

C H R O N O L O G Y
A N D A R C H A E O L O G Y
I N A N C I E N T E G Y P T
(THE THIRD MILLENNIUM B.C.)

Hana Vymazalová, Miroslav Bárta
editors



**CHRONOLOGY AND ARCHAEOLOGY
IN ANCIENT EGYPT
(THE THIRD MILLENNIUM B.C.)**

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CHRONOLOGY AND ARCHAEOLOGY IN ANCIENT EGYPT (THE THIRD MILLENNIUM B.C.)

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editors

**Czech Institute of Egyptology, Faculty of Arts,
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White carinated bowls (CD7) are the most abundant ceramic bowls from the site excavated by the Giza Plateau Mapping Project (GPMP). According to their shape they are very similar to the red carinated, so called Meidum bowls. Meidum bowls are well known time indicators for the Egyptian Old Kingdom. The present paper attempts to show that the dating criteria used in the case of the red carinated bowls can be also applied to the white carinated bowls. The rim parts of the CD7 bowls from the GPMP area called RAB were selected, drawn, measured and statistically analyzed.

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Foreword

The subject of the chronology of ancient Egyptian history remains of particular interest. The new excavations as well as the explorations of the so far known monuments and written sources have brought many interesting results which enlarge our knowledge about the history of ancient Egypt and the development of different aspects of the Egyptian culture.

The Czech Institute of Egyptology invited a group of scholars working on subjects relevant to the ancient Egyptian chronology to a conference in Prague in June 2007. The meeting offered the opportunity to exchange information and to present the latest results of the research. The various papers presented, and for a large part gathered in the present volume, provided different and highly stimulating approaches to chronological issues.

The nineteen contributions to the volume approach the subject of Egyptian chronology from different perspectives. Some of them concern the use of modern methods (^{14}C) and natural sciences in Egyptology; others analyze the development of various aspects of the Egyptian culture during the whole period of the Old Kingdom and the First Intermediate Period, or try to specify the date of certain monuments and personalities. The question of calendars and festivals is also alluded to, and some new archaeological discoveries are presented. A study and interpretation of archaeological as well as textual sources and iconographical material is combined in the papers in order to attain a deeper knowledge and better understanding of the Egyptian chronology, archaeology and the ancient history.

The overview of individual contributions also shows that Egyptology dealing with the third and early second millennium B.C. still prefers to follow rather traditional paths of research. The reasons for this tendency may be manifold, one of them yet relates to the fact that sampling and subsequent analysis abroad (in many cases no other solution would have been possible) is strictly prohibited in Egypt, indeed a very rare exception in the whole Middle East.

During the editing of the text we did not attempt to unify the transliteration of ancient Egyptian, and several different variants may occur depending on the choice of the authors. The personal names and the names of places were, however, in most cases unified in order to simplify the orientation in the text for the reader. The bibliographical references follow the pattern of the *Cambridge Archaeological Journal*, and the list of journals and the bibliography are given in a list at the beginning of the volume.

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Our thanks go, above all, to Filip Coppens for his help during the editorial work and to Vivienne Gae Callender who kindly revised some of the articles in the volume.

We also wish to thank all members of our Institute for their help and encouragement.

Prague, May 2008

The Editors

Abbreviations and journals

ACME – Annali della Facoltà di Lettere e Filosofia dell' Università degli Studi di Milano, Milano.

AcOr – Acta Orientalia, Kopenhagen – Leiden.

AEPHE 5^e Section: Sciences Religieuses – Annuaire, École Pratique des Hautes Études 5^e Section: Sciences Religieuses, Paris.

AJA – American Journal of Archaeology, New York – Baltimore – Norwood.

AJSL – American Journal of Semitic Languages and Literatures, Chicago.

Ä&L – Ägypten und Levante, Wien.

AmAnt – American Anthropologist. Organ of the American Anthropological Association, Washington.

Annales de la Société Entomologique de France (N.S.) – Annales de la Société Entomologique de France, Paris.

Antiquity – Antiquity. Quarterly Review of Archaeology, Cambridge.

AOF – Altorientalische Forschungen, Berlin.

ArchGeo – Archaeologia geographica, Hamburg.

Archaeometry – Archaeometry. Bulletin of the Research Laboratory for Archaeology and the History of Art, Oxford.

Archéo-Nil – Archéo-Nil. Revue de la société pour l'étude des cultures prépharaoniques de la vallée du Nil, Paris.

ArOr – Archiv orientální, Praha.

ArtAs – Artibus Asiae. The Journal of Asian Art and Archaeology, Zürich.

ASAE – Annales du Service des Antiquités de l'Égypte, Le Caire.

BES – Bulletin of the Egyptological Seminar, New York.

BIFAO – Bulletin de l'Institut français d'archéologie orientale, Le Caire.

BMFA – Bulletin of the Museum of Fine Arts, Boston.

BSEG – Bulletin de la Société d'égyptologie de Genève, Genève.

BSFE – Bulletin de la Société française d'égyptologie, Paris.

Canadian Journal of Zoology – Canadian Journal of Zoology=Journal canadien de zoologie, Ottawa.

CCE – Cahiers de la céramique égyptienne, Le Caire.

CdE – Chronique d'Égypte, Brussel.

CRAIBL – Comptes Rendus de séances. Académie des Inscriptions et Belles-Lettres, Paris.

CRIPPEL – Cahier de recherches de l'Institut de papyrologie et égyptologie de Lille, Lille.

DE – Discussions in Egyptology, Oxford.

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EA – Egyptian Archaeology, London.

Enchoria – Enchoria. Zeitschrift für Demotistik und Koptologie, Wiesbaden.

Entomologist's Monthly Magazine – Entomologist's Monthly Magazine, Oxford.

Environmental Archaeology – Environmental Archaeology. The Journal of Human Palaeoecology, Oxford – London.

Fauna of Saudi Arabia – Fauna of Saudi Arabia, Basle.

GM – Göttinger Miszellen, Göttingen.

De Ibis – De Ibis. Tijdschrift van de Nederlandse egyptologische Vereniging Sjemsoethot, Amsterdam.

JARCE – Journal of the American Research Center in Egypt, New York.

JAS – Journal of Archaeological Science, London – New York.

JEA – Journal of Egyptian Archaeology, London.

JEOL – Jaarbericht van het Vooraziatisch-Egyptisch genootschap ex Oriente Lux, Leiden.

JNES – Journal of Near Eastern Studies, Chicago.

Journal of Applied Entomology – Journal of Applied Entomology, Berlin.

Journal of Pest Science – Journal of Pest Science, Heidelberg.

JSA – Journal of Social Archaeology, London.

JSSEA – Journal for the Society of the Study of Egyptian Antiquities, Toronto.

Kemi – Kêmi. Revue de Philologie et d'Archéologie Égyptiennes et Coptes, Paris.

KMT – K.M.T. A Modern Journal of Ancient Egypt, San Francisco.

Kush – Kush. Journal of the Sudan Antiquities Service, Khartum.

LingAeg – Lingua Aegyptia. Journal of Egyptian Language Studies, Göttingen.

MDAIK – Mitteilungen des Deutschen archäologischen Instituts. Abteilung Kairo, Mainz – Wiesbaden – Berlin.

Méditerranées – Méditerranées, Paris.

Mémoires de la Société Entomologique d'Égypte – Mémoires de la Société Entomologique d'Égypte, Le Caire.

MMJ – Metropolitan Museum Journal. Journal of the Metropolitan Museum of Art, New York.

Nature – Nature, London.

Nekhen News – Nekhen News. Published for the Friends of Nekhen, Chicago.

OMRO – Oudheidkundige Mededelingen uit het Rijksmuseum van Oudheden, Leiden.

Or – Orientalia. Nova Series, Roma.

OLZ – Orientalistische Literaturzeitung. Zeitschrift für die Wissenschaft von ganzen Orient, Berlin.

Palaeogeography, Palaeoclimatology, Palaeoecology – Palaeogeography, Palaeoclimatology, Palaeoecology. An International Journal for the Geo Sciences, Amsterdam.

PAPS – Proceedings of the American Philosophical Society, Philadelphia.

PAM – Polish Archaeology in Mediterranean, Warsaw.

PPS – Proceedings of the Prehistoric Society. Journal of the Prehistoric Society, London.

Pubblicazioni del Museo Entomologico "Pietro Rossi" – Pubblicazioni del Museo Entomologico "Pietro Rossi" Duino, Udine.

Radiocarbon – Radiocarbon. An International Journal of Cosmogenic Isotope Research, New Haven.

RAr – Revue archéologique, Paris

RdÉ – Revue d'égyptologie, Paris.

Rec. Trav. – Recueil des travaux relatifs à la philologie et à l'archéologie égyptiennes et assyriennes, Paris.

RevArch – Revue archéologique, Paris.

RIDA – Revue internationale des droits de l'Antiquité, Office international des Périodiques.

SAK – Studien zur Altägyptischen Kultur, Hamburg.

SbWien math.-nat.Kl. – Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften. Mathematisch-naturwissenschaftliche Klasse, Wien.

Sicilia Archeologica – Sicilia Archeologica, Roma.

Sphinx – Sphinx: Revue critique embrassant le domaine entier de l'égyptologie, Uppsala – Stockholm.

SSEA – The Society for the Study of Egyptian Antiquities, Toronto.

Studie a Zprávy Oblastního Muzea Praha-východ – Studie a Zprávy Oblastního Muzea Praha-východ v Brandýse nad Labem a Staré Boleslavi, Brandýs nad Labem.

Transactions of the Royal Entomological Society of London – Transactions of the Royal Entomological Society of London, London.

WA – World Archaeology, London.

WZKM – Wiener Zeitschrift für die Kunde des Morgenlandes, Wien.

ZÄS – Zeitschrift für ägyptische Sprache und Altertumskunde, Berlin.

Zeitschrift für Physik – Zeitschrift für Physik, Berlin.

White carinated bowls from Giza and dating of the Giza Plateau Mapping Project Site

Anna Wodzińska (Warsaw)

Introduction

I would like to present one of the most characteristic ceramic types known from the Giza Plateau, especially from the Giza Plateau Mapping Project, that is white carinated bowls, in the GPMP pottery typology called CD7 (Wodzińska 2006).

CD7s, are the most abundant ceramic bowls from the GPMP site. It appears that their production was massive. Manufactured in large amounts, they were probably used and subsequently discarded very often. So they must have been replaced very often as well. Frequent production leads to faster changes.

According to their shape the bowls are very similar to the red carinated, so called Meidum bowls. Meidum bowls are well known time indicators for the Egyptian Old Kingdom (for instance Ballet 1987). The present paper attempts to show that dating criteria used in the case of the red carinated can be also

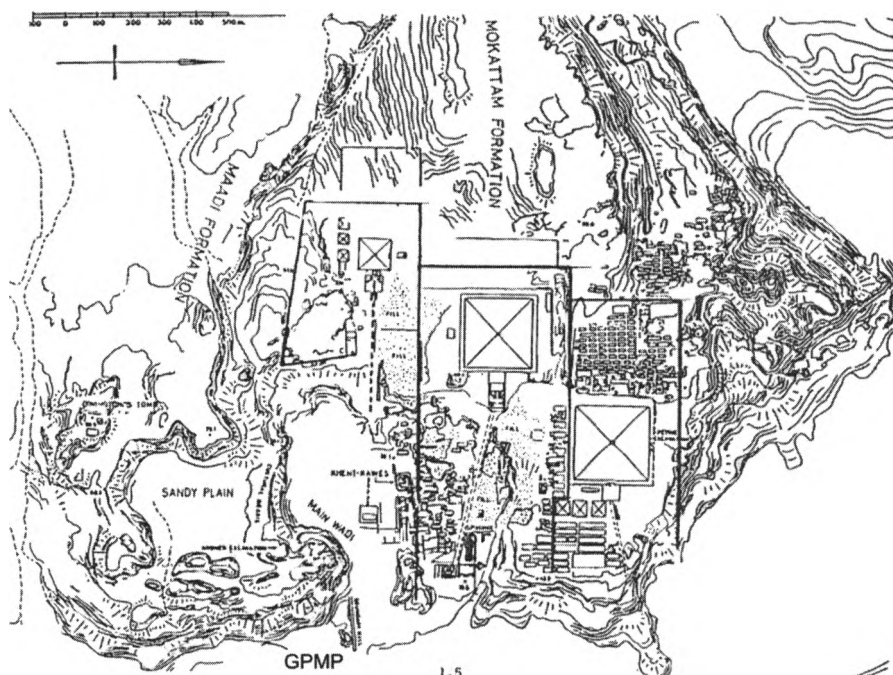
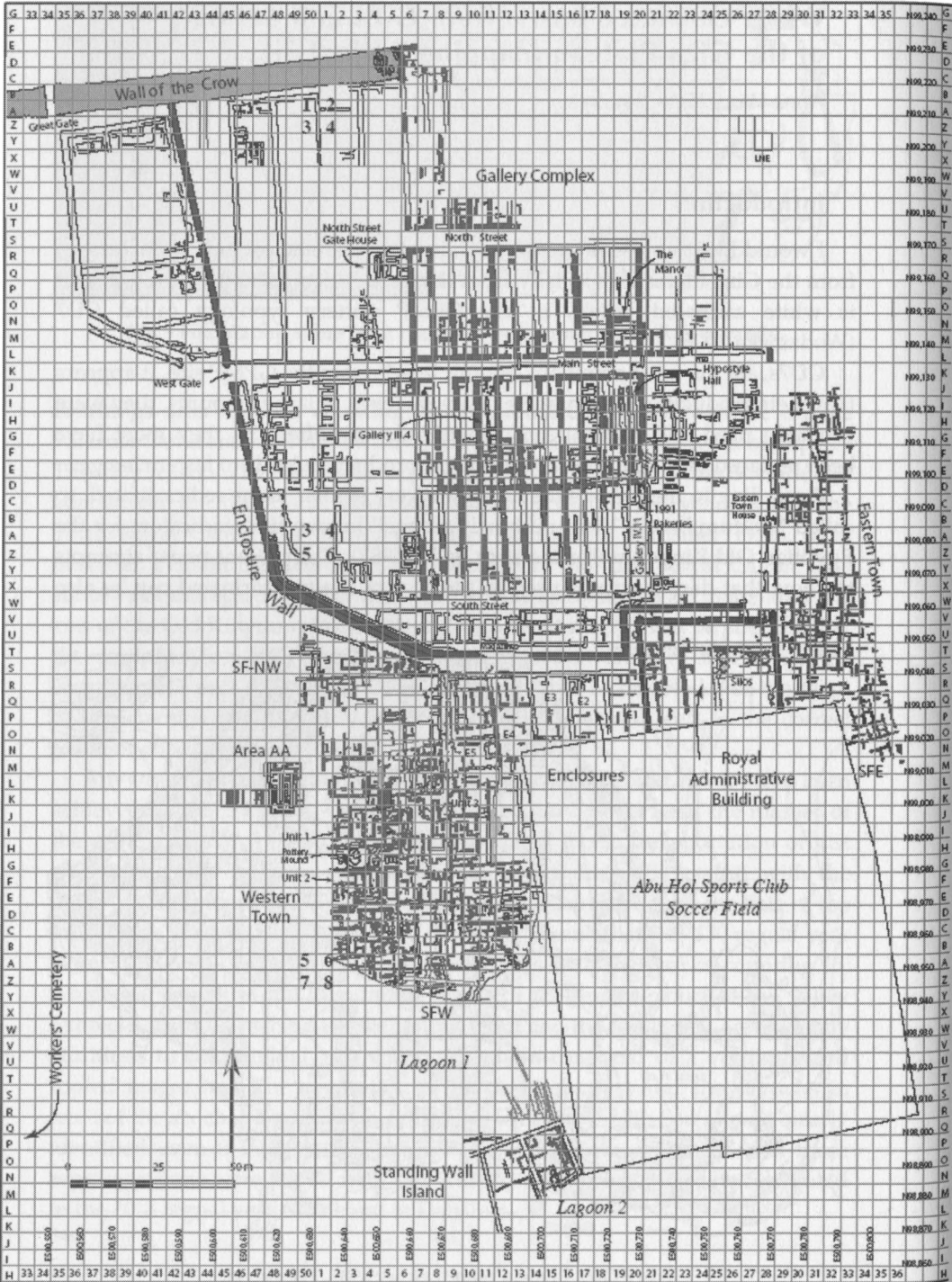


Fig. 1 Giza Plateau map (Lehner 1985, 111, fig. 2).



applied to white carinated bowls, even if the period of their occurrence is much shorter, that is from the end of Khafre until the end of Menkaure's reign.

All, that is 248, rim parts of CD7 bowls from the area called RAB were selected, drawn, measured and statistically analyzed. The area RAB was chosen on the basis of its deep stratigraphy with 15 phases of remodelling. It is the deepest excavated area at the GPMP site so it seems to be the most suitable for analyzing the change of ceramic shape between its phases.

GPMP description

Directly behind the Wall of the Crow lies the site excavated by the Giza Plateau Mapping Project (GPMP) (Conard & Lehner 2001; Lehner 2002; Lehner & Wetterstrom 2007) (*fig. 1*).

The settlement (*fig. 2*) is divided into four sets of galleries; two towns, Eastern and Western; and the so-called Royal Administrative Building (RAB).

GPMP seal impressions have indicated a chronological sequence in the terminal Fourth Dynasty for the settlement remains. Only two names of reigning rulers, Khafre and Menkaure, appear, that of Menkaure being mentioned more frequently (Lehner 2002, 34). The village was presumably abandoned after this king's death.

Royal Administrative Building

The Royal Administrative Building (RAB) is located approximately at the south eastern corner of the gallery system. Extensive excavations conducted between 2002 and 2005 revealed two structural complexes (Structural Complex 1 and 2) rebuilt during 15 phases of occupation (Sadarangani & Mahmoud Suliman 2005).

However, the detailed RAB phases can be grouped into four general stages: Stage 1 – phases 1 and 2 which represent the earliest occupation of RAB connected to the Structural Complex 2;

Stage 2 – phases 4–8 which represent the first occupation of Structural Complex 1;

Stage 3 – phases 9–12 which characterize the second occupation of Structural Complex 1;

Stage 4 – phases 13–15 associated with the abandonment of the area.

Both complexes show different patterns of internal structure. Built at two different times, they were probably used in different ways.

Structural Complex 2 was built earlier. The whole building has not been fully excavated yet with only the upper floor uncovered.

◀ *Fig. 2* Giza Plateau Mapping Project settlement (Lehner & Wetterstrom 2007, 14, *fig. 1.9*).

Structural Complex 1 was built directly above Structural Complex 2. According to the excavators, the remodeling of the area happened very fast without an intermediate period between their uses.

GPMP ceramics

The pottery from the GPMP settlement is a unique set originating from a habitation site (Wodzińska 2003; 2007). An analysis of the vessels in typological terms led to the distinguishing of close to 200 vessel types, classified in broad classes as: jars, AB; bowls, CD; bread molds, F; and stands, E.

Bread molds (F) constituted the most numerous class. On average, they form 56% of all the GPMP material. Next come the bowls (CD) at 24%, then the jars (AB) at 12% and, finally, the stands (E) at 3%. To judge from these general statistics, the GPMP settlement complex reflects trends current in the Old Kingdom as a whole. Substantial differences can be noted only when considering specific types.

The most frequently occurring form is the conical bread mold, F2 – 39.67%, followed by the flat bread molds (especially F1A) – 16.83%, white carinated bowls, CD7 – 10.38%, beer jars, AB4 – 10.34%, bowls with inner ledge, CD32 – 4.25%, Meidum bowls, CD6 – 3.72%, low stands, E2 – 1.85%.

Of greatest interest is the presence of white carinated bowls, CD7, which replaced to a certain extent the red Meidum-type bowls. They seem to be unique to the settlement sites at Giza.

CD7 description

CD7 is a carinated bowl with hemispherical body and rounded bottom (Wodzińska 2006; 2007) (*fig. 3*). It is very close in shape to the early Meidum-type bowls from the Second and Third Dynasties (Raue 1999, 182, 184, *figs.*

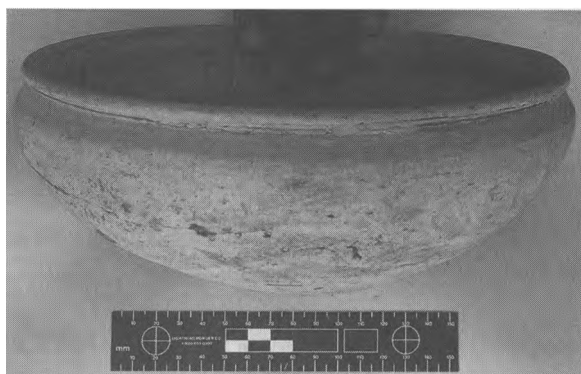


Fig. 3 White carinated bowl (CD7).

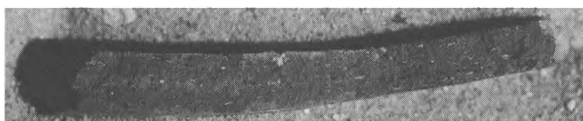
Fig. 4 CD7 rim sherd with visible trimming.



Rim diameters range from 15 to 35 cm, 18, 20 and 21 cm being the most common dimensions. The shoulder diameter (= maximum body diameter) is usually bigger or the same as the rim diameter. Height is from 7 to 12 cm, wall thickness 0.5 to 1 cm; weight of the whole pot from 0.7 to 1 kg.

The vessels appear to have been thrown on a simple wheel. The rim and shoulders bear evidence of characteristic parallel lines. The bottom was always additionally trimmed with some kind of knife or tool made of stone or a broken potsherd (fig. 4). Rims of CD7 bowls can be straight, S-shaped, rounded, triangular, or recurved. Shoulders are either sharply carinated or rounded.

Fig. 5 Section of white carinated bowl made of Nile clay.



CD7 bowls were made of Nile silt, especially NB2 (fig. 5). Five per cent of the discussed vessels were made of marl clay, primarily GM3, which probably represents MC in the Vienna System (fig. 6). The mat surface of the bowls made of Nile alluvium was given a white wash and then carefully smoothed. Bowls of marl clay were wet-smoothed before firing. Some fragments with white wash on both sides bear painted decoration in red on the external surface (fig. 7).

The painted motifs probably represent signs similar to incised potmarks found on numerous bowls of this type.

The potmark patterns are simple. The most typical are:

- cross
- series of straight parallel lines
- possibly the hieroglyphic sign "mr"

The shape of CD7 bowls is suggestive of cooking. The bodies are rounded, and thus would not exhibit massive thermal differences, while the relatively thin walls would permit a fairly even distribution of heat and reduce the



Fig. 6 Section of white carinated bowl made of marl clay.

temperature difference between the outer and inner surfaces. Despite this, the rounded body and thin walls seem more appropriate for serving food and for eating from them, especially solid foods. These bowls could be held easily in the hands or set up on low stands (type E2). In addition, a lid could have been introduced, the pot wrapped in a cloth and tied with string.

In summary, CD7 bowls seem to have been used for daily consumption needs. They could have also been containers for solid goods, and the vessels of marl clay could have been used to hold liquids.

CD7 bowls are typical of settlement sites. In Giza they were found at the GPMP settlement, in the “workmen barracks” excavated by F. Petrie and later by M. Lehner, the site investigated by Kromer, and the settlement excavated under the modern village of Nazlet es-Samman.

The CD7 type constitutes 10.39% of the entire assemblage from GPMP, ranking it third in terms of quantity. This is exceptional compared to other Old Kingdom sites, as red coated bowls usually constitute one of the biggest group among the bowls plates (for example Soukiassian et al. 1990, 91, fig. 41).

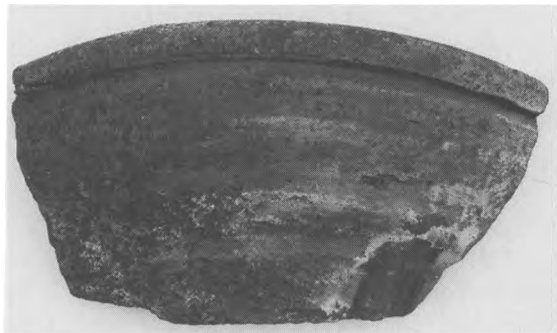


Fig. 7 CD7 rim part with red paint on the external surface.

Method

The carinated shoulder, hemispherical body and round base are characteristic to the early Meidum bowls. It seems probable that the shape of CD7 bowls was inspired by these Meidum bowls.

Meidum bowls were the subject of several works, recently by L. Op de Beeck (2004) and S. Sterling (2004). Those two scholars tried to verify the hypothesis that their shape can undergo frequent modification. Sterling (2004, 79, figs. 3–9) developed a complex testing model of the shape of those bowls. She considered the following variables (*fig. 8*): length LA, length LB, rim diameter, wall thickness 1, wall thickness 2, angle AAz, angle BAz, angle CAz, also shape of the rim tip, and shape of four specific curvatures.

Sterling concluded that the shape of Meidum bowls changes over time in such a way that their rim diameter gets bigger, while their height and the distance between the rim and the shoulder is reduced. Moreover, she confirmed that the bowls first appeared in southern Egypt and that their shape developed from carinated jars well known, for example, from Elephantine (Raue 1999, 178–9, fig. 36.1).

The idea is based on the assumption that vessel shape changes over time in an evolutionary way. J. Bourriau and P. French (personal communication 1999) witnessed changes in shape of a modern water jar in the Delta, Disuq area, within 20 years, only by visual observation.

However, it is very difficult to recognize changes in archaeological material. What features are the most important? How does the shape of a vessel change?

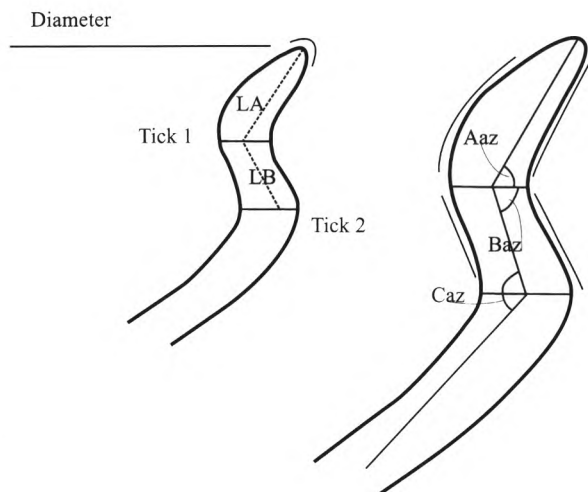


Fig. 8 Sterling's list of variables.

In the case of CD7 the following features were selected (*fig. 9*):

- Rim shape
- Rim diameter
- Shoulder diameter = maximum body diameter
- Shoulder shape
- Rim length
- Rim height – height between the top of rim and a tangent to a curve below the rim
- Shoulder height – height between the top of rim and tangent to the curve representing the maximum body diameter
- Wall thickness 1 – immediately below the rim
- Wall thickness 2 – at the shoulder

Vessel height should also be added to the list, although the CD7 bowls are rarely found complete. The chosen attributes are different than in the case of the red carinated bowls. I decided to include all the possible variables to see which of them are the most important for the study of the shape of CD7.

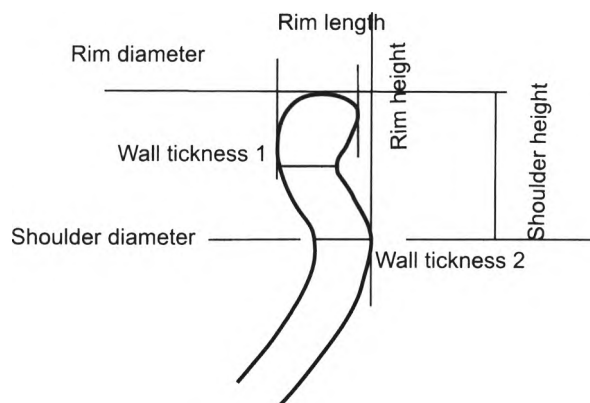


Fig. 9 White carinated bowl list of variables.

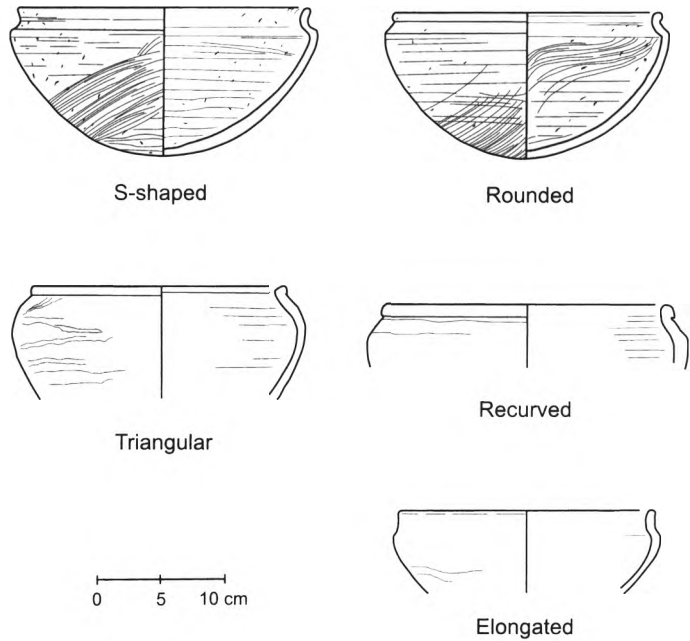
Preliminary results

In the preliminary study three features were taken under special consideration, namely rim shape, shoulder shape and rim diameter.

The rim shapes (*fig. 10*), comprising s-shaped, rounded, triangular, recurved and elongated were, for now, separated on the basis of visual examination. However, I am fully aware of the fact that the matter must be described in a more formal way.

But even now some interesting observations can be made. In the diagram showing the general presence of rim shapes in RAB (*fig. 11*) it is clear that the most abundant are bowls with s-shaped rims, which directly parallel the shapes of Meidum bowls.

**Fig. 10 Rim
shapes of white
carinated bowls.**



Relative frequencies of different rim shapes in the three main occupation stages of RAB presented in the diagram (*fig. 12*) show that bowls with s-shaped rims tend to be slightly less common in later phases. On the other hand, bowls with recurved rims become somewhat more frequent in those later phases.

There are two shoulder shapes noted for CD7: rounded, and sharp with a clear line running around the bowl (*fig. 13*).

An examination of the diagram showing the general presence of bowls with rounded and sharp shoulders (*fig. 14*) shows no differences in their numbers. They occur in almost equal numbers.

The variations appear in the occurrence of bowls with sharp and rounded shoulder in three stages of the RAB occupation (*fig. 15*). It seems that bowls with rounded shoulders were produced more often towards the final stage. This is somewhat similar to the red carinated bowl shoulder shape, which also gradually changes towards rounded (Op De Beeck 2004).

As previously stated, the most common rim diameter of white carinated bowls is 18 to 21 cm (*fig. 16*). It appears that the quantity of bowls with such rim diameters slightly increases in number over time (*fig. 17*). This may reflect a more standardized production and the need for a uniform container.

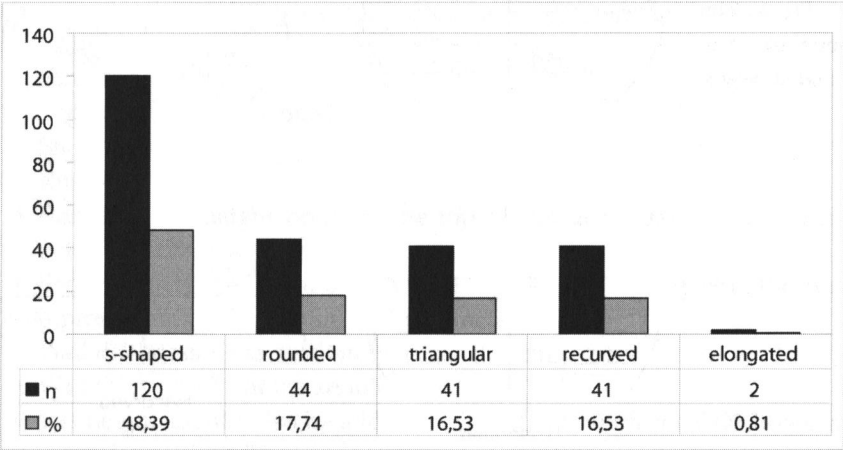


Fig. 11 General presence of CD7 rim shapes in RAB.

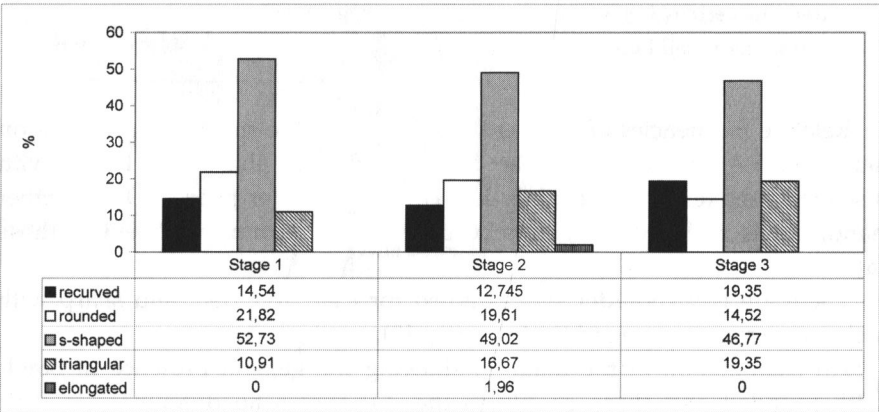


Fig. 12 CD7 rim shapes in three main stages of RAB remodelling.

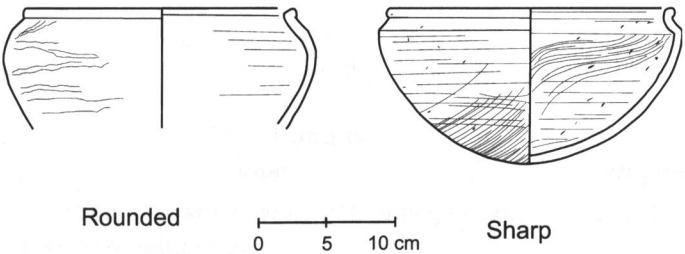


Fig. 13 CD7 shoulder shapes of white carinated bowls.

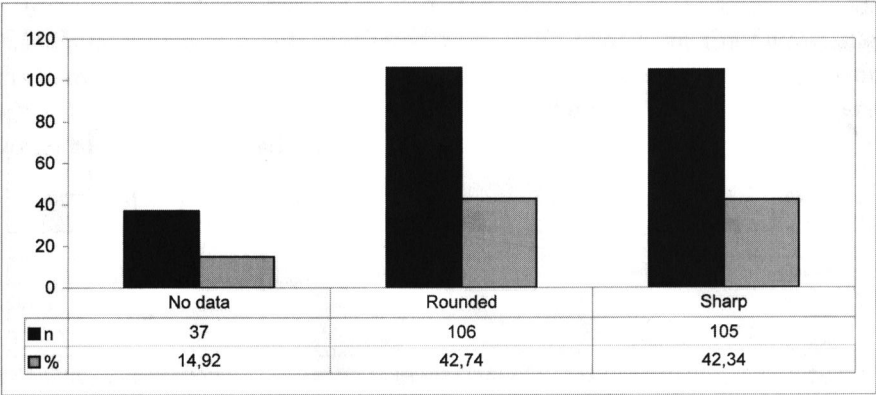


Fig. 14 General presence of CD7 shoulder shapes in RAB.

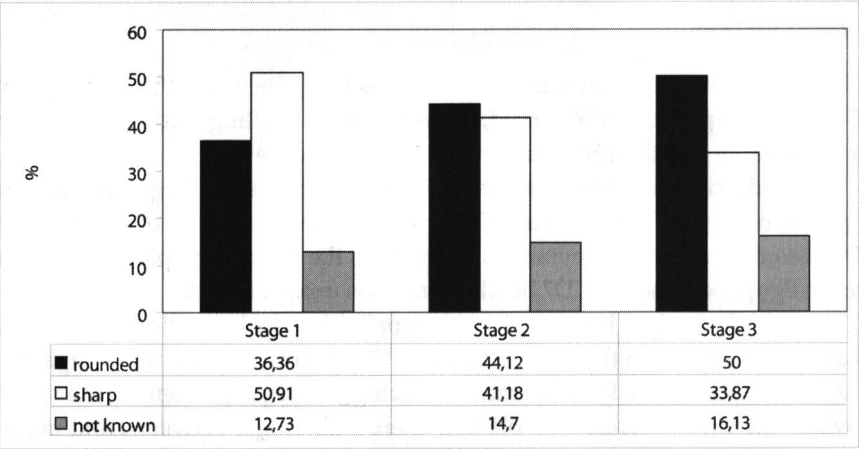


Fig. 15 CD7 shoulder shapes in three main stages of RAB remodelling.

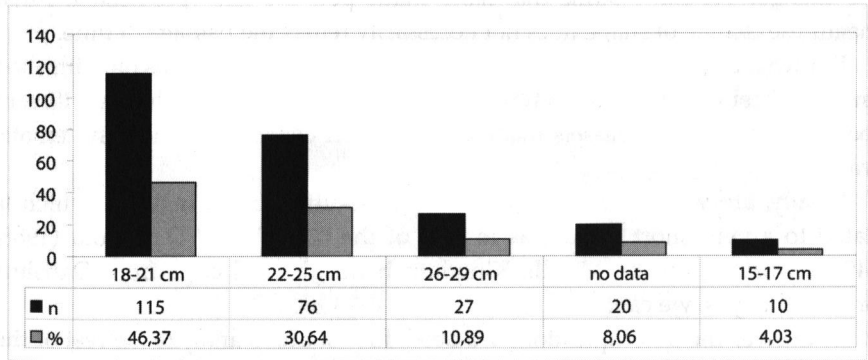


Fig. 16 General presence of CD7 rim diameters in RAB.

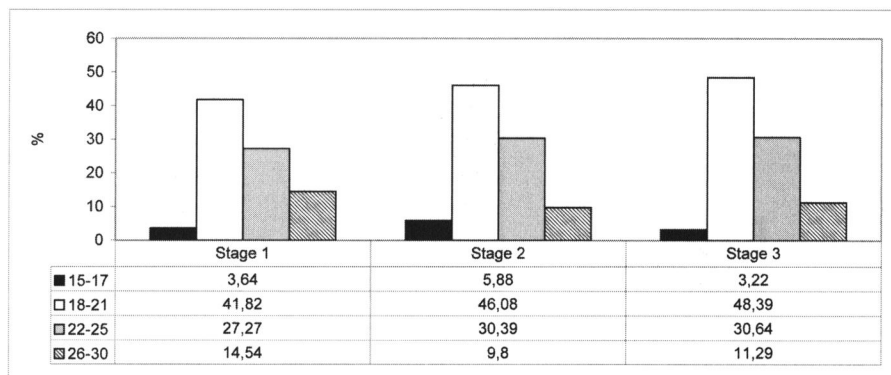


Fig. 17 CD7 rim diameters in three main stages of RAB remodelling.

Conclusions

In conclusion, based on this initial analysis it can be noted that a change of CD7 bowl shape can be observed, even if we are dealing with a very short time (probably less than 50 years or maybe even shorter).

The modifications are however very difficult to identify. A larger assemblage of pots is needed in order to trace the changes better. The study of the shape of CD7 has of course many limitations. First of all, there is no comparison to other sites in Egypt because the CD7 bowls seem to be unique to Giza.

The sample studied here is relatively small. The ideal situation would be if all the CD7 bowls from the entire Plateau in Giza were analyzed and compared.

Another question is how the manufacturing technique influenced the speed at which the shape change took place. Is there a difference between hand made, hand made but wheel finished or entirely wheel made pots in terms of the shape modification? What is the shortest time in which we are able to recognize the change? We can assume that hand made pots are less "predictable", that means the change of shape does not necessarily reflect the passage of time.

But what about other pots? Is there any difference between pots only finished on the wheel or those completely made on the wheel? Is the change different too? Can we say that vessels made on the wheel change in a more systematic way?

Finally, are we able to recognize shape modification in material which is dated to a very short period, as in case of the GPMP site? D. Arnold (1988, 140–3) working on the Middle Kingdom hemispherical cups from Dahshur proved that yes, we can.

To answer the other questions we need, first of all, to analyze the rest of the selected features. Final results should also be compared with the occurrence of the seal impressions within the different phases of the site occupation.

Building a data base of the white carinated bowls from Giza is recommended. The white carinated bowls presented here came only from the GPMP site dated to Khafre and Menkaure. Other sites, like Kromer's or a settlement below Nazlet es-Samman seem to be earlier so the white bowls found there would be an important addition to the study.