

**MECHANICAL ENGINEERING IN ANCIENT EGYPT, PART 74:  
BUTTONS, BEADS, HEART AMULETS AND FINGER-RING BEZELS  
INSCRIPTION**

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**Article Received on 22/09/2018**

**Article Revised on 11/10/2018**

**Article Accepted on 01/11/2018**

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**ABSTRACT**

The objective of this paper is to investigate the development of mechanical engineering in ancient Egypt through the study of buttons, beads, heart amulets and finger-ring bezels inscription during a time span from Middle Kingdom to Late Periods. This study covers the different types of inscribed items produced during this period and how the ancient Egyptians registered their information on small objects of different materials. The material, period, dimensions, inscription type

and present location are all outlined.

**KEYWORDS:** Mechanical engineering history, ancient Egypt, buttons inscription, beads inscription, heart amulets inscription, finger-ring bezels inscription.

This is the 74<sup>th</sup> part in a series aiming at investigating the mechanical engineering technology in ancient Egypt. It focuses on the inscription of beads, buttons and finger-ring bezels by ancient Egyptians and how they used them as media for writing and authorizing information. Maravelia, 2004 in her paper about an Egyptian golden ring with an inscribed lapis lazuli scarab at the Benaki Museum presented views of the ring and a line drawing for the inscription on its bezel. The inscription beared a happy new year wish for Pharaoh Shoshunq of the 22<sup>nd</sup> Dynasty.<sup>[1]</sup> Sparavigna, 2009 in her study of the ancient Egyptian seals and scarabs presented inscribed finger rings from the 18<sup>th</sup> Dynasty of the New Kingdom.<sup>[2]</sup> The National Archaeological Museum, 2014 published a short article about a golden ring with

inscribed silver bezel. The ring was from the 26<sup>th</sup> Dynasty and its inscription included a Cartouche for Pharaoh Psamtik I or II or III between two deities.<sup>[3]</sup> Hassaan, 2016 in his paper about finger-rings industry in ancient Egypt presented inscribed finger-ring bezels from the 12<sup>th</sup> Dynasty, 13<sup>th</sup> Dynasty, Second Intermediate Period and 18<sup>th</sup> Dynasty.<sup>[4]</sup> He presented also inscribed bezels from the 19<sup>th</sup> Dynasty, 20<sup>th</sup> Dynasty, 20<sup>th</sup> Dynasty, 21<sup>st</sup> Dynasty, 22<sup>nd</sup> Dynasty and 26<sup>th</sup>-29<sup>th</sup> Dynasties.<sup>[5]</sup>

The British Museum, 2017 published a short article about a golden finger-ring from the 18<sup>th</sup> Dynasty. The ring-bezel was inscribed using the hieroglyphic script for Pharaoh Akhenaten.<sup>[6]</sup> Commons Wikimedia, 2018 published a short article about an Egyptian inscribed bead in display in the Walters Art Museum. The bead had a rectangular shape of 25 mm x 20 mm dimensions manufactured from steatite and inscribed using the hieroglyphic script with text engraved in three bounded columns.<sup>[7]</sup>

### Buttons Inscription

The ancient Egyptians didn't leave even a small media to record their information and register their history using the hieroglyphic script. They used miniature surfaces such as buttons and huge surfaces such as pyramid, temple, tomb and obelisk surfaces for this purpose. Regarding buttons, there is no large material available to survey, however I found two examples of using buttons as writing media

- The first example is a button of Queen Tiye, the Great Royal Wife of Pharaoh Amenhotep III (1388-1350 BC) and mother of Pharaoh Akhenaten (1351-1334 BC) of the 18<sup>th</sup> Dynasty in display in the Neues Museum of Berlin and shown in Fig.1.<sup>[8]</sup> The button was inscribed by the Cartouche of the Queen inscribed using the hieroglyphic script.
- The second example is a terracotta button with two small holes near its center from the 30<sup>th</sup> Dynasty (380-343 BC) in display in the Los Angeles Country Museum of Art at Los Angeles and shown in Fig.2.<sup>[9]</sup> It was inscribed on the whole top surface by astronomical symbols. The dimensions of both buttons were not available.



**Fig. 1: Button of Queen Tiye from The 18<sup>th</sup> Dynasty.<sup>[8]</sup>**



**Fig. 2: Button from the 30<sup>th</sup> Dynasty.<sup>[9]</sup>**

### Beads Inscription

The ancient Egyptians manufactured beads from various materials with large number of sizes and used them in the production of wonderful pectorals,<sup>[10]</sup> necklaces,<sup>[11]</sup> and bracelets.<sup>[12]</sup> Even though beads can be as small as having 10 mm diameter, the ancient Egyptians could use them as a media for writing. The following examples depict using beads for historical authorization through inscription:

- The first example is a 25 x 20 x 2 mm steatite rectangular bead of King Senusret III from the 12<sup>th</sup> Dynasty (1878-1830 BC) in display in the Walters Art Museum at Baltimore and shown in Fig.3.<sup>[7]</sup> The bead was inscribed using the hieroglyphic script through a text engraved in three bounded columns.
- The second example is a 27mm height glazed steatite cylinder bead of Queen Ahmose Nefertari, the Royal Great Wife of Pharaoh Ahmose I of the 18<sup>th</sup> Dynasty (1549-1514 BC) in display in the Metropolitan Museum of Art at NY and shown in Fig.4.<sup>[13]</sup> The bead was inscribed through engraving the perimeter using the hieroglyphic script between two borders near the ends of the bead. The inscription is neat and the glazing is perfect giving a gold appearance for the bead.

Fig. 3: Bead of Senusret iii from the 18<sup>th</sup> Dynasty.<sup>[13]</sup>Fig. 4: Bead of Ahmose-Nefertari from 12<sup>th</sup> Dynasty.<sup>[7]</sup>

- The third example is a 17 mm height and 11 mm diameter glazed steatite cylinder bead inscribed for Pharaoh Amenhotep I from the 18<sup>th</sup> Dynasty (1525-1504 BC) in display in the Metropolitan Museum of Art at NY and shown in Fig.5.<sup>[14]</sup> The perimeter surface was engraved using the hieroglyphic script with text belonging to the Pharaoh between two border lines near the ends of the bead.
- The fourth example is a 21 mm diameter and 12 mm thickness glass bead inscribed for Senenmut, the Architect and Government Official during the 18<sup>th</sup> Dynasty (1479-1458 BC) in display in the British Museum and shown in Fig.6.<sup>[15]</sup> The inscription included a Royal Cartouche and other registers. The question here is how they inscribed the glass?. Glass technology specialists can answer this question and advising about the technology used in performing this inscription.

Fig. 5: Bead of Amenhotep I from the 18<sup>th</sup> Dynasty.<sup>[14]</sup>Fig. 6: Bead of Senenmut from the 18<sup>th</sup> Dynasty.<sup>[15]</sup>

- The fifth example is a 18.5 mm average diameter and 11 mm thickness glass bead of Pharaoh Hatshepsut from the 18<sup>th</sup> Dynasty (11479-1458 BC) in display in the World

Museum at Liverpool and shown in Fig.7.<sup>[16]</sup> The bead was inscribed using the hieroglyphic script for the Pharaoh and her Architect Senenmut.

- The sixth example is a 10 mm diameter glazed steatite bead inscribed for Nefertari, the Royal Great Wife of Pharaoh Ramses II from the 19<sup>th</sup> Dynasty (died 1255 BC) in display in the Metropolitan Museum of Art and shown in Fig.8.<sup>[17]</sup> The small rock bead was engraved for the Queen with very clear hieroglyphic script.



**Fig. 7: Bead of Hatshepsut from the 18<sup>th</sup> Dynasty.**<sup>[16]</sup>



**Fig. 8: Bead of Nefertari from the 19<sup>th</sup> Dynasty.**<sup>[17]</sup>

- The seventh example is a 46 x 28 x 9 mm golden spacer bead inscribed for Pharaoh Aramatelqo from the 26<sup>th</sup> Dynasty (568-555 BC) in display in the Brooklyn Museum and shown in Fig.9.<sup>[18]</sup> It was inscribed on both faces by a hieroglyphic script text for the Pharaoh. The inscription came in two columns including the Cartouche of the Pharaoh.



**Fig. 9: Spacer bead of Aramatelqo from the 26<sup>th</sup> Dynasty.**<sup>[18]</sup>

### Heart Amulet Inscription

The ancient Egyptians appreciated the human heart and knew that it is the center of the human deeds and it will be asked for that in the hereafter and it would be set in a balance for this purpose.<sup>[19]</sup> Because of this, they produced amulets in the shape of human heart. Not only this but also they inscribed its surface by historical and funerary texts as will be illustrated by the following presentations:

- The first example is a 56.9 x 49.7 x 17.5 mm basalt heart amulet from the New Kingdom (1570-1077 BC) in display in the British Museum and shown in Fig.10.<sup>[20]</sup> The amulet was inscribed by a funerary text engraved using the hieroglyphic text within 10 bounded rows.
- The second example is a 42 x 30 mm steatite heart amulet of Iay from the 18<sup>th</sup>-19<sup>th</sup> Dynasties (1550-1186 BC) in display in the Museum of Fine Arts at Boston and shown in Fig.11.<sup>[21]</sup> It was inscribed from the front side by a scene for Iay and an ibis engraved on most of the front surface of the amulet.



**Fig. 10: Heart amulet from the New Kingdom.**<sup>[20]</sup>



**Fig. 11: Heart amulet of Iay from the 18<sup>th</sup>-19<sup>th</sup> Dynasties.**<sup>[21]</sup>

- The third example is a 14 x 12 x 8 mm carnelian heart amulet from the New Kingdom-Late Period (1550-332 BC) in display in the World Museum at Liverpool and shown in Fig.12.<sup>[22]</sup> The amulet was inscribed using a hieroglyphic script on its top surface while the bottom surface was not shown to identify its inscription.
- The fourth example is a 44 mm height glazed steatite with inlaid glass heart amulet of Iay from the 18<sup>th</sup> – 19<sup>th</sup> Dynasties (1543-1187 BC) in display in the British Museum at London and shown in Fig.13.<sup>[23]</sup> This is a much better amulet for Iay since the scene is inlaid by glass and a hieroglyphic script text was carved in a bounded column between Iay and the bird and in two bounded rows on the bottom surface of the amulet.



**Fig. 12:** Heart amulet from the New Kingdom.<sup>[22]</sup> **Fig. 13:** Heart amulet of Iay from the 18<sup>th</sup>-19<sup>th</sup> Dynasties.<sup>[23]</sup>

- The fifth example is 51 mm height diorite heart amulet from the 18<sup>th</sup>-21<sup>st</sup> Dynasties (1543-945 BC) a private American collection and shown in Fig.14.<sup>[24]</sup> It was inscribed using the hieroglyphic script from both sides.<sup>[24]</sup>
- The sixth example is a 49 x 27 x 15 mm jade heart amulet with a scarab head from the 18<sup>th</sup>-19<sup>th</sup> Dynasties (1539-1190 BC) in display in the Brooklyn Museum at NY and shown in Fig.15.<sup>[25]</sup> It was inscribed by a hieroglyphic funerary text (on the back surface).



**Fig. 14:** Heart amulet from the 18<sup>th</sup>-21<sup>st</sup> Dynasties.<sup>[24]</sup> **Fig. 15:** Heart amulet of Iay from the 18<sup>th</sup>-19<sup>th</sup> Dynasties.<sup>[25]</sup>

- The seventh example is fragment of a 56 x 38 x 19 mm schist heart amulet of Queen Manhata, one of the three foreign wives of Pharaoh Thutmose III of the 18<sup>th</sup> Dynasty (1479-1425 BC) in display in the Metropolitan Museum of Art and shown in Fig.16.<sup>[26]</sup> It was inscribed using the hieroglyphic script with funerary text engraved inside nine bounded rows.
- The eighth example is a 58.2 x 35 x 17.4 mm glazed composition human-headed heart

amulet from the 18<sup>th</sup> or 19<sup>th</sup> Dynasties (1375-1275 BC) in display in the British Museum at London and shown in Fig.17.<sup>[27]</sup> It was inscribed in black ink on its back using the hieroglyphic script with ext from chapter 30B of the book of dead.<sup>[27]</sup> On the front face of the amulet an image of an ibis was engraved and inlaid in white.



**Fig. 16:** Heart amulet of Manhata from the 18<sup>th</sup> Dynasty.<sup>[26]</sup> **Fig. 17:** Heart amulet from the 18<sup>th</sup>-19<sup>th</sup> Dynasties.<sup>[27]</sup>

- The ninth example is a stone human-headed heart amulet of a lady from the 19<sup>th</sup> Dynasty (1307-1196 BC) shown in Fig.18.<sup>[28]</sup> It was inscribed on its top surface by an ibis with glass and gold inlay. It was not recorded if it had inscription on its back surface or not.
- The tenth example is a 45 mm height stone heart amulet from the 19<sup>th</sup> Dynasty (1295-1186 BC) in display in the Metropolitan Museum of Art at NY and shown in Fig.19.<sup>[29]</sup> It was inscribed on its top surface by a scene for one of the ancient Egyptian deities while was not recorded if it had inscription on its back surface or not.
- The eleventh example is a 29 x 23 x 15 mm jasper heart amulet from the 20<sup>th</sup> Dynasty (1295-1185 BC) shown in Fig.20.<sup>[30]</sup> It was inscribed on its back surface by a funerary text (not shown) from chapter 30B of the Book of dead.<sup>[30]</sup> The heart was perfectly cut and polished producing very smooth shining surfaces.
- The twelfth example is a 22 x 16 mm hematite heart amulet from the Late Period (664-332 BC) in display in the Metropolitan Museum of Art and shown in Fig.21.<sup>[31]</sup> The amulet was inscribed on both faces with a dim inscription.



**Fig. 18: Heart amulet of a lady from the 19<sup>th</sup> Dynasty.<sup>[28]</sup>**



**Fig.19 Heart amulet from the 19<sup>th</sup> Dynasties.<sup>[29]</sup>**



**Fig. 20: Heart amulet from the 20<sup>th</sup> Dynasty.<sup>[30]</sup>**



**Fig. 21: Heart amulet from the Late Period.<sup>[31]</sup>**

### Finger ring-bezel Inscription

The ancient Egyptians produced wonderful jewellery over a time span extended for thousands of years. Their production is still alive in most of the world museums everywhere. Among the too many Egyptian jewellery is the finger-ring.<sup>[4,5]</sup> Those genius people used the bezel of the finger-ring to register their knowledge specially the historical ones as will be depicted by the too many examples presented here:

- The first example is a 13 mm bezel length golden swivel finger-ring of King Senusret III from the 12<sup>th</sup> Dynasty (1878-1839 BC) in display in the Metropolitan Museum of Art and shown in Fig.22<sup>[32]</sup>. The ovoid bezel was inscribed by three hieroglyphic scripts in the centre surrounded by a decorating profile on the perimeter.
- The second example is a 27 mm bezel length jasper bezel finger ring of Sealer Khensu from the 13<sup>th</sup> Dynasty (1802-1640 BC) in display in the Metropolitan Museum of Art and

shown in Fig.23.<sup>[33]</sup> The ovoid bezel was inscribed by a hieroglyphic script text covering the whole top surface of the bezel inside an engraved contour.



Fig. 22: Finger-ring of Senusret III from the 12<sup>th</sup> Dynasty.<sup>[32]</sup> Fig. 23: Finger-ring of Sealer Khensu from the 13<sup>th</sup> Dynasty.<sup>[33]</sup>

- The third example is a golden signet finger ring of Queen Ahhotep I, Great Royal Wife of King Seqenenre Tao II from the 17<sup>th</sup> Dynasty (1560-1530 BC) in display in the Louvre Museum at Paris and shown in Fig.24.<sup>[34]</sup> The oval bezel was inscribed by few hieroglyphic scripts for the Queen over the ovoid surface of the bezel.
- The fourth example is a 25 mm bezel length golden signet finger ring of Pharaoh Amenhotep I from the 18<sup>th</sup> Dynasty (1524-1503 BC) in display in the Petrie Museum at London and shown in Fig.25.<sup>[35]</sup> It was inscribed by the Cartouche of the Pharaoh with hieroglyphic script text inside it.



Fig. 24: Finger-ring of Ahhotep I from the 17<sup>th</sup> Dynasty.<sup>[34]</sup>



Fig. 25: Finger-ring of Amenhotep I from the 18<sup>th</sup> Dynasty.<sup>[35]</sup>

- The fifth example is an 18 mm bezel length glazed composition swivel bezel of a finger-ring of Pharaoh Hatshepsut of the 18<sup>th</sup> Dynasty (1479-1458 BC) in display in the British Museum at London and shown in Fig.26.<sup>[36]</sup> The ovoid bezel was set inside an oval

golden housing and inscribed by the throne name of the Pharaoh engraved using the hieroglyphic script covering the whole surface of the bezel.

- The sixth example is a golden swivel square-bezel finger ring of Pharaoh Thutmose III from the 18<sup>th</sup> Dynasty (1479-1425 BC) in display at the British Museum at London and shown in Fig.27.<sup>[37]</sup> It was inscribed by the Cartouches of the Pharaoh with hieroglyphic text beside the Cartouche casted in three or four unbounded columns.



Fig. 26: Finger-ring of Hatshepsut from the 18<sup>th</sup> Dynasty.<sup>[36]</sup>



Fig. 27: Finger-ring of Thutmose III from the 18<sup>th</sup> Dynasty.<sup>[37]</sup>

- The seventh example is 31 x 9 mm bronze finger-ring-bezel from the 18<sup>th</sup> Dynasty (1400 BC) that was in display by ebay for sale with 250 US\$ and shown in Fig.28.<sup>[38]</sup> The semi-ovoid bezel was inscribed by an image in the centre and few hieroglyphic texts above and below the image.



Fig. 28: Finger-ring of from the 18<sup>th</sup> Dynasty.<sup>[38]</sup>

- The eighth example is a 18 x 10 mm faience ovoid bezel finger ring from the 18<sup>th</sup> Dynasty (1400 BC) that was in display by V-coins for sale with 170 US\$ and shown in Fig.29.<sup>[39]</sup> It was inscribed on the whole bezel top surface using the hieroglyphic script.
- The ninth example is a 25 x 14 mm bezel bronze finger ring of Pharaoh Akhenaten from the 18<sup>th</sup> Dynasty (1351-1334 BC) in display in the World Museum at Liverpool and shown in Fig.30.<sup>[40]</sup> The ovoid bezel was fully inscribed by the hieroglyphic script.

Fig. 29: Finger-ring from the 18<sup>th</sup> Dynasty.<sup>[39]</sup>Fig. 30: Finger-ring of Thutmose III from the 18<sup>th</sup> Dynasty.<sup>[40]</sup>

- The tenth example is a 22 mm ovoid bezel length golden finger ring of Pharaoh Akhenaten from the 18<sup>th</sup> Dynasty (1351-1334 BC) in display in the British Museum and shown in Fig.31.<sup>[41]</sup> It was inscribed on the whole bezel top surface using the hieroglyphic script with text casted (or engraved inside an ovoid contour).
- The eleventh example is a 25 mm diameter golden signet finger ring of Queen Nefertiti, the Great Royal Wife of Pharaoh Akhenaten from the 18<sup>th</sup> Dynasty (1351-1334 BC) in display in the National Museum of Scotland at Edinburgh and shown in Fig.32.<sup>[42]</sup> The ovoid bezel was fully inscribed by the hieroglyphic script with text filling the whole top surface of the bezel.

Fig. 31: Finger-ring of Akhenaten from the 18<sup>th</sup> Dynasty.<sup>[41]</sup>Fig. 32: Finger-ring of Nefertiti from the 18<sup>th</sup> Dynasty.<sup>[42]</sup>

- The twelfth example is a golden finger ring with ovoid bezel of Pharaoh Tutankhamun from the 18<sup>th</sup> Dynasty (1332-1323 BC) shown in Fig.33.<sup>[43]</sup> It was inscribed on the whole bezel top surface using the hieroglyphic script with text casted (or engraved) for the Throne name of the Pharaoh. No more data were given for this Royal ring !!.
- The thirteenth example is a swivel finger ring of Pharaoh Horemheb from the 18<sup>th</sup> Dynasty (1319-1292 BC) in display in the Louvre Museum at Paris and shown in Fig.34.<sup>[44]</sup> The rectangular bezel was inscribed by the hieroglyphic script with text filling

the Cartouche of the Pharaoh.



Fig. 33: Finger-ring of Tutankhamun from the 18<sup>th</sup> Dynasty.<sup>[43]</sup> Fig. 34: Finger-ring of Nefertiti from the 18<sup>th</sup> Dynasty.<sup>[44]</sup>

- The fourteenth example is a 27 x 12 mm bezel silver signet finger ring with ovoid bezel from the 18<sup>rd</sup> Dynasty (1300 BC) in display in the World Museum at Liverpool and shown in Fig.35.<sup>[45]</sup> The ovoid bezel was fully inscribed on the whole bezel top surface using the hieroglyphic script with text casted (or engraved) for the owner.
- The fifteenth example is a 35 mm bezel length golden swivel finger ring of Pharaoh Ramses VI from the 20<sup>th</sup> Dynasty (1145-1137 BC) in display in the Metropolitan Museum of Art at NY and shown in Fig.36.<sup>[46]</sup> The semi-rectangular bezel was inscribed by the hieroglyphic script with text filling the whole area of the bezel (casted or engraved).



Fig. 35: Signet finger-ring from the 18<sup>th</sup> Dynasty.<sup>[45]</sup> Fig. 36: Finger-ring of Ramses VI from the 20<sup>th</sup> Dynasty.<sup>[46]</sup>

- The sixteenth example is a golden signet finger ring with ovoid bezel of Pharaoh Ramses X from the 20<sup>th</sup> Dynasty (1111-1107 BC) in display in the Kunst Historisches Museum at Wien and shown in Fig.37.<sup>[47]</sup> The ovoid bezel was fully inscribed on the whole bezel top surface using scenes for Royal Crowns and other images.
- The seventeenth example is a 25 x 18 mm bezel golden signet finger ring of Priest Neferibre from the 26<sup>th</sup> – 27<sup>th</sup> Dynasties (664-404 BC) in display in the Brooklyn Museum at NY and shown in Fig.38.<sup>[48]</sup> The semi-ovoid bezel was fully inscribed by the hieroglyphic script with text filling the whole area of the bezel including the Cartouche of

an ancient Egyptian King. All the surfaces were perfectly rounded following the recommendations of the professional designers of machine elements.



Fig. 37: Signet finger-ring of Ramses X from the 20<sup>th</sup> Dynasty.<sup>[47]</sup> Fig. 38: Finger-ring of Ramses VI from the 20<sup>th</sup> Dynasty.<sup>[48]</sup>

- The eighteenth example is a golden signet finger ring with square bezel from the Late Period (664-332 BC) in display in the Louvre Museum at Paris and shown in Fig.39<sup>[49]</sup>. The square bezel with rounded corners was fully inscribed on the whole bezel top surface using the hieroglyphic script with text engraved in three un-bounded rows.
- The nineteenth example is a 34 mm bezel-length golden signet golden finger ring of Sheshonq, Chief Steward during the 26<sup>th</sup> Dynasty (575 BC) in display in the British Museum at London and shown in Fig.40<sup>[50]</sup>. The semi-ovoid bezel was fully inscribed by the hieroglyphic script with text filling the whole area of the bezel inside a semi-ovoid contour. The scripts were professionally engraved (or casted)

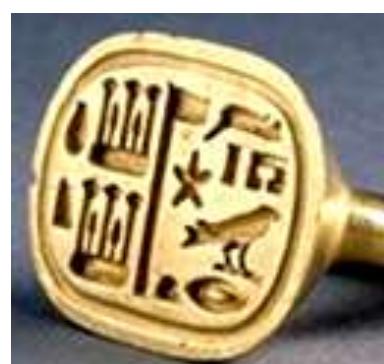


Fig. 39: Signet finger-ring from Late Period.<sup>[49]</sup> Fig. 40: Finger-ring of Sheshonq from the 26<sup>th</sup> Dynasty.<sup>[50]</sup>

## CONCLUSION

- This paper investigated the evolution of mechanical engineering in ancient Egypt through the inscription of buttons, beads, heart amulets and finger-ring bezels.

- The study covered a time span from Dynasty 12 to the Late Periods.
- The ancient Egyptians inscribed buttons from the 18<sup>th</sup> and 30<sup>th</sup> Dynasties.
- They inscribed beads from the 12<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup> and 26<sup>th</sup> Dynasties.
- They inscribed rectangular, cylindrical, semi-spherical and spherical beads.
- They inscribed an spacer bead during the 26<sup>th</sup> Dynasty.
- They inscribed beads manufactured from steatite, glazed steatite, glass and gold.
- They inscribed beads having thickness as small as 2 mm.
- They inscribed heart amulets produced during the 18<sup>th</sup>, 19<sup>th</sup>, 18<sup>th</sup>-21<sup>st</sup>, 20<sup>th</sup> Dynasties and the Late Period.
- They inscribed heart amulets manufactured from steatite, glazed steatite, basalt, carnelian, diorite, jade, schist, glazed composition, jasper and hematite.
- Some of the heart amulets were inscribed by a funerary text from the book of dead.
- Some of the heart amulets were inscribed on both faces (top and bottom).
- The ancient Egyptians inscribed finger-ring bezels produced during the 12<sup>th</sup>, 13<sup>th</sup>, 17<sup>th</sup>, 18<sup>th</sup>, 20<sup>th</sup>, 26<sup>th</sup> Dynasties and Late Period.
- They inscribed bezels manufactured from gold, silver, bronze, jasper, glazed composition and faience.
- They inscribed both types of finger-rings: signet and swivel.
- They inscribed finger-ring bezels taking ovoid, semi-ovoid, rectangular, semi-rectangular and square shapes.
- The hieroglyphic script was used in the inscription of investigated buttons, beads, heart amulets and finger ring bezels.

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