeter of the rim was inscribed and colored inside a bounded row using the hieroglyphic script. Also, three columns of a hieroglyphic text was carved and colored on the cup body inside a square contour including the Cartouches of the young Pharaoh.



**Figure 21.** Drinking cup of Tutankhamun from 18<sup>th</sup> Dynasty [37]

- The eighth example is an alabaster perfume jar of Pharaoh Tutankhamun from the 18<sup>th</sup> Dynasty (1332-1323 BC) in display in the

Egyptian Museum at Cairo and shown in Fig.22 [38]. The jar was inscribed using the hieroglyphic script with text carved in two areas. The first area was a bounded column on the jar long neck with text carved and colored in black. The second area was a bounded rectangular area on the jar body with text carved in four columns and colored in black.

- The ninth example is an alabaster vase of Pharaoh Tutankhamun from the 18<sup>th</sup> Dynasty (1332-1323 BC) in display in the Egyptian Museum at Cairo and shown in Fig.23 [39]. The vase was inscribed using the hieroglyphic script with text carved inside two Cartouches in a bounding square contour, all colored in black. The neck was inscribed by an image for Hathor near the rim of the vase.
- The tenth example is an alabaster unguent jar in the shape of an ibex of Pharaoh Tutankhamun from the 18<sup>th</sup> Dynasty (1332-1323 BC) in display in the Egyptian Museum at Cairo and shown in Fig.24 [40]. The jar was inscribed using the Cartouche of the Pharaoh in one location (it was either carved and painted in black or painted on the ibex body).
- The eleventh example is a 320 mm height alabaster canopic jar of an Official called Semen-Tawy from the 19<sup>th</sup> Dynasty (1292-1069 BC) in display by the French Art Market and shown in Fig.25 [41]. It was inscribed in four bounded column with a funerary text carved using the hieroglyphic script.



**Figure 22.** Perfume jar of Tutankhamun from 18<sup>th</sup> Dynasty [38]



**Figure 23.** Vase of Tutankhamun from 18<sup>th</sup> Dynasty [39]



**Figure 24.** Unguent jar of Tutankhamun from 18<sup>th</sup> Dynasty [40]



**Figure 25.** Canopic jar from 19<sup>th</sup> Dynasty [41]

- The twelfth example is a 2.845 m alabaster sarcophagus of Pharaoh Seti I from the 19th Dynasty (1290-1279 BC) in display by the John Soane's Museum at London and shown in Fig.26 [42]. It was inscribed in four bounded column with a Elevation view [42] Side view inscriptions [43]



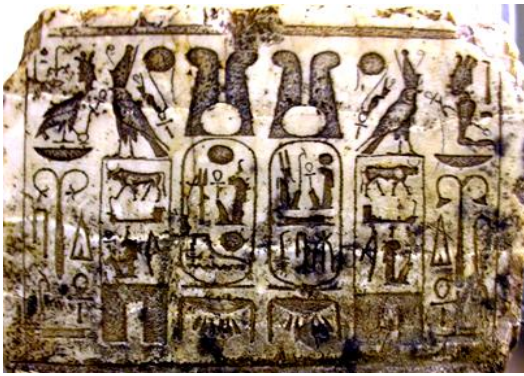
**Figure 26.** Sarcophagus of Seti I from 19th Dynasty

- The thirteenth example is an 140 x 680 x 92 mm alabaster block inscribed for Pharaoh Ramses II and his son Khaemwaset from the 19th Dynasty (1279-1213 BC) in display by the Manchester Museum and shown in Fig.27 [44]. It was inscribed by two Cartouches, one for the Pharaoh and the second for his son with text carved using the hieroglyphic script which was painted in black.
- The fourteenth example is an 357 x 635 x 302 mm alabaster statue base inscribed for Pharaoh Ramses II from the 19th Dynasty (1279-1213 BC) in display by the World Museum at Liverpool and shown in Fig.28 [45]. It was inscribed by carved and black colored hieroglyphic script with text, Serekhs and Cartouches of the Pharaoh.



**Figure 27.** Block of Ramses II and his son from 19<sup>th</sup> Dynasty [44]





**Figure 28.** Statue base of Ramses II from 19<sup>th</sup> Dynasty [45].

### LATE PERIOD ALABASTER INSCRIPTION

The Late Period of ancient Egypt comprised the 26<sup>th</sup> to 30<sup>th</sup> Dynasties over a time span from 664 to 332 BC [46]. The evolution alabaster inscription through this historical era is expected to be great since this was the most powerful era in the ancient history of ancient Egypt as will be depicted by the following examples:

- The first example is a 310-420 mm height alabaster canopic jar inscribed for Nitocris from the 26<sup>th</sup>-30<sup>th</sup> Dynasties (688-332 BC) in display in the Museum of Fine Arts at Boston and shown in Fig.29 [47]. It was inscribed using the hieroglyphic script with text carved in four bounded columns inside a rectangular contour.
- The second example is a 237 mm height alabaster canopic jar inscribed for Ahmose from the Late Period (664-332 BC) in display in the World Museum at Liverpool and shown in Fig.30 [48]. It was inscribed using the hieroglyphic script with text carved in five bounded columns inside a rectangular contour.



**Figure 29.** Canopic jar of Nitocris from 26<sup>th</sup>-30<sup>th</sup> Dynasties [47]



**Figure 30.** Canopic jar of Ahmose from Late Period [48].

- The third example is a 387 mm height alabaster canopic jar inscribed for Ramose from the Late Period (664-343 BC) in display in the Risd Museum at USA and shown in Fig.31 [49]. It was inscribed using the hieroglyphic script with text carved or painted in black in four bounded columns without external contour.



**Figure 31.** Canopic jar of Ramose from Late Period [49]

- The fourth example is a 406 mm height alabaster canopic jar inscribed for the Royal Scribe Khera from the Late Period (664-343 BC) in display in the Saint Louis Art Museum at USA and shown in Fig.32 [50]. It was inscribed using the hieroglyphic script with text carved (or painted in black) in six bounded columns inside a rectangular contour.



**Figure 32.** Canopic jar of Khera from Late Period [50].



- The fifth example is a 320 mm height alabaster canopic jar inscribed for Ketjen from the 26th Dynasty, reign of Pharaoh Psamtek I (664-610 BC) in display in the Varazdin City Museum at Varazdin and shown in Fig.33 [51]. It was inscribed using the hieroglyphic script with text carved in four bounded columns with external rectangular contour.
- The sixth example is a 406 mm height alabaster canopic jar inscribed for the Royal Scribe Khera from the Late Period (664-343 BC) in display in the Saint Louis Art Museum at USA and shown in Fig.34 [52]. It was inscribed using the hieroglyphic script with text carved in three bounded columns inside a rectangular contour.
- The seventh example is a 335 mm height alabaster jar from the 26th Dynasty, reign of Pharaoh Necho (610-595 BC) private collection of Charles Pankow from NY and shown in Fig.35 [53]. It was inscribed using the hieroglyphic script with text carved in two bounded columns with external rectangular contour.
- The eighth example is a 470 mm height alabaster pharmaceutical jar from the 26th Dynasty (570-526 BC) in display in the Metropolitan Museum of Art at NY and shown in Fig.36 [54]. It was inscribed using the hieroglyphic script with text carved in three un-bounded columns.



**Figure33.** Canopic jar of Ketjen from 26<sup>th</sup> Dynasty [51]



**Figure34.** Canopic jar of Psamtik from 26<sup>th</sup> Dynasty [52].

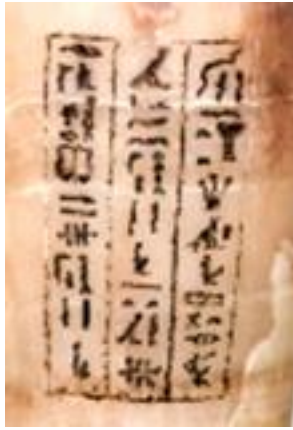


**Figure35.** Jar from 26<sup>th</sup> Dynasty [53]



**Figure36.** Pharmaceutical jar from 26<sup>th</sup> Dynasty [54].

- The ninth example is a 283 mm height alabaster canopic jar inscribed for Heriheb from the 27<sup>th</sup>-28<sup>th</sup> Dynasties (522-343 BC) in display in the Metropolitan Museum of Art at NY and shown in Fig.37 [55]. It was inscribed using the hieroglyphic script with text carved in three bounded columns with external rectangular contour.
- The tenth example is alabaster canopic jar from the Late Period (664-332 BC) and shown in Fig.38 [56]. It was inscribed using the hieroglyphic script with text written with black ink in four un-bounded rows without external contour.



**Figure37.** Canopic Jar of Heriheb from 27<sup>th</sup>-28<sup>th</sup> Dynasties [55]



**Figure38.** Canopic jar from Late period [56]

## CONCLUSION

- Writing on alabaster products in ancient Egypt was investigated in this research paper as one of my papers aiming at studying the evolution of mechanical engineering in ancient Egypt.
- The study covered a historical era from the Early Dynastic to the Late Periods.
- The ancient Egyptians started inscribing alabaster products during the 1<sup>st</sup> Dynasty (more than 4900 years ago).
- Wonderful alabaster vase was produced in the 5<sup>th</sup> Dynasty and inscribed on most of its external surface for King Unas.
- They produced an alabaster tablet as small as 120 x 57 x 10 mm with seven spherical-sector-holes to allocate seven oils in them with inscription on each hole for the name of the oil during the 5<sup>th</sup>-6<sup>th</sup> Dynasties.
- They produced and inscribed a unique alabaster sistrum in the 6<sup>th</sup> Dynasty.
- They inscribed vase, jar, vessel and ointment jar for King Pepi I in the 6<sup>th</sup> Dynasty.

- They inscribed alabaster vessels near their rim and on their body.
- They inscribed alabaster jar-lid, tablets and jars during the Middle Kingdom.
- They inscribed alabaster jars, amphorae, grinders, writing palettes, goblets, tablets, cups, perfume jars, vases, canopic jars, unguent jars, sarcophagus, blocks and statue-bases during the New Kingdom.
- Wonderful alabaster products were manufactured and inscribed for Pharaoh Tutankhamun of the 18<sup>th</sup> Dynasty.
- During the Late Period, they continued to produce and inscribe alabaster canopic jars, domestic jars and pharmaceutical jars.
- The inscription font used in all the artifacts presented in this paper was the hieroglyphic script.

## AUTHOR'S BIOGRAPHY

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- Member of the Editorial Board of some international journals including IJEERT.
- Reviewer in some international journals.
- Scholars interested in the author publications can visit: <http://scholar.cu.edu.eg/galal>



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