



The 12 *Nummia* coin from Old Dongola

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THE 12 *NUMMIA* COIN FROM OLD DONGOLA

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Abstract: *Dodecanummia* was the most popular denomination in Egypt in early Byzantine times. The cast found in Dongola must have reached the town by accident, but it remains an open question whether from Egypt or rather from the Near East. Copper and lead content determined for the cast approximated that for some other examined late Roman casts from Egypt.

Keywords: cast, chemical analyses, *dodecanummia*, lead copper alloy, Dongola, Egypt, Sudan

Excavations inside Building VI on the citadel in Old Dongola brought to light a copper coin (Ad.08.265):¹

Dim.: 12.2 x 12.6 mm, weight 0.76 g, die axis 6 [Fig. 1].

Obv.: Bust of emperor to right

Rev.: Cross between I and B; in ex.:

ΛΛЄΞ

AD 518–608 or later.

Small fragment missing.

The coin is difficult to read because of the corrosion. The legend on the obverse is not legible and the bust is not distinct. It can be said in general that it represents one of the emperors issuing *dodecanummia* coins with the emperor's bust in right profile: Justin I, Justinian I, Justin II, Tiberius II, Maurice Tiberius or Phocas. The image on the reverse is also not sharp, but the composition is typical of this denomination: a cross between I and B, and a mint mark in exergue, which appears clear enough.

The object appears to have been cast; the thickness is 1.1–1.2 mm and there is a casting sprue extending beyond the edge approx. 2 mm. The sprue was grooved into a mold with impression of the reverse of a prototype coin, as well as also partly on the surface of this impression. Hence the convexity observed also beneath the exergual line, between the letters Є and Ξ. Irregularly formed metal appears beside it, in the plane of the obverse. The cavity with the impression of the obverse of a prototype coin must have been shallow in all probability. The molds had not adhered closely to one another at the time of casting and some metal spilled out. This accidental lump was not removed and neither was the metal filling the casting sprue.

The object must have been produced in terracotta molds. The remnants of a single sprue may suggest that only one prototype coin was impressed in the surfaces of the

¹ I thank Prof. W. Godlewski, director of the PCMA excavations in Dongola, for kindly showing me this find.

molds or that the impressions in the molds were combined with one channel for pouring the metal. The second option seems more economic, because more pieces could be produced in one go. The technology must have been similar for casting coins in molds with either a “branching tree” or a radiate arrangement of impressions, known from late Roman Egypt. Casts produced in molds with a radial arrangement should have evidence of at least two casting sprues, because the impressions of prototype coins were interconnected (Dattari 1913; Krzyżanowska 1985: 45–51; Lichocka 1996; Noeske 1998; Noeske 2000a: 812–813; Noeske 2000b: 117–120). It cannot be excluded that the Dongola cast had the remains of another casting sprue at the point where it was damaged.

Chemical analyses of the coin from Old Dongola demonstrated copper and lead content approximating that for examined late Roman casts from Kom el-Dikka in Alexandria, Egypt (Lichocka 2005: 766–767). These two metals were the two main constituents of the alloy. Apart from a large number of late Roman imitations made by casting in molds with several impressions identified from this site (Lichocka 1990: 244–247; Lichocka 2005a: 304, 311; Lichocka 2005b: 764–766), only one specimen (perhaps two, but the condition is too poor for identification), shows a cross between I and B on the reverse, which is typical of *dodecanummia*.

Dodecanummia was the most popular denomination in Egypt in the early Byzantine period, similarly as other Alexandrian denominations intended for internal circulation. Only singular examples have been discovered outside Egypt, hence the tiny *dodecanummia* casts registered in Palestine² may have been produced in Egypt, just as late Roman casts which circulated in Syro-Palestine (Moorhead 1983: 153, No. 619; Noeske 2000b: 119, 271; Bijovsky 2000–2002: 197–209; Bucher 2003: 101). Curiously, *dodecanummia* casts produced most probably in multiple-impression molds seem to be better attested in Palestine than in Egypt.

No molds with impressions of *dodecanummia* are known (see Noeske 2006: 357–358).

The cast under study must have reached Dongola accidentally, either from Egypt or the Near East. It could have been brought by a merchant, a pilgrim or an ordinary traveler. It cannot be excluded that it was used in payment, but it does not attest to the circulation of these coins in this period in Dongola (for some earlier coin finds documented in Sudan, Gradel 2007). It is more likely modest evidence of contacts between this region of Nubia and the Byzantine Empire.

CHEMICAL COMPOSITION³

The metal alloy was examined with X-ray fluorescence spectroscopy using

² I wish to express my gratitude to G. Bijovsky of the Israel Antiquities Authority, Jerusalem, for pertinent information and for showing me some examples of *dodecanummia* casts discovered in Israel. I am also very grateful to R. Abdy and T. Moorhead from the Department of Coins and Medals of the British Museum, London, for their assistance in my research on molds and casts during my visits to London, and to W. Weker from the State Archaeological Museum in Warsaw for his suggestions concerning metal alloy analyses.

³ Analysis by E. Pawlicka of the Central Archaeometric Laboratory of the Institute of Archaeology and Ethnology of the Polish Academy of Sciences in Warsaw.

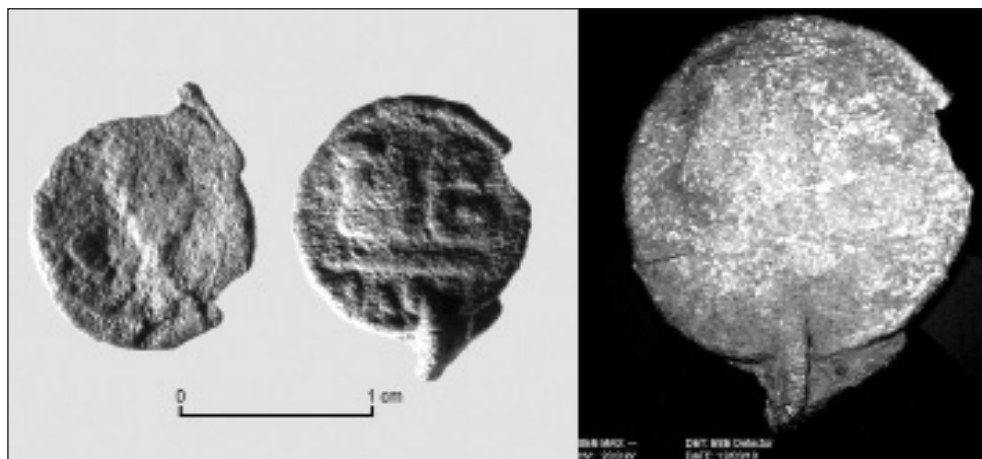


Fig. 1. *Dodecanummiu* from Old Dongola, obverse and reverse (left); SEM image of the reverse (Photos W. Jerke [left] and E. Pawlicka)

Table 1. Chemical composition of dodecanummiu Ad.08.265 from Dongola

Examined points	Elements Wt %					
	Cu	Fe	Ni	Zn	Sn	Pb
Obverse						
1	34.04	2.36	0.13	0.00	0.07	54.39
2	25.94	1.63	0.06	0.00	10.39	61.97
3	6.72	0.37	0.22	0.00	0.95	91.74
Reverse						
1	33.68	0.99	0.09	0.00	5.34	59.90
2	30.34	1.02	0.14	0.03	5.53	62.94
3	2.95	0.27	0.04	0.00	0.00	96.74
Broken edge						
1	73.50	0.15	0.23	0.52	1.74	23.86
2	11.40	0.30	0.06	0.00	0.05	88.18
3	56.66	0.32	0.23	0.47	1.67	40.76

a scanning electron microscope (SEM). Nine measurements were made in points where there was no corrosion or where the corrosion had been mechanically removed. Three points were on the obverse, three on the reverse and three on the broken edge. The points in the damaged area permitted the alloy in the core to be checked, not only on the surface. Tests measured the content of six elements [Table 1]: copper, iron, nickel, zinc, tin and lead. Measure-

ments on the obverse and reverse demonstrated a predominance of lead, from 54.39% to 96.74%, and copper content from 2.95% to 34.04%. Measurements in the broken edge revealed a predominance of either copper, from 11.40% to 73.50%, or lead, from 23.89% to 88.19%. Since lead does not dissolve in copper, a lead-copper alloy must contain precipitated lead, the presence of which was indicated distinctly in the measurements.

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CONTENTS

CONTENTS

<i>PAM RESEARCH</i> — NEW FORMULA: NOTE FROM THE EDITORIAL BOARD...	11
ACKNOWLEDGMENTS	13
OBITUARIES	
<i>Stanisław Medeksza</i>	15
<i>Eliza Szpakowska</i>	17
<i>Hanna Szymańska</i>	19
ABBREVIATIONS AND STANDARD REFERENCES	21

PAM REPORTS

PCMA FIELD MISSIONS AND PROJECTS IN 2008 (WITH MAP)	25
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EGYPT

ALEXANDRIA

ALEXANDRIA: KOM EL-DIKKA EXCAVATIONS AND PRESERVATION WORK. PRELIMINARY REPORT 2007/2008	
<i>Grzegorz Majcherek</i>	35
THE ISLAMIC GRAVEYARD ON KOM EL-DIKKA IN ALEXANDRIA. EXCAVATION SEASON 2007/2008	
<i>Emanuela Kulicka</i>	52
GLASS FROM AREA F ON KOM EL-DIKKA (ALEXANDRIA). EXCAVATIONS 2008	
<i>Renata Kucharczyk</i>	56
NUMISMATIC FINDS FROM KOM EL-DIKKA (ALEXANDRIA), 2008	
<i>Adam Jegliński</i>	70

MAREA

MAREA: EXCAVATIONS 2008	
<i>Hanna Szymańska</i> , <i>Krzysztof Babraj</i>	81
MAREA 2008: POTTERY FROM EXCAVATIONS	
<i>Anna Drzymuchowska</i>	97

CONTENTS

MARINA EL-ALAMEIN

MARINA EL-ALAMEIN. POLISH–EGYPTIAN RESTORATION MISSION:
CONSERVATION WORK IN 2008

Stanisław Medeksza, Rafał Czerner 103

TELL EL-RETABA

TELL EL-RETABA 2008: EXCAVATIONS AND GEOPHYSICAL SURVEY

Sławomir Rzepka, Jozef Hudec, Tomasz Herbich 129

TELL EL-RETABA 2008: THE POTTERY

Anna Wodzińska 146

TELL EL-FARKHA

TELL EL-FARKHA (GHAZALA), 2008

Marek Chłotnicki, Krzysztof M. Ciałowicz 153

GOLD FROM TELL EL-FARKHA. CONSERVATION PROJECT AT THE EGYPTIAN
MUSEUM IN CAIRO

Anna Longa, Władysław Weker 171

TELL EL-MURRA

TELL EL-MURRA (NORTHEASTERN NILE DELTA SURVEY), SEASON 2008

Mariusz A. Jucha, Artur Buszek 177

SAQQARA

SAQQARA 2008: INSCRIBED MATERIAL

Kamil O. Kuraszkiewicz 183

DEIR EL-BAHARI

TEMPLE OF HATSHEPSUT AT DEIR EL-BAHARI, SEASON 2007/2008

Zbigniew E. Szafrński 193

BUILDING *DIPINTI* IN THE TEMPLE OF HATSHEPSUT. DOCUMENTATION WORK,
SEASON 2007/2008

Dawid F. Wieczorek 203

TEMPLE OF HATSHEPSUT: POTTERY FROM EXCAVATIONS IN THE ROYAL
MORTUARY CULT COMPLEX, SEASONS 2004–2008

Ewa Czyżewska 212

SHEIKH ABD EL-GURNA (WEST THEBES)

ARCHAEOLOGICAL RESEARCH IN THE HERMITAGE IN TOMB 1152
IN SHEIKH ABD EL-GURNA (WEST THEBES)

Tomasz Górecki 225

DAKHLEH OASIS

DAKHLEH OASIS PROJECT. PETROGLYPH UNIT, ROCK ART RESEARCH, 2008

Ewa Kuciewicz, Michał Kobusiewicz 237

CONTENTS

SUDAN

OLD DONGOLA

- THE 12 NUMMLA COIN FROM OLD DONGOLA
Barbara Lichocka 245

BANGANARTI

- BANGANARTI AND SELIB: TWO FIELD SEASONS IN 2008
Bogdan T. Żurawski 251
- APPENDIX 1: REVITALIZATION PROJECT AT BANGANARTI
Bogdan T. Żurawski 261
- APPENDIX 2: BANGANARTI CONSERVATION REPORT
(JANUARY–FEBRUARY AND NOVEMBER–DECEMBER 2008)
Dorota Moryto-Naumiuk, Bogdan T. Żurawski 262
- APPENDIX 3: OVERVIEW OF CERAMIC STUDIES AT BANGANARTI IN 2008
Dobiesława Bagińska 264
- INSCRIPTION WITH LITURGICAL HYMN FROM THE LOWER CHURCH
IN BANGANARTI
Agata Deptuła 267
- BANGANARTI FORTIFICATIONS IN THE 2008 SEASON
Mariusz Drzewiecki 273

CYPRUS

NEA PAPHOS

- NEA PAPHOS: SEASON 2008
Henryk Meyza 283

LEBANON

ESHMOUN

- ESHMOUN VALLEY: PRELIMINARY REPORT AFTER THE THIRD SEASON
OF THE POLISH-LEBANESE SURVEY
Krzysztof Jakubiak 295

SYRIA

TELL ARBID

- TELL ARBID: ADAM MICKIEWICZ UNIVERSITY EXCAVATIONS IN SECTOR P,
SPRING SEASON OF 2008
Rafał Koliński 303

CONTENTS

TELL QARAMEL

TELL QARAMEL: EXCAVATIONS 2008

Ryszard F. Mazurowski 321

PAM STUDIES

INTRODUCTION 345

ENTRE LA II^E ET III^E CATARACTE: SEDEINGA, UNE ÉTAPE SUR LA RIVE
OCCIDENTALE DU NIL

Catherine Berger-el Naggar 349

FOOD AND FUNERALS. SUSTAINING THE DEAD FOR ETERNITY

Salima Ikram 361

SYMBOLIC FAUNAL REMAINS FROM GRAVES IN TELL EL-FARKHA (EGYPT)

Renata Abłamowicz 373

THE NECROPOLIS AT TELL EDFU: AN OVERVIEW

Joanna Aksamit 379

THIRD INTERMEDIATE PERIOD CEMETERY IN THE HATSHEPSUT TEMPLE
AT DEIR EL-BAHARI. RECENT RESEARCH

Miroslaw Barwik 387

ENIGMATIC BUILDING FROM TELL EL-FARKHA. PRELIMINARY STUDY

Krzysztof M. Ciałowicz 399

FUNERARY TEXTILES FROM THE MEDIEVAL CEMETERY OF NAQLUN

Barbara Czaja-Szewczak 413

GRAECO-ROMAN TOWN AND NECROPOLIS IN MARINA EL-ALAMEIN

Wiktor Andrzej Daszewski 421

POLITICAL AND ECONOMIC TRANSFORMATION AS REFLECTED BY BURIAL
RITES OBSERVED IN THE PROTODYNASTIC PART OF THE CEMETERY
IN TELL EL-FARKHA

Joanna Dębowska-Ludwin 457

IN THE SHADE OF THE NEKLONI MONASTERY (DEIR MALAK GUBRAIL, FAYUM)

Włodzimierz Godlewski 467

REMARKS ON THE TYPOLOGY OF ISLAMIC GRAVES FROM THE CEMETERIES
ON KOM EL-DIKKA IN ALEXANDRIA

Emanuela Kulicka 483

BEADS AND WARRIORS. THE CEMETERY AT HAGAR EL-BEIDA 2 (SUDAN)

Anna Longa 499

CONTENTS

MATS AND BASKETS FROM CEMETERY A AT NAQLUN IN FAYUM OASIS <i>Anetta Łyżwa-Piber</i>	509
TOMB BUILDING TRADITION IN LOWER NUBIA FROM THE MEROITIC AGE TO AFTER CHRISTIANIZATION <i>Artur Obłuski</i>	525
ANIMAL REMAINS IN POST-MEROITIC BURIALS IN SUDAN <i>Marta Osypińska</i>	541
CEMETERY A IN NAQLUN: ANTHROPOLOGICAL STRUCTURE OF THE BURIALS <i>Karol Piasecki</i>	549
ORNAMENTS ON FUNERARY STELAE OF THE 9TH–12TH CENTURIES FROM EGYPT — JOSEF STRYGOWSKI’S PUBLICATION ANEW <i>Małgorzata Redlak</i>	561
NON OMNIS MORIAR. REFLECTION ON “RITE DE PASSAGE” IN THE OLD KINGDOM <i>Teodozja I. Rzeuska</i>	575
BURIALS IN THE COMPLEX OF THE GREAT AMIR QURQUMAS (No. 162) IN CAIRO’S “NORTHERN NECROPOLIS” <i>Maciej G. Witkowski</i>	587
BURIAL CUSTOMS AT TELL ARBID (SYRIA) IN THE MIDDLE BRONZE AGE. CULTURAL INTERRELATIONS WITH THE NILE DELTA AND THE LEVANT <i>Zuzanna Wygnańska</i>	605
GIFTS FOR THE AFTERLIFE: EVIDENCE OF MORTUARY PRACTICES FROM THE NECROPOLIS IN MARINA EL-ALAMEIN <i>Iwona Zych</i>	619
INDEX OF SITES	633