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MECHANICAL ENGINEERING IN ANCIENT EGYPT, PART XI: POTTERY INDUSTRY (THIRD INTERMEDIATE AND LATE PERIODS)

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ABSTRACT

This is the 11th research paper exploring the development of Mechanical Engineering in Ancient Egypt. The pottery industry provided the ancient Egypt community with objects required for daily life since more than 6000 years ago. The pottery ware carry information about the ancient Egypt people along the different ages. This is the third research paper exploring the development of the pottery industry in ancient Egypt during the Third Intermediate and the Late Periods. The paper shows how the outstanding technological level of this industry in the New Kingdom is deteriorated during those periods. The characteristics of the pottery ware during those periods are presented by analyzing some pottery designs available in the literature.

KEYWORDS: History of mechanical engineering, ancient Egypt, pottery industry, Third Intermediate Period, Late Period.

INTRODUCTION

The ancient Egyptians used the River-Nile mud as a raw material to produce pottery ware required for their daily life and for funerary purposes. They could produce pottery ware either manually or using the potter's wheel. Their products appeared with very high mechanical technology in adjusting the dimensions, designing the product and decorating it. Their pottery

products are filling the museums around the world indicating the sophistication and attraction of their pottery products.

Fay, 2000 analysed a largely unpublished ceramic material from Dakhla Oasis of Egypt. This work covered a thousand years of Egyptian pottery from the eighth century BC to the late second century AC. He studied the technical characteristics of the vessels to describe the ancient pottery practices.[1] Aston and Aston, 2003 investigated the Late Period Bes vases and attempted to produce a firm chronological typology for Egyptian Bes vases. They studied vessels from funerary contexts, town sites and cemetery sites.[2] Wodzinska, 2007 studied the pottery from the survey at Tell el-Retaba where most of recorded vessels were dated from the Late New kingdom and the Third Intermediate Period. She concluded that those vessels were either uncoated or had a white / pinkish slip with few red-slipped vessels found.[3] Rzepka et. Al., 2011 studied the results of the Polish-Slovak Archaeological Mission 2009-2010 in Tell el-Retaba 35 km west of Ismailiya. They displayed some findings of the mission including storing jars, ovens, industrial zone, pottery scraper, ceramic vessels from the Third Intermediate and Late Periods, cups from the Third Intermediate Period, large storing jars from Third Intermediate period and amphorae used as coffins for children.[4] Bealby, 2015 reported about the Second Annual Birmingham Egyptology Symposium helt at the University of Birmingham on the 20th February 2015. She declared that a wide number of topics were presented in the symposium including finds such as pottery.[5] Hassaan, 2016 investigated the development of mechanical engineering in ancient Egypt through studying the pottery industry during the periods from Predynastic to the Old Kingdom[6] and from the Middle Kingdom to the New Kingdom.[7] He presented some of the pottery models from the studied periods clarifying their design characteristics and decoration technique (if decorated).

Third Intermediate Period

The Third Intermediate Period covers the 21st to the 25th dynasties.[8] Anna Wodzinska stated that pottery ware during this period was manufactured mostly using the potter's wheel except for course plates and bread trays which were manually produced.[9] We start presenting the pottery of the Third Intermediate Period by what is known as Bes vessel which appeared in this period. A model of Bes vessels from the 22nd dynasty is shown in Fig.1 which is in display in Petrie Museum of UK.[10] It has an ovaloid body, medium mouth, medium neck, flanged-rim and small flat base. It has one dark-orange color and its body is decorated by an engraved image for the ancient Egyptian deity, Bes.[11]

Fig.1 Bes vessel from the 22nd dynasty.[10]

Another model of pottery jars is a tall jar from the 25th dynasty found in Thebes and displayed in Petrie Museum and shown in Fig. 2.[12] The body is cylindrical with slight shrinkage at the middle, the mouth is medium, there is no neck, the rim is round and the base is round. It has a dark-orange color without any decorations.

Fig. 2 Pottery tall jar from the 25th dynasty.[12]

Four other samples of pottery ware from the 3rd Intermediate Egyptian Period are shown in Fig.3 where all of them are displayed in Petrie Museum.[10] There is variation in color, but all of them have unique color without any decoration. The bowl in (b) has four handles, the jar in (d) has two handles while the other jars in (a) and (c) most probably have no handles. The moth is large in design (a), medium in design (c) and small in design (d). The body is ovaloid in design (a), conical in designs (b) and (d) and round (spherical) in design (c). The base is

small flat in designs (a), (b) and (d) and round in design (c). The rim is vertical in designs (b), (c) and (d) and flashing out in design (a).

Fig. 3 Pottery ware from the 3rd Intermediate Period.[10]

Two more models of different designs are shown in Fig.4 which displayed in Petrie Museum.[11] The jar in (a) has a long neck while that in (b) has a short neck. The mouth is narrow in both designs. The handles are extremely large in design (a) and has a medium size in design (b). The body is round in both designs, The rim is large and flashing out in design (b) The base is a point in both designs. Both are not decorated. Color is light-salmon4 in design (a) and sandi-brown in (b).[12]

Fig.4 Pottery jars from Gurob and Thebes.[11]

The latest model from the 3rd Intermediate Period (25th dynasty) is found in Tomb B at El-Khokha of Thebes. It is shown in Fig.5 which is a line diagram drawn by the authors.[13] It is a neckless jar with average mouth, ovaloid body, round rim and having two small handles near the rim. It is clear from the drawing that it is decorated horizontal circles and bands.

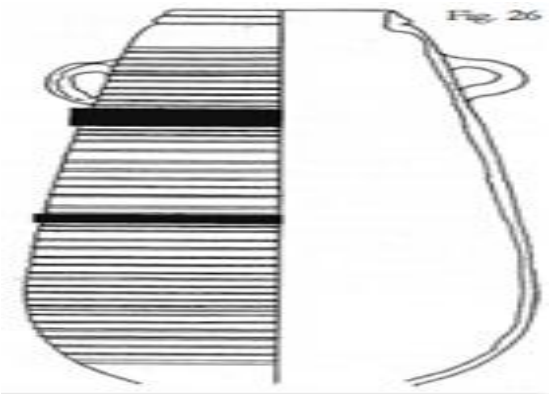


Fig. 5 Pottery jar from the 25th dynasty.[13]

Late Period

The Late Period of the Ancient Egyptian history covers the dynasties from 26th to 31st.[14] No advancement is expected in the pottery industry during this period also. We will see through the examples presented of the pottery ware during this period if there is any development occurred. Fig. 5 (a) shows a pottery brown jar from the late period displayed in the Petrie Museum of UK.[15] It has a medium mouth, short neck, round rim, double conical bode and round base. The surface is rough and has no decorations and it has no handles. Another model of pottery orange jars of the late period is shown in Fig. 5 (b).[16] It has a narrow mouth, small neck, round rim, ovaloid body and a flat small base. It has no handles nor any decoration. Fig. 5 (c) shows a dark-brown bowl found at Suwa and belongs to the Late Period of ancient Egypt and displayed in Petrie Museum.[17] It has an open mouth (150% of its height), small flashing out neck, ovaloid body and flat base, The surfaces are polished and there is no decoration.

(a) Brown jar.[15] **(b) Orange jar.[16]** **(c) Dark-brown bowl.[17]**

Fig. 5 Two jars and a bowl from the Late Period.

Another design of pottery bowls is shown in Fig.6 (a) which is found at Suwa of Egypt and located in Petrie Museum.[18] It has a vertical round rim, hemi-spherical body and medium flat base. There is no handles nor any decoration. A different design pottery jar is shown in Fig.6 (b) which is found at Giza of Egypt and displayed in Petrie Museum.[19] It has a wide mouth of diameter little bit more than the body diameter, round flashing out rim, cylindrical tall body, round base and two medium handles near the rim. It has no decorations and the surface is rough. Another model of the tall jars from Giza also is shown in Fig.6 (c).[20] This tall jar is similar to that in Fig.6 (b) except its mouth which is medium (about 45% of its maximum body diameter, its body is semi-ovaloid and it has no handles.

(a) Light-brown bowl.[18]

(b) Tall jar with 2 handles.[19]

(c) Tall jar without Handles.[20]

Fig.6 Bowl and tall jars from Late Period.

Another pottery model of pottery jars from Qurna of Egypt is shown in Fig.7 (a) and displayed in Petrie Museum.[21] It has a large round rim, double conical body, small flat base and no handles nor decorations. Another model is shown in Fig.7 (b) for a medium length jar from Defenneh of Egypt and displayed in Petrie Museum.[22] It has a medium mouth (about 40% of the maximum diameter), round short rim, un-symmetric double conical body, large flat base, two medium handles, no decoration and rough surface.

(a) Large rim jar.[21] **(b) Small rim jar.[22]**

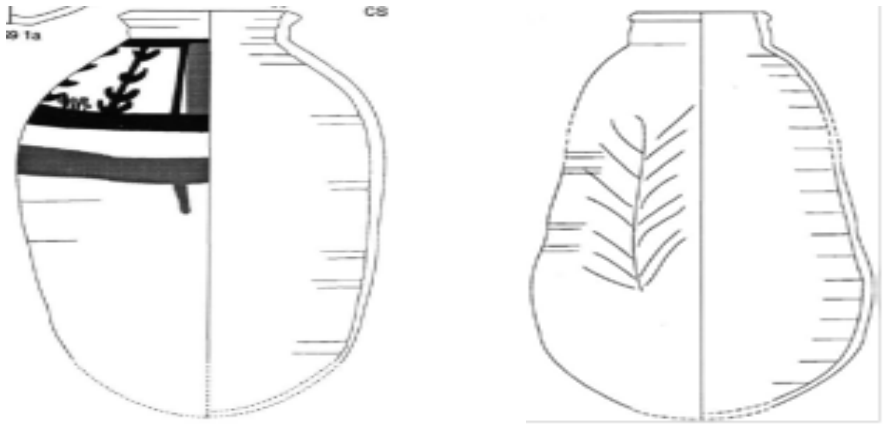
Fig. 7 Large and small rim jars.

Models of pottery jars with different designs are shown in Fig.8. Fig.8 (a) is a line diagram for an decorated slender jar.[23] It has a medium mouth, neck of two levels one of them is swallowing and the other is almost straight. The body nearly ovaloid and the base is round. It has no handles. Another design is shown in Fig.8 (b) for a single handle undecorated jar.[24] It has a medium mouth, round-short rim, medium straight neck, ovaloid body and flat-medium base. Another jar model is shown in Fig.8 (c).[25] It has a wide mouth, round rim, short neck, ovaloid body and large-flat base. It has no handles and decorated by horizontal bands over about 50% of the body. It has 4 painted bands changing sequence with 3 parallel lines bands.

(a) Slender jar.[23] **(b) Single handed jar.[24]** **(c) Decorated jar.[25]**

Fig.8 Jars with different designs from Late Period.

One more model of decorated pottery jars from the Late Kingdom is shown in Fig.9 (a).[26] It has a medium mouth, flat-inclined rim, small conical neck, semi-ovaloid body and round base. It has painted decorations on the top 40% of the body. There is plants decoration in the top decoration band near the neck. It has no handles.



(a) Decorated jar with round base.[26] **(b) Pland decorated jar.[27]**

Fig.9 Decorated handless-jars.

A pottery flask from the Late Period is shown in Fig.10 (a).[28] It has a small mouth, medium neck, round rim, cylindrical body with spherical ends and a point base. It has 2 medium handles between the neck and body. Another design of decorated pottery jars is shown in Fig.11.[29] It has a medium mouth, medium neck, round rim, semi-ovaloid body and small-flat base. One of the handles is decorated by dark-color bands and the top part of the body is decorated by 2 dark-color bands and intermediate band with probably plant scenes.

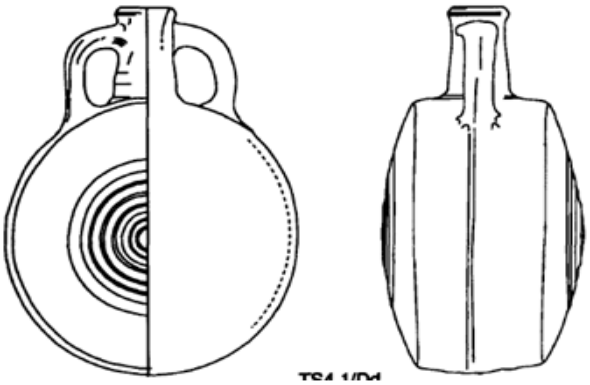


Fig.10 Double handled pottery flask.[28]

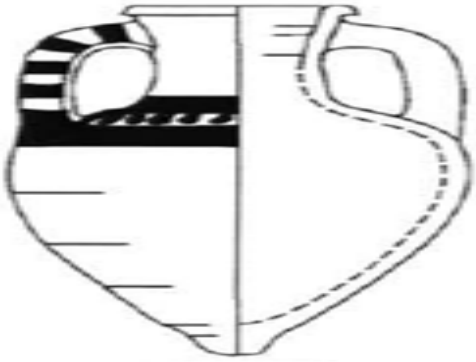
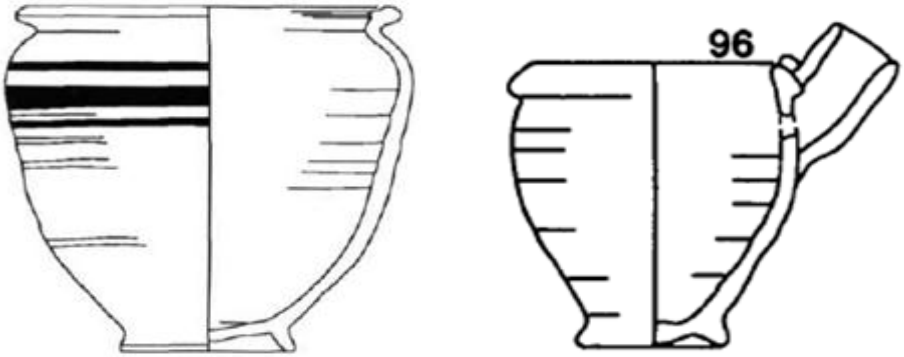


Fig.11 Decorated 2 handles jar.[29]

The last models of pottery industry in the Late Egyptian Period is for bowls. Fig.12 (a) shows a decorated bowl.[30] It has a round rim flashed outside, a complex shaped body with conical nature in the middle and a medium ring base. It has no handles and decorated by 3 bands of a dark color near its top. Another model is shown in Fig.12 (b) which is a spouted bowl.[31] It has a round rim, semi-ovaloid body and a ring base. It has no handles and without any decorations. It has a small orifice feeding the spout and the spot top level is above the rim level.



(a) Decorated bowl.[30] **(b) Spouted bowl.[31]**

Fig.12 Decorated and spouted bowls.

CONCLUSION

- Development of the pottery industry during the Third Intermediate and the Late Periods of the Ancient Egyptian History was investigated.
- The political weakness of Egypt in those periods was reflected on the development of the pottery industry.
- The pottery industry was deteriorated from its glory in the New Kingdom to a very low technological level.
- What is called Bes vessels were appeared in the Third Intermediate Period. The image of Bes was inscribed on the vessel-body.
- Pottery ware appeared in those two periods were classical in design except some changes in the body design.
- They designed jars without handles, with one handle and with two handles in those periods.
- Most pottery bowls were without handles or spouts.
- Some pottery bowl designs with four handles and one spout appeared during those periods.
- Painting decoration of some pottery ware appeared in a very simple way compared to that in the New Kingdom. It covered the whole body, 50% of the body, 40% of the body, only the top part of the body and one handle or through bands near the body top.
- Design of a pottery flask took place during the Late Period with two handles between the neck and body.
- They designed tall jars with or without handles and without any decorations.
- They could produce pottery ware with plain brown, orange and dark-brown colors.

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BIOGRAPHY

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