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TOMB SIZE DISTRIBUTION IN EGYPTIAN PREDYNASTIC CEMETERIES

by JUAN JOSÉ CASTILLOS

Contrary to other variables analyzed by those interested in mortuary practices in ancient societies, which may imply more or less subjective evaluations of the intended purpose and value of the objects and structures found in the cemeteries, the size of the tombs, that is, their volume, can usually be easily determined and provides a useful yardstick to evaluate social conditions and their evolution in time (1).

This is especially true of ancient Egypt, where the size and wealth displayed by the tombs generally indicated the status and wealth in life of their occupant (2).

In a recent paper (3) we felt justified in drawing some conclusions from the average volume of Egyptian Predynastic cemeteries which seemed to indicate, besides of an agreement with the traditional views regarding the evolution of the Predynastic cultures of Upper and Lower Egypt (4), that the probable centres of the Badarian, Amratian and Gerzean could have been located respectively at Badari, the Abydos area and Naqada.

A puzzling feature is the very high average size of the tombs at Naqada, larger than anywhere else in Predynastic Egypt as far as we can tell at this stage, which could perhaps be due to the softer texture of the ground there which made it easier to dig deep graves.

The fact that 3,000 rather large tombs and two towns could be excavated in four or five months (5) and some comments made by Petrie that the ground was apparently frequently soft (6), make it easier to accept such a possibility.

Unfortunately, no decisive confirmation for this hypothesis is currently available. Other explanations such as the importance of the site itself as the possible capital of a Predynastic Upper Egyptian kingdom, leave several unanswered questions.

A further preliminary study involving at this stage just the number of funerary offerings found in the graves (7) seemed to agree quite closely in most cases with the evidence from the size of the tombs. This can hardly be a mere coincidence and stimulated the writer to proceed along this line of research.

Due to the unavailability of complete detailed data on recent excavations of important Predynastic sites such as Hierakonpolis, El Kab and others, our conclusions were defined as tentative and subject to possible future corrections but in our opinion, our study provided fresh evidence useful to detect several interesting features such as the ones mentioned above.

Since averages, which often simplify and unclutter the general

picture when they are representative, can sometimes be deceiving and do not indicate the distribution of a variable within a cemetery or within a given area (8), the next stage was to determine the size distribution of the tombs and to verify whether the results confirmed or substantially differred from our previous conclusions.

The data we publish here was generated from the formal publications of relevant sites (9) and from the unpublished original Petrie excavation notebooks at the Petrie Museum in London, England (10).

The size distribution has been arranged in 43 histograms covering a total of 4,317 Predynastic tombs which we will use to back up some of the points we wish to make but they also stand on their own as independent evidence which can be used for other purposes. All measurements indicated therein are given in cubic metres.

In some cases Upper End graphs have also been included because when we are dealing with cemeteries involving hundreds of tombs, the relatively few large graves are represented in the graphs by very small bars or are completely flattened out and do not appear at all. The Upper End histograms are enlarged illustrations of the distribution of the larger tombs within certain cemeteries.

The first conclusion that we can draw is that the distribution histograms agree with our previous conclusions worked out from the arbitrary size groups (11) and from the average tomb size (12).

Graphs 11, 15 16 and 20 covering the Tasian and the Badarian tombs show as everywhere else, a great number of small graves but also more continuity towards the higher values than we find in the later periods, in which the mass of small tombs is followed by more or less pronounced breaks between it and the fewer large graves. This, in our opinion, establishes a fundamental difference between the distribution of the Badarian and the later tombs which could be a consequence of very limited social differentiation in the former and increasing class stratification in the latter (13).

Another interesting feature revealed by these graphs is the probable reason for a puzzling result of our previous research, namely, that the average tomb size at Naqada showed in both relative chronology frameworks (Petrie's (14) and the more recent one by Kaiser (15) and Bard (16)), practically the same values for the Amratian (Naqada I) and the Gerzean (Naqada II), or rather, slightly higher for the Amratian there.

Considering histograms 30 to 35, we can see that this false impression was caused by a very large grave (1661) which pushed up the Amratian average size at Naqada.

If we disregard such an exceptional value, the picture agrees with that found elsewhere of continuous development in the sense of increasing tomb size in time, except, of course, for the probable centres of the Badarian and Amratian cultures, where their enhanced/ presence alters this general trend which can be ascertained everywhere else.

Last but not least, the results obtained using Petrie's and Kaiser/

Bard's chronological criteria generally agree with each other and they both show in most cases substantially the same picture.

N O T E S

(1) - J. Brown, 'The search for rank in prehistoric burials', in 'The Archaeology of Death', Cambridge, 1981, pp. 25-30; B. Hayden, 'Pathways to Power' in 'Foundations of Social Inequality', New York, 1995, pp. 65-66.

(2) - B. Trigger, 'The mainlines of socio-economic development in Dynastic Egypt to the end of the Old Kingdom' in 'Origins and development of food producing cultures in North-Eastern Africa', Poznan, 1984, pp. 101-108.

(3) - J. J. Castillos, 'Remarks on the effort-expenditure principle applied to the study of prehistoric burials', XIII International Congress of the Union of Prehistoric and Protohistoric Sciences, Forlì, Italy, 1996.

(4) - B. Adams, 'Predynastic Egypt', Aylesbury, 1988.

(5) - W. Petrie, 'Naqada and Ballas', London, 1896, p. VII.

(6) - W. Petrie, op. cit., p. VIII.

(7) - J. J. Castillos, 'Tomb size and funerary offerings in Egyptian Predynastic cemeteries', Archéo-Nil , 1997; 'Abydos in the Egyptian Predynastic', AEGYPTUS ANTIQUA 10, Buenos Aires, 1997.

(8) - R. Drennan, 'Statistics for archaeologists', New York, 1996, pp. 17-19.

(9) - For a list of the relevant publications, see J. J. Castillos, 'A reappraisal of the published evidence on Egyptian Predynastic and Early Dynastic cemeteries', Toronto, 1982, p. 200 and note 15 in my paper for the IUPPS Congress, 'Remarks on the effort-expenditure...'.

(10) - I wish to thank Mrs. Barbara Adams, Curator of the Petrie Museum, who kindly assisted me in several occasions to get hold of the required information.

(11) - J. J. Castillos, 'A reappraisal...', pp. 173-199.

(12) - J. J. Castillos, 'Remarks on the effort-expenditure...', Table 2b.

(13) - J. J. Castillos, 'Evidence for the appearance of class stratification in Predynastic Egypt', paper presented to the 7th International Congress of Egyptologists, Cambridge, England, 1995.

(14) - W. Petrie, 'Diospolis Parva', London, 1901; 'Prehistoric Egypt', London, 1920.

(15) - W. Kaiser, 'Stand und Probleme der ägyptischen Vorgeschichtsforschung', ZÄS 81, 1956, pp. 87-109; 'Zur inneren Chronologie der Naqadakultur', Archaeologia Geographica 6, 1957, pp. 69-77.

(16) - K. Bard, 'From Peasants to Pharaohs', Sheffield, 1994, pp. 119-123.

Histograms and Statistical Data:

figs. 1-43 on following pages

HISTOGRAMS AND STATISTICAL DATA

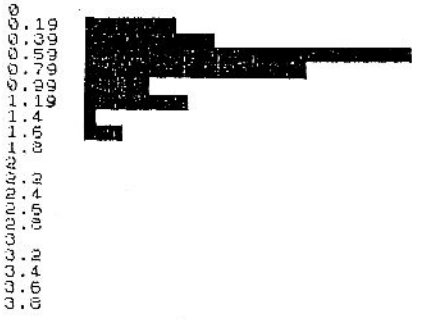
1) PREDYNASTIC - HELIOPOLIS

n: 35

$\bar{X}$: 0.657 s^2: 0.328 s: 0.573

MX: 3.37 MN: 0.10 R: 3.27

2) PREDYNASTIC - MAADI



n: 45

$\bar{X}$: 0.651 s^2: 0.114 s: 0.338

MX: 1.52 MN: 0.12 R: 1.40

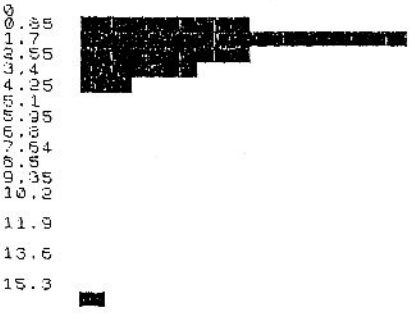
3) PREDYNASTIC - WADI DIGLA

n: 175

$\bar{X}$: 0.405 s^2: 0.0393 s: 0.198

MX: 1.32 MN: 0.06 R: 1.26

4) PREDYNASTIC (GERZEAN) - HARAGEH

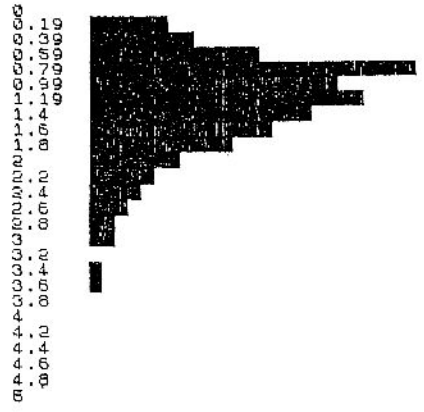


n: 30

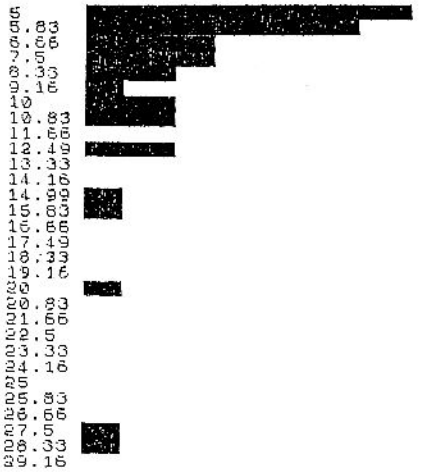
$\bar{X}$: 2.132 s^2: 7.619 s: 2.760

MX: 15.43 MN: 0.30 R: 15.43

5) PROTODYNASTIC - TARKHAN



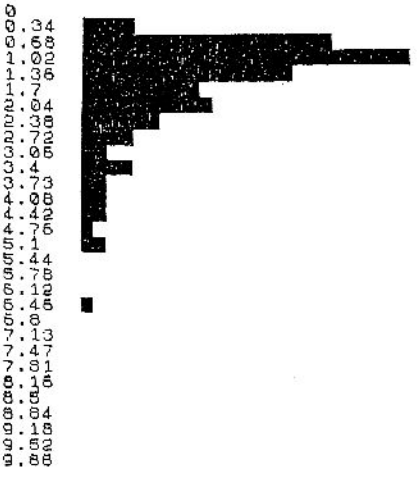
6) PROTODYNASTIC - TARKHAN (UPPER END)



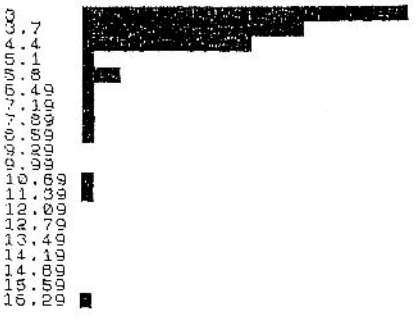
n: 961

$\bar{X}$: 1.747 s^2: 4.161 s: 2.040 MX: 28.6 MN: 0.14 R: 28.46

7) SAKKARA - ARCHAIC



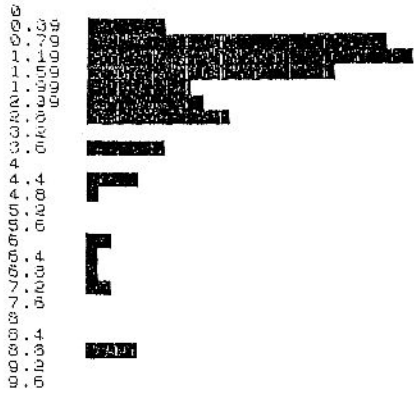
8) SAKKARA - ARCHAIC (UPPER END)



n: 231

$\bar{X}$: 1.864 s^2: 3.844 s: 1.961 MX: 16.49 MN: 0.11 R: 16.38

9) PROTODYNASTIC - ABUSIR EL MELEQ



n: 93

$\bar{X}$: 2.081 s^2: 3.845 s: 1.961

MX: 8.76 MN: 0.09 R: 8.67

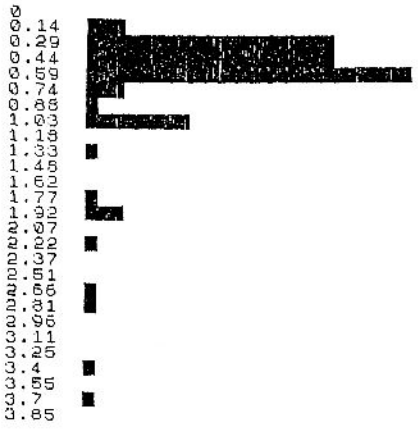
10) ARCHAIC - MAADI

n: 15

$\bar{X}$: 1.031 s^2: 0.422 s: 0.650

MX: 2.71 MN: 0.33 R: 2.38

11) BADARIAN - MATMAR



n: 55

$\bar{X}$: 0.760 s^2: 0.625 s: 0.790

MX: 3.57 MN: 0.07 R: 3.50

12) AMRATIAN - MATMAR

n: 21

$\bar{X}$: 0.860 s^2: 0.270 s: 0.520

MX: 2.28 MN: 0.17 R: 2.11

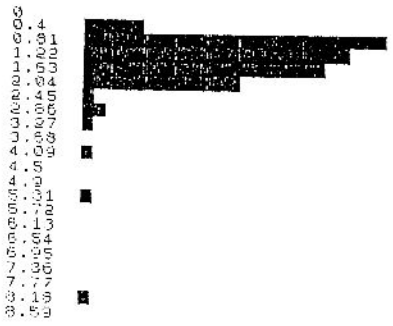
13) GERZEAN - MATMAR

n: 106

$\bar{X}$: 1.285 s^2: 2.736 s: 1.650

MX: 11.05 MN: 0.13 R: 10.92

14) PROTODYNASTIC - MATMAR

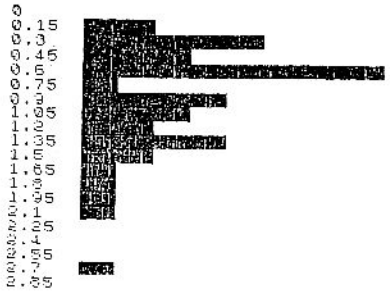


n: 66

$\bar{X}$: 1.386 s^2: 1.375 s: 1.172

MX: 8.01 MN: 0.09 R: 7.92

15) TASIAN - DEIR TASA

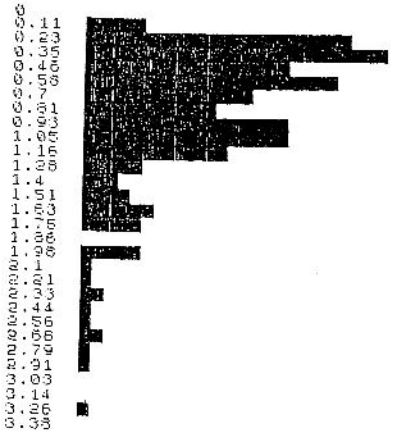


n: 39

$\bar{X}$: 0.863 s^2: 0.342 s: 0.584

MX: 2.64 MN: 0.08 R: 2.56

16) BADARIAN - MOSTAGEDDA

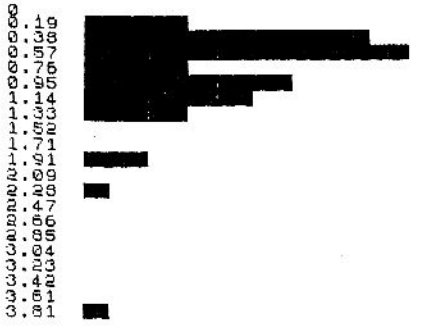


n: 199

$\bar{X}$: 0.822 s^2: 0.379 s: 0.616

MX: 3.18 MN: 0.03 R: 3.15

17) AMRATIAN - MOSTAGEDDA

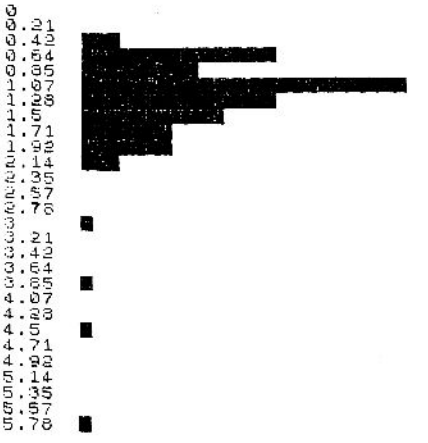


n: 41

$\bar{X}$: 0.813 s^2: 0.438 s: 0.660

MX: 3.69 MN: 0.15 R: 3.54

18) GERZEAN - MOSTAGEDDA

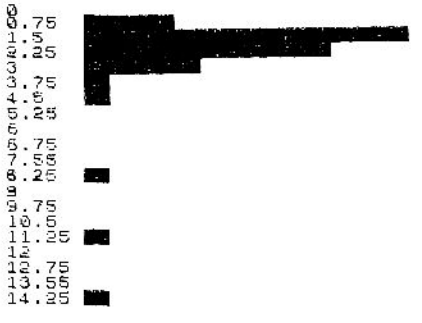


n: 56

$\bar{X}$: 1.324 s^2: 0.919 s: 0.959

MX: 5.76 MN: 0.25 R: 5.51

19) PROTODYNASTIC - MOSTAGEDDA

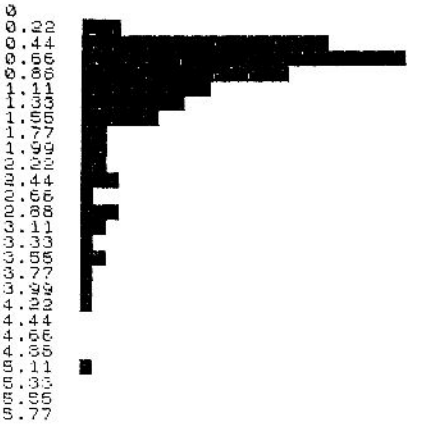


n: 30

$\bar{X}$: 2.616 s^2: 9.372 s: 3.061

MX: 13.94 MN: 0.54 R: 13.4

20) BADARIAN - BADARI

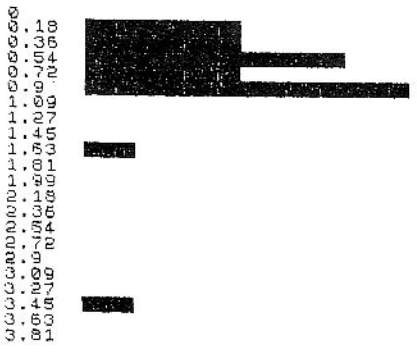


n: 223

$\bar{X}$: 1.205 s^2: 1.096 s: 1.047

MX: 5.08 MN: 0.08 R: 5.00

21) AMRATIAN - BADARI

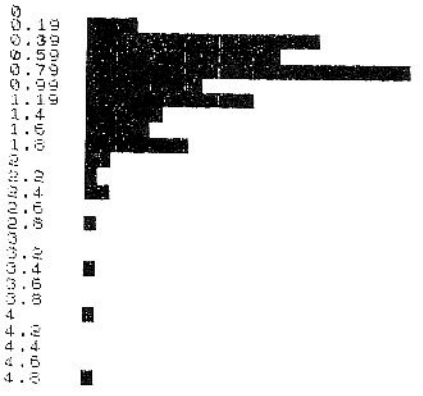


n: 22

$\bar{X}$: 0.677 s^2: 0.464 s: 0.680

MX: 3.37 MN: 0.05 R: 3.32

22) GERZEAN - BADARI

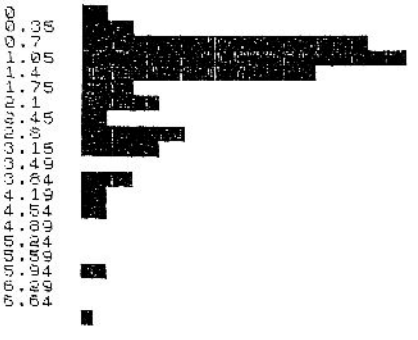


n: 86

$\bar{X}$: 1.014 s^2: 0.638 s: 0.799

MX: 4.70 MN: 0.10 R: 4.60

23) PROTODYNASTIC - BADARI

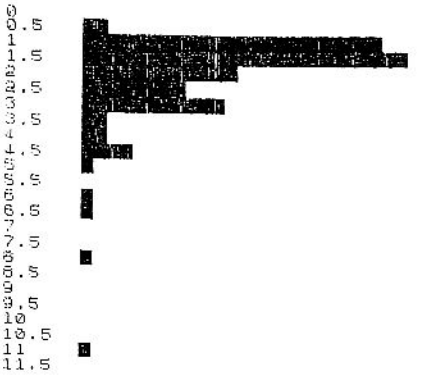


n: 53

$\bar{X}$: 1.638 s^2: 1.978 s: 1.407

MX: 6.89 MN: 0.17 R: 6.72

24) ARCHAIC - BADARI

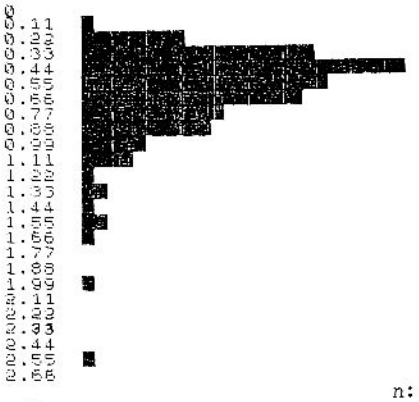


n: 72

$\bar{X}$: 2.050 s^2: 3.170 s: 1.780

MX: 10.56 MN: 0.13 R: 10.43

25) PREDYNASTIC - NAGA ED DÊR

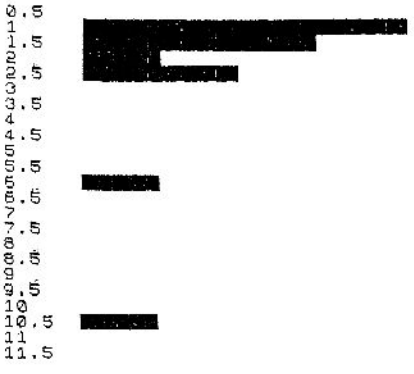


n: 576

$\bar{X}$: 0.776 s^2: 0.788 s: 0.888 MX: 8.68 MN: 0.05 R: 8.63

26) PREDYNASTIC - NAGA ED DÊR (UPPER END)

27) AMRATIAN - MAHASNA

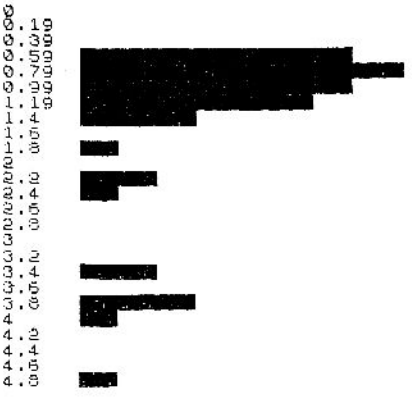


n: 12

$\bar{X}$: 2.460 s^2: 7.875 s: 2.810

MX: 10.27 MN: 0.55 R: 9.72

28) GERZEAN - MAHASNA

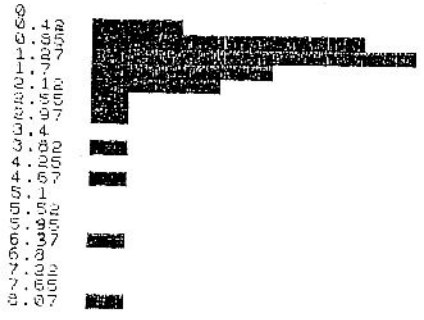


n: 42

$\bar{X}$: 1.444 s^2: 1.295 s: 1.138

MX: 4.67 MN: 0.50 R: 4.17

29) PROTODYNASTIC - MAHASNA

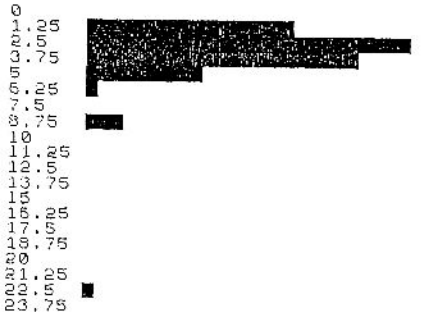


n: 28

$\bar{X}$: 1.821 s^2: 3.094 s: 1.760

MX: 7.79 MN: 0.12 R: 7.67

30) AMRATIAN - NAQADA (PETRIE)

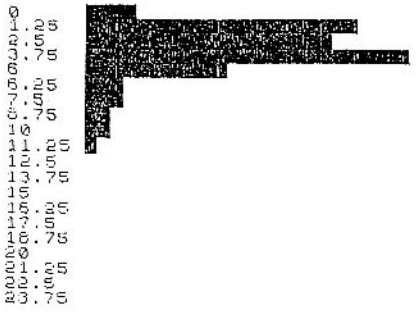


n: 48

$\bar{X}$: 4.266 s^2: 10.910 s: 3.303

MX: 23.60 MN: 1.54 R: 22.06

31) GERZEAN - NAQADA (PETRIE)

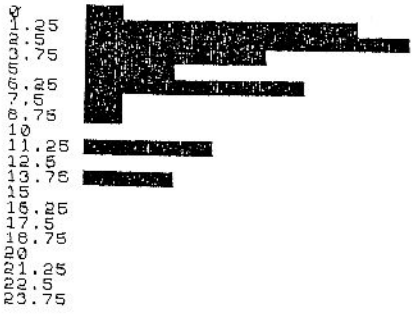


n: 83

$\bar{X}$: 4.103 s^2: 5.276 s: 2.297

MX: 11.54 MN: 0.89 R: 10.65

32) PROTODYNASTIC - NAQADA (PETRIE)

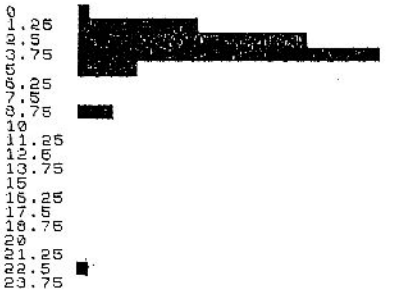


n: 32

$\bar{X}$: 5.566 s^2: 15.361 s: 3.919

MX: 14.75 MN: 0.98 R: 13.77

33) NAQADA I - NAQADA (KAISER/BARD)

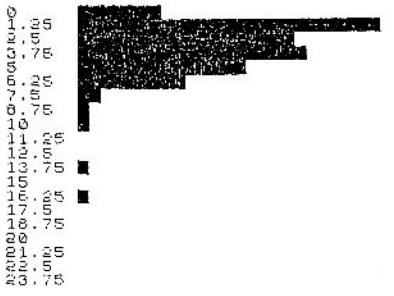


n: 38

$\bar{X}$: 4.376 s^2: 13.351 s: 3.654

MX: 23.60 MN: 0.98 R: 22.62

34) NAQADA II - NAQADA (KAISER/BARD)

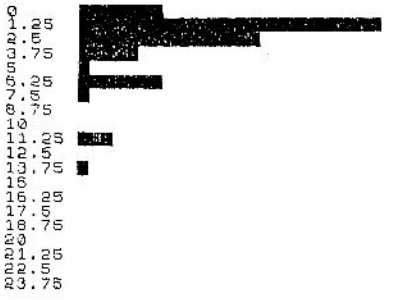


n: 93

$\bar{X}$: 4.120 s^2: 7.457 s: 2.731

MX: 16.31 MN: 0.54 R: 15.77

35) NAQADA III - NAQADA (KAISER/BARD)

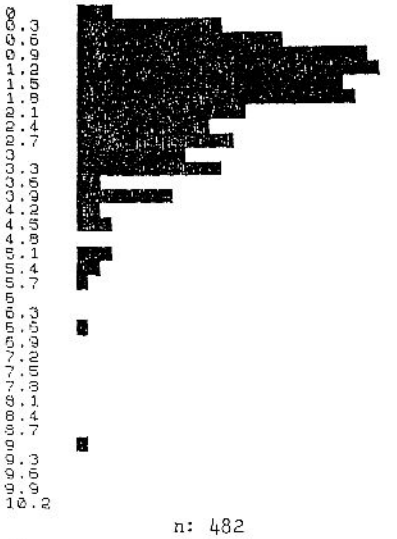


n: 37

$\bar{X}$: 3.883 s^2: 11.255 s: 3.355

MX: 14.75 MN: 0.48 R: 14.27

36) PREDYNASTIC - HALLAS

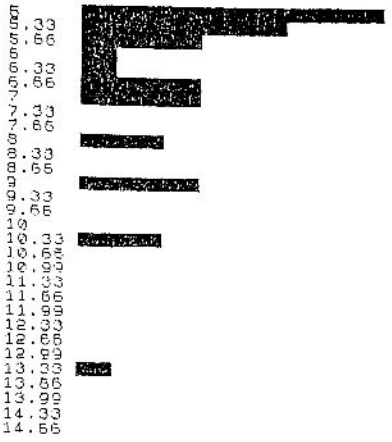


n: 482

$\bar{X}$: 2.297 s^2: 2.842 s: 1.686

MX: 13.58 MN: 0.06 R: 13.52

37) PREDYNASTIC - BALLAS (UPPER END)



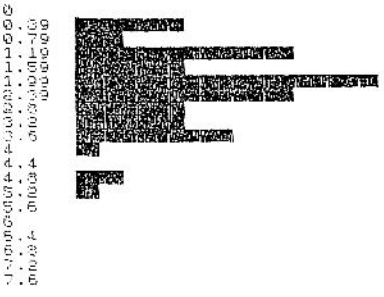
38) AMRATIAN - ARMANT (PETRIE/MYERS)

n: 8

$\bar{X}$: 0.685 s^2: 0.203 s: 0.450

MX: 1.73 MN: 0.26 R: 1.47

39) GERZEAN - ARMANT (PETRIE/MYERS)



n: 55

$\bar{X}$: 2.077 s^2: 1.303 s: 1.141

MX: 5.17 MN: 0.16 R: 5.01

40) PROTODYNASTIC - ARMANT (PETRIE/MYERS)

n: 27

$\bar{X}$: 2.298 s^2: 1.927 s: 1.388

MX: 7.45 MN: 0.64 R: 6.81

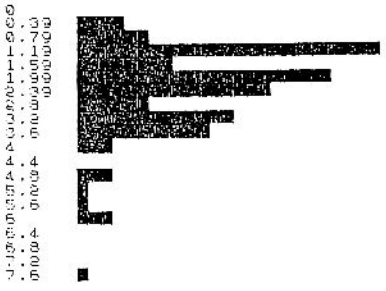
41) NAQADA I - ARMANT (KAISER/BARD)

n: 14

$\bar{X}$: 0.699 s^2: 0.338 s: 0.581

MX: 2.09 MN: 0.15 R: 1.94

42) NAQADA II - ARMANT (KAISER/BARD)



n: 78

$\bar{X}$: 2.242 s^2: 1.965 s: 1.402

MX: 7.45 MN: 0.25 R: 7.20

43) NAQADA III - ARMANT (KAISER/BARD)

n: 10

$\bar{X}$: 2.423 s^2: 0.780 s: 0.883

MX: 3.82 MN: 1.33 R: 2.49

CODE

n - Number of tombs

$\bar{X}$ - Mean

s^2 - Variance

s - Standard deviation

MX - Maximum

MN - Minimum

R - Range