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ALAŠIYA OF THE AMARNA LETTERS*

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I. INTRODUCTION

It will soon be 70 years since the first arguments were presented concerning the geographical location of the ancient kingdom or city-state of Alašiya. References to Alašiya have come to light in Akkadian, Ugaritic, Hittite and Egyptian texts, and from such diverse locations as Ras Shamra, Alalakh, Boghazköy, Mari, Karnak, and Tell el-Amarna. The dating of these various texts covers a span from the 18th-12th centuries.

The failure of scholars to agree on where Alašiya is to be located is not singular among issues of place-names, but the controversy continues to be more active than most. We shall not review the defenses for the different positions. In reading these, we are not necessarily left neutral, but we think it presumptuous to enter into a controversy in which scholars have arrived at conclusions which are diametrically opposed. It is enough for our purposes to point out the central issue which pertains to the present report. One thesis[1] argues that Alašiya was on Cyprus (or was synonymous with Cyprus); the other, that Alašiya was not on Cyprus but rather was located in the general area of the north Syrian coast.[2]

This report is concerned with two of the Amarna letters numbered 29788 and 29789 from the British Museum, which we sampled with the kind permission of Dr. Richard Barnett, the keeper of the Asiatic Department. Both tablets contain the title of the king of Alašiya, LUGAL KUR a-la-ši-ya; they were sent to the Pharoah, and both are written in Cunieform Akkadian. Tablet #29789

is a rather short one and mentions what material the king is sending the Pharoah and also complains because the Pharoah has not sent the king some commodity that he asked for previously. The second tablet, #29788, is more elaborate, again mentions what the king is sending the Pharoah, tells of a disaster in Alašiya, complains about the Pharoah's negligence in not sending previously asked for goods, complains of Egyptians trespassing in his land, and mentions some fear of a political alliance between the Pharoah and the king of Hittites.

The procedure for attempting to establish the provenience of clay products by means of neutron activation analysis has been described elsewhere[3] and will be reviewed here only in a cursory way. The analysis provides quantitative values for the abundances of many chemical elements, most of which may be classed as trace-elements because of their very low concentrations. If one analyzes a considerable number of pottery pieces from a particular site, and finds that they are closely similar in composition, one may take as a working hypothesis that these came from local clays. The data are grouped element by element, and this results in a chemical profile or "fingerprint" for local ceramics. Finally, any other piece of clay product may be compared with this reference group to see whether or not the "fingerprints" fit each other. A discussion of complications and uncertainties which sometimes arise in the assignment of provenience is best left to the body of the report where the data on this particular problem are presented.

II. RESULTS

A. Alašiya and Enkomi

We focus attention first on Enkomi because this site enters prominently in the debate and also because we had already analyzed considerable numbers of Enkomi sherds of the Late Bronze period.

The analytical data on the two Amarna Letters are shown in Table I, where eighteen elements are listed. These elements have been selected from a larger number for diagnostic purposes because they represent different chemical behavior and therefore establish a fingerprint with a minimum incorporation of redundant information. Most of the elements are also among those which we can measure with good accuracy.

The value obtained for each element is followed by a ± figure which is the error in measuring that element. Parentheses enclose these errors to distinguish the measuring errors on individual pieces from other ± figures which indicate the dispersion of values within a pottery group. We shall first compare these two tablets with each other.

The two tablets have chemical compostion patterns which are very similar, and the agreement between them is as good, or even better than is usually found among a collection of sherds from one place. This indicates that the parts of the clay source from which these tablets were made were rather homogeneous, and other ceramics made from the same clay in the same way should have about the same composition. This could be modified somewhat, of course, by the different methods used by potters in treating clay. Nevertheless, if this composition pattern can be identified in other ceramic artifacts whose provenience is known, then the clay tablets from the king of Alašiya should have the same provenience.

The third column in Table I represents a group of 30 Late Bronze sherds from Enkomi. The number shown for each element is the mean value for the group of 30, followed by ± the standard deviation (σ). The significance of σ is that, in a statistical array, 2 out of 3 members lie within ±1σ and only 1 in 20 will lie outside of ±2σ from the mean value. It will be noted that in a pottery group such as this, the value of σ (which shows the spread) is considerably greater than the error of measuring the element. This means that in a typical pottery group, the spread in the elements is not due to the experimental errors.

Statistical Analysis. Let us assume that the pottery group termed ENK α is representative of locally made materials and ask whether one of the Amarna tablets (ELAM14) belongs to this group. We select the first element, aluminum (Al), and see that the value for ELAM 14 (5.20%) differs from the group average (6.40%) by 1.20%. This difference is more than two times the standard deviation (0.50%). We then determine the difference (expressed as the number of standard deviations) for each element and take an average (root-mean-square deviation) over the 18 elements. For a sherd to be a member of the group ENK α, this average should be usually less than 1, but for ELAM 14, it is nearly 5. This is so large that there is no possible way ELAM 14 could be a member of the ENK α group.

Pottery Groups from Enkomi. The above group of 30 sherds came from tombs dated 1400-1200 and contained a number of styles: Plain White, White Painted, Mycenean "Rude Style", Late Myc IIIB dishes, and Myc IIIC1 all considered by archaeological authorities to be local to Cyprus. The fact that the pieces of the various styles are chemically indistinguishable, gives good confirmation.

Another chemical group made up of 18 sherds also from the same period is listed under ENK β. This group had the same stylistic types as ENK α, but also contained a piece of "Syrian Bichrome Ware" which style has been shown to be native to Cyprus in another study.[4] The chemical profile for this group is very much like that of ENK α, but a few elements are significantly different. See, for example, La, Th, Ni, and Ta.

The last group, ENK γ, consists of 14 sherds. The chemical composition is virtually identical with that of ENK β, and has been segregated only because all are Proto White Painted Ware, dated 1100-1050. The point in showing these is to illustrate that a single clay source can be used over a considerable span of time. That the Amarna tablets are greatly different from all three of these groups from Enkomi can be easily seen in Fig. 1.

The pottery analyses summarized in Table I represent only about one-fourth of the Enkomi sherds which have been examined. Some were Myc III A,B wares which were clearly imports from Greece, and others were imports from other places. There were also considerable numbers of Cypriote White Slip and Base Ring sherds each of which were made from distinctively different types of clays, different from each other and from those just discussed. We do not yet know for sure what prompted the ancient Cypriote potters to use special clays for these wares, nor whether there were specific centers for their manufacture. To leave no ambiguities, it should be mentioned that the Amarna tablets were also vastly different from any of these.

Among the Enkomi wares analyzed, there were also considerable numbers of the types represented in Table I , Fig. 1, which did not fit into the chemical groups shown. Most of these fell into small groups which were not greatly different

than the ones illustrated. The only inference which we can draw from the results at the moment is that these are likely from eastern Cyprus, if not from the immediate vicinity of Enkomi. From these, and from results exploited from other sites in the vicinity (Salamis, Kalopsidha, Milia), it would appear that the entire region had many sources of similar clays which were used for pottery making, but none of these were used to make the Amarna tablets.

For the relationship between these Amarna tablets and the site of Enkomi, the issue would not be further illuminated by a lengthy display of the data obtained on the pottery specimens from Enkomi, which were not included in Table I. However, it is useful to present some data from a neighboring site to illustrate the similarities of clays in this general area.

B. Kalopsidha

Table II, Fig. 2, concerns a group of 20 sherds from Kalopsidha dated 1700-1600. The assemblage contains 13 pieces of Red Slip Ware and 7 pieces of White Painted IV - V. The results appear along side of one of the Amarna tablets and group ENK α taken from Table I.

The conclusions to be drawn from these data have already been intimated. Although there are quite significant differences between the Kalopsidha and Enkomi groups (See La, Co, Sc, Fe, Cs, Th, Ni, Ta), the differences are not huge and the patterns are unmistakably similar. This comparison illustrates the earlier statement that there appear to have been many clay sources used in eastern Cyprus all of which give evidence of a common geological background. Other sherds from Kalopsidha of Red Slip and White Painted IV-V styles did not fit into the chemical group shown in Table II, but again, they were closely similar.

As for the Amarna tablet ELAM 14, it can be seen that the composition is greatly different from the Kalopsidha group, just as it was from the Enkomi groups. The statistical chance that this tablet is from the same source as the Kalopsidha sherds is infinitesmally small.

A cautious appraisal of the results from Kalopsidha should bear in mind that the materials we had analyzed are earlier than the Amarna period. The clays would not change in composition with age, but it is possible that at different periods different clay sources were used. It is not likely that this factor is responsible for not finding a match between Kalopsidha pottery and the Amarna tablets. These Kalopsidha wares are similar to the later wares from Enkomi, Milia and Salamis; hence, one might infer that the clays available in this general area would also be the ones used at Kalopsidha from 1700 B.C. through the Amarna period.

C. Kition

In all, 58 pieces of pottery have been analyzed which could be relevant to the problem at hand. They include Mycenean Rude Style, Myc III C1, Proto-White Painted and White Painted I. Of course, these are all later than the Amarna period. What has emerged from the analyses is a rather complex picture: There is one rather large chemical group and several other smaller ones which are not greatly different.

It is enough to say for present purposes, that none of the groups or individual pieces have compositions remotely like the Amarna tablets. A large majority of the pieces are also sufficiently different from the groups from Enkomi and from Kalopsidha, that the area of Kition can be distinguished from the other sites.

The summary data of a group of 15 sherds is shown in Table IV, Fig. 2. It will be left to the reader to see how the various groups compare.

D. Kouklia (Palaepaphos)

Here, for the first time, we come to a site which cannot be dismissed out of hand as the source of the Amarna tablets. We hasten to add that the Kouklia pottery to be discussed here does not by any means match the tablets. Rather, some of the characteristics of pottery from the eastern plain which contrast so sharply with those in the Amarna tablets, do not appear in materials from Kouklia.

The data for a group of 19 Myc. IIIC1 sherds from Kouklia[5] (PPAP=Palaepaphos) are shown along with the average values for ELAM 13 and ELAM 14 in Table III, Fig. 2. It is seen, for example, that the high values for chromium (Cr) and the low values for lanthanum (La) which appeared in all of the other Cypriote materials are not found here. For these two elements, the Kouklia pottery matches the tablet very well. However, if

one goes through the data element by element, one finds that nine elements in the tablet differ from the Kouklia composition by more than two standard deviations. Thus, the tablet does not belong to this particular pottery group, but the similarity demands further consideration.

The question might be asked as to why we are even considering Kouklia as the source of the Amarna tablets. It can be answered that, on the basis of present information, we are not. However, all of the materials analyzed are later than the Amarna period and it is conceivable that other clay sources in the vicinity had been used at the earlier time. Ordinary prudence suggests that contemporary local pottery be analyzed. Although there seems to be little doubt that the site of Kouklia was occupied during this period, rather few ceramic finds have yet come to light or have been published; so it is not certain that adequate reference materials are available at this time.

E. Other Cypriote Sites

Considerable pottery from other coastal sites in Cyprus has been chemically analyzed, i.e., Tomba Tou Skourou near Morphou Bay; Lapithos, Ayios Epekititos Vrysi in the North, Paleoskoutella and Nitovikla in the Karpas; Larnaca and Hala Sultan Tekke in the South on Larnaca Bay; and Amathus among others. Although the data is still in the process of being interpreted, we can say, at the present time, that none of the chemical composition patterns from these sites is close to that of the Amarna tablets.

F. Tell El-Amarna

The point comes to mind that the Amarna tablets may not be the original letters but are copies made at Amarna for the archives. Aldred[6] has presented detailed arguments that this is not the case, and we have some fragmentary evidence that at least the two tablets analyzed are not local reproductions.

In our own archives of analytical data, we have one specimen which is reasonably of local manufacture. This is a large ceramic "faience mold" excavated at Tell El-Amarna. One piece of reference material is hardly awe inspiring but something further will be said that, at least, relates it to the Nile valley. The data obtained on the faience mold is presented in Fig. 3 alongside that of a group of local Deir el-Medineh ceramics, three pieces from Assuit and a group of 32 pieces[3] from cemeteries near Ballas in Upper Egypt. Although these groups do not match each other chemically, the similarity in pattern is clear. The separation in distances are considerable in some cases, but similarities might be expected if all were made from Nile River silt.

G. Clay of Ceramics and Tablets

There is a question as to whether the same clay was used for both ceramics and tablets. This question is applicable not only to the Alašiya letters, but to other sites as well.

The only obvious requirements for clays used for tablets are (1) that they do not contain large grits which would hamper the execution of clear incisions, and (2) that the clay will dry hard without fracturing or crumbling. We have not systematically examined clays from various areas, but did obtain clays used for pottery making from the vicinity of Enkomi Village and these satisfied the above requirements. These clays also matched in chemical composition certain Bronze Age pottery from Enkomi.

Although we do not wish to deal with this question comprehensively here, we would like to present some of our results from Ras Shamra. In Fig. 4, a common MB Ras Shamra jug is seen to have a composition pattern very similar to a group of six clay tablets from Ras Shamra. Among the group are literary texts, economic texts and even one tablet which was found in a kiln.

H. Sherds Used in Chemical Groups

A concordance between the museum numbers and the analysis identification symbols is shown in Table V for the sherds in the various chemical groups.

III. CONCLUSION

Unfortunately, we can not offer a definite conclusion as to the location of Alašiya at this time. We did, however, present some data which we hope would help in future work dealing with the geographical location of either the city, or the state of Alašiya.

At least in one site, in Ras Shamra, we found tablets were made from a clay very similar in composition to that used for pottery. The two Amarna tablets are then probably not copies made in Egypt for possible use in the Pharoah's archives as they are quite different in composition from all Egyptian pottery which has been analyzed by these methods.

The two analyzed tablets are not made of a clay similar to that which we consider eastern Cypriote clay, hence they are most probably not from the vicinity of Enkomi or Kalopsidha. The tablets are also chemically different from what we consider to be the local clay at Kition.

Although we can not identify the two Alašiya letters with the Kouklia (Palaepaphos) clay composition, we can not dismiss the chemical similarities between the two El-Amarna letters and a group of Mycenean IIIC1 sherds from Kouklia.

There are numerous problems with this study which should be mentioned at this juncture. Although the two tablets agree well with each other, it is possible that they are from a similar time period and that other Alašiya tablets from other periods do not agree chemically with our tablets. It is known from archaeological evidence, that in Cyprus the sites of cities tended to shift. Hence, it is possible that a given site was the city of the King of Alašiya at one time, but not continuously.

The above considerations suggest a number of steps which could be taken to help clarify the issues:

(1) Analyses should be made on other Amarna letters from Alašiya to see if these agree with those already examined.

(2) Tablets from Alašiya of other time periods should be analyzed to see if Alašiya was indeed a single place.

(3) Sampling of Amarna letters from well established place names would show whether these agree with the local ceramics or conversely bring to light new clues for the interpretation of the Amarna archives.

(4) A continuing search should be conducted on Cyprus for other clay composition patterns in addition to those found in the many samples of ceramics so far analyzed.

(5) A more deliberate collection should be taken of ceramics and clay products from sites in northern Syria and southern Anatolia in a search for chemical parallels of the two tablets already analyzed.

IV. ACKNOWLEDGEMENTS

We are grateful to Prof. Einar Gjerstad, and the Mediterranean Museum of Stockholm for making available a large collection of pottery from Cyprus excavated by the Swedish Cyprus expedition. Dr. Vassos Karageorghis sent us sherds from Kition, Kouklia and some from Enkomi for which we are thankful. We are indebted to Prof. Claude Schaeffer and to Dr. P. Amiet of the Musée du Louvre for making available pottery from Assuit and Deir el Medineh and tablets from Ras Shamra. This work would have been impossible without the permission given by Dr. Richard Barnett and the British Museum to sample the two Amarna tablets.

We are appreciative of the help given to this work by Mrs. Helen Michel, David Gok, and Duane Mosier of the Lawrence Berkeley Laboratory and to Prof. J. S. Cooper for helpful discussions. The indispensable reactor irradiations were made possible by Tek Lim, supervisor of the Berkeley Triga Reactor and his staff.

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Table I. The numbers for the respective elements are group mean values (M) and the standard deviations (±σ). All are in units of parts-per-million unless designated "(%)".

	ELAM 13	ELAM 14	ENK α (30 pcs.) M±σ	ENK β (18 pcs.) M±σ	ENK γ (14 pcs.) M±σ
Al%	5.18	5.20	6.40±.50*	6.58±.38**	6.43±.48
Ca%	12.3	10.4	9.1±1.5	8.6±1.6	11.3±1.3
Mn	559	592	1065±85	1067±124	1034±103
Na%	.507	.586	1.40±.19	1.20±.14	1.12±.29
U	1.66	1.74	***	***	2.07±.27
La	27.0	27.5	16.7±1.3	20.5±1.5	20.1±1.5
Ti%	.328	.346	.441±.043	.465±.030	.441±.025
Lu	.278	.292	.313±.021	.321±.016	.310±.026
Co	14.16	16.03	29.50±2.70	31.50±2.60	30.10±2.60
Sc	11.45	11.76	24.20±1.30	23.13±1.53	22.73±2.33
Fe%	3.01	3.21	5.67±.35	5.69±.27	5.40±.45
Cs	4.52	4.37	3.72±.36	4.64±.60	4.07±.66
Cr	93	100	301±50	334±42	398±64
Th	7.36	7.73	5.50±.37	6.76±.25	6.63±.49
Hf	2.91	3.25	2.73±.20	3.18±.22	3.12±.23
Ta	.790	.830	.548±.043	.677±.036	.658±.079
Ni	73	116	201±27	261±41	208±21
Rb	90	83	62±16	76±14	67±24

ELAM 13 is El-Amama tablet #29789

ELAM 14 is El-Amama tablet #29788

ENK α is a group of mixed local LB sherds from Enkomi

ENK β is a group of mixed local LB sherds from Enkomi

ENK γ is a group of Proto White Painted sherds from Enkomi

*Of the 30 pieces, aluminum was measured in only 7 samples.

**Of the 18 pieces, aluminum was measured in only 4 samples.

***These sherds had been contaminated with silver, gold and uranium.

Table II. The numbers in this table are defined in Table I. Kalopsidha is a mixed group of local LB sherds.

	Kalopsidha 20 pieces	ENK α 30 pieces	ELAM 14
Al %	5.93±.39	6.40±.50	5.20
Ca %	12.2±1.3	9.1±1.5	10.4
Mn	936±89	1065±85	592
Na %	1.16±.19	1.40±.19	.586
U	1.75±.39	***	1.74
La	14.5±.9	16.7±1.3	27.5
Ti %	.39±.04	.441±.043	.346
Lu	.28±.02	.313±.021	.292
Co	24.8±1.8	29.50±2.70	16.03
Sc	20.50±1.22	24.20±1.30	11.76
Fe %	4.70±.23	5.67±.35	3.21
Cs	2.60±.44	3.72±.36	4.37
Cr	270±30	301±50	100
Th	4.33±.37	5.50±.37	7.73
Hf	2.22±.16	2.73±.20	3.25
Ta	.448±.027	.548±.043	.830
Ni	149±18	201±27	116
Rb	55±10	62±16	83

*** These sherds had been contaminated with gold, silver, and uranium.

Table III. The numbers in this table are defined in Table I. 'PPAP' refers to a group of Myc III C1 sherds from Palaepaphos (Kouklia).

	ELAM 13 and ELAM 14 (Averages)	PPAP Myc III C1 (19 pieces) M±σ
Al %	5.19	5.58±.42
Ca %	11.4	7.3±1.6
Mn	576	962±156
Na %	.547	.354±.085
U	1.70	1.52±.22
La	27.3	27.6±2.3
Ti %	.337	.424±.024
Lu	.285	.303±.020
Co	15.10	20.21±1.65
Sc	11.61	14.16±1.00
Fe %	3.11	3.92±.25
Cs	4.44	3.8±.4
Cr	97	97±11
Th	7.55	7.35±.53
Hf	3.08	3.13±.21
Ta	.810	1.071±.077
Ni	95	92±17
Rb	87	74±10

Table IV. The numbers in this table are defined in Table I. 'Kit.' refers to a group of sherds from Kition.

	ELAM 13*	Kit. (15 pcs.) M±σ
Al %	5.18	5.87±.35
Ca %	12.3	11.1±1.2
Mn	559	878±75
Na %	.507	1.353±.118
U	1.66	2.10±.29
La	27.00	19.42±1.16
Ti %	.328	.420±.022
Lu	.278	.287±.015
Co	14.16	21.80±1.12
Sc	11.45	20.21±1.37
Fe %	3.01	4.43±.29
Cs	4.52	3.2±.4
Cr	93	377±50
Th	7.36	6.04±.45
Hf	2.91	3.00±.30
Ta	.790	.638±.049
Ni	73	148±25
Rb	90	67±7

*ELAM 14 and ELAM 13 have nearly identical compositions.

Table V.
Sherd Concordance

Elam 13: Tablet #29789 from El-Amarna, presently at the British Museum.

Elam 14: Tablet #29788 from El-Amarna, presently at the British Museum.

Enk. α: 30 pieces of White Painted, Plain White and local Mycenaean IIIC1 sherds from Enkomi. Enk-8,9,11,13,14,18,19,54,81,87,93,94,97,98,101, 107-114,222,226,229,239,240,242,260

Enk. β: 18 pieces of mixed local sherds from Enkomi. Enk-24,31,38,39,41,77, 79,80,82-84,96,105,106,205,214,216,225

Enk. γ: 14 pieces of Proto White sherds from Enkomi. Enk-244,246-258

Kalopsidha: 20 pieces of local wares from Kalopsidha. Kal-1,4,7-16,19,23,26,31,32, 58-60

Kouklia: 19 pieces of local Mycenaean IIIC1 ware from Kouklia. Ppap-60-78

Kition: 15 pieces of local ware from Kition. Kit-22,30,33,37-41,43-49

FIGURE CAPTIONS

Fig. 1. Chemical abundance patterns of Amarna tablets and Enkomi pottery. The bars represent elemental abundance values for the individual Amarna sherds or mean values for pottery groups. The hatched zones reflect for each element the standard deviation in the abundances for all of the sherds in that group.

Elam. 13: Tell el-Amarna tablet #29789.

Elam. 14: Tell el-Amarna tablet #29788.

Enk. α: A group of 30 pieces of White Painted Ware, Plain White Ware, Mycenaean Ware excavated at Enkomi.

Enk. β: A group of 18 pieces of White Painted, Plain White Wares excavated at Enkomi.

Enk. γ: A group of 14 pieces of Proto White Ware excavated at Enkomi.

Fig. 2. Chemical abundance patterns of Elam. 13 and Cypriot pottery groups from Palaepaphos, Kalopsidha and Kition. The bars and hatched zones have the same meaning as in Fig. 1.

Elam. 13: See Fig. 1.

Ppap Myc.IIIC1: A group of 19 pieces of Mycenaean IIIC1 excavated at Kouklia.

Kal.: A group of 20 pieces of Plain Ware excavated at Kalopsidha.

Kit.: A group of 15 pieces of Plain Ware excavated at Kition.

Fig. 3. Chemical abundance patterns of Elam. 13 and Egyptian pottery groups. The bars and batched zones have the same meaning as in Fig. 1.

Elam. 13: See Fig. 1.

Nile Mud: A group of 32 pieces of Egyptian Wares excavated in Upper Egypt. (El Ahaiwah, Nag-ed-Deir, Ballas).

Demd. local: A group of 3 pieces excavated at Deir el-Medineh.

Elam. 2: A faience mold from Tell el-Amarna.

Asut. 1,2,3: 3 pieces of Egyptian Wares excavated at Assuit.

Fig. 4. Chemical abundance patterns of pottery and tablets from the North Syrian Coast. The bars and hatched zones have the same meaning as in Fig. 1.

Rash. 46: A local decorated sherd from Ras Shamra in Prof. Claude Schaffer's collection.

Ugaritic tablets: A group of 6 tablets from Ras Shamra.

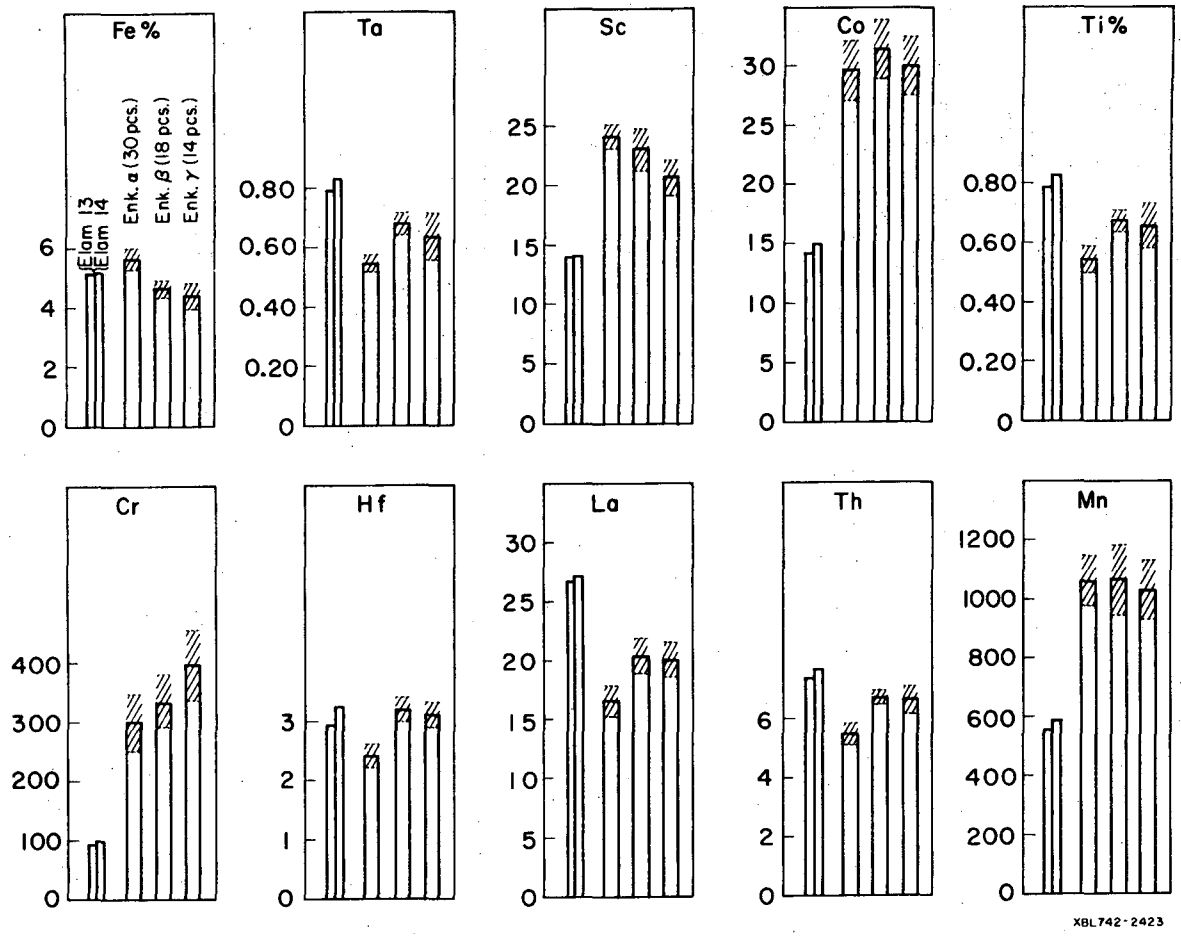
Fe %
Elam 13
Elam 14
Enk. α (30 pcs.)
Enk. β (18 pcs.)
Enk. γ (14 pcs.)
Ta
Sc
Co
Ti %
Cr
Hf
La
Th
Mn
XBL742-2423

Fig. 1

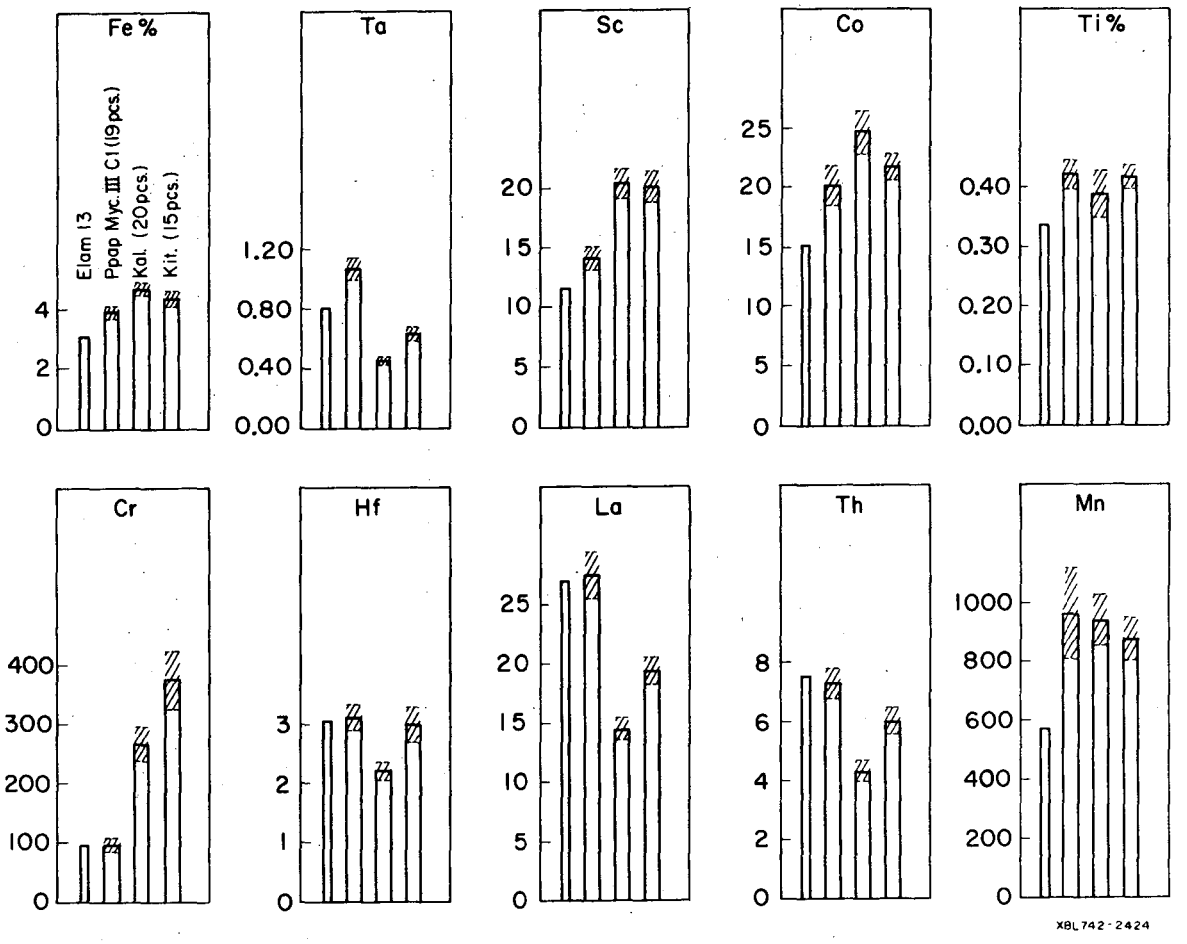
Fe %
Elam 13
Ppap Myc. III C1 (19pcs.)
Kal. (20pcs.)
Kit. (15pcs.)
0
2
4
Ta
0.00
0.40
0.80
1.20
Sc
0
5
10
15
20
Co
0
5
10
15
20
25
Ti %
0.00
0.10
0.20
0.30
0.40
Cr
0
100
200
300
400
Hf
0
1
2
3
La
0
5
10
15
20
25
Th
0
2
4
6
8
Mn
0
200
400
600
800
1000
XBL742-2424

Fig. 2

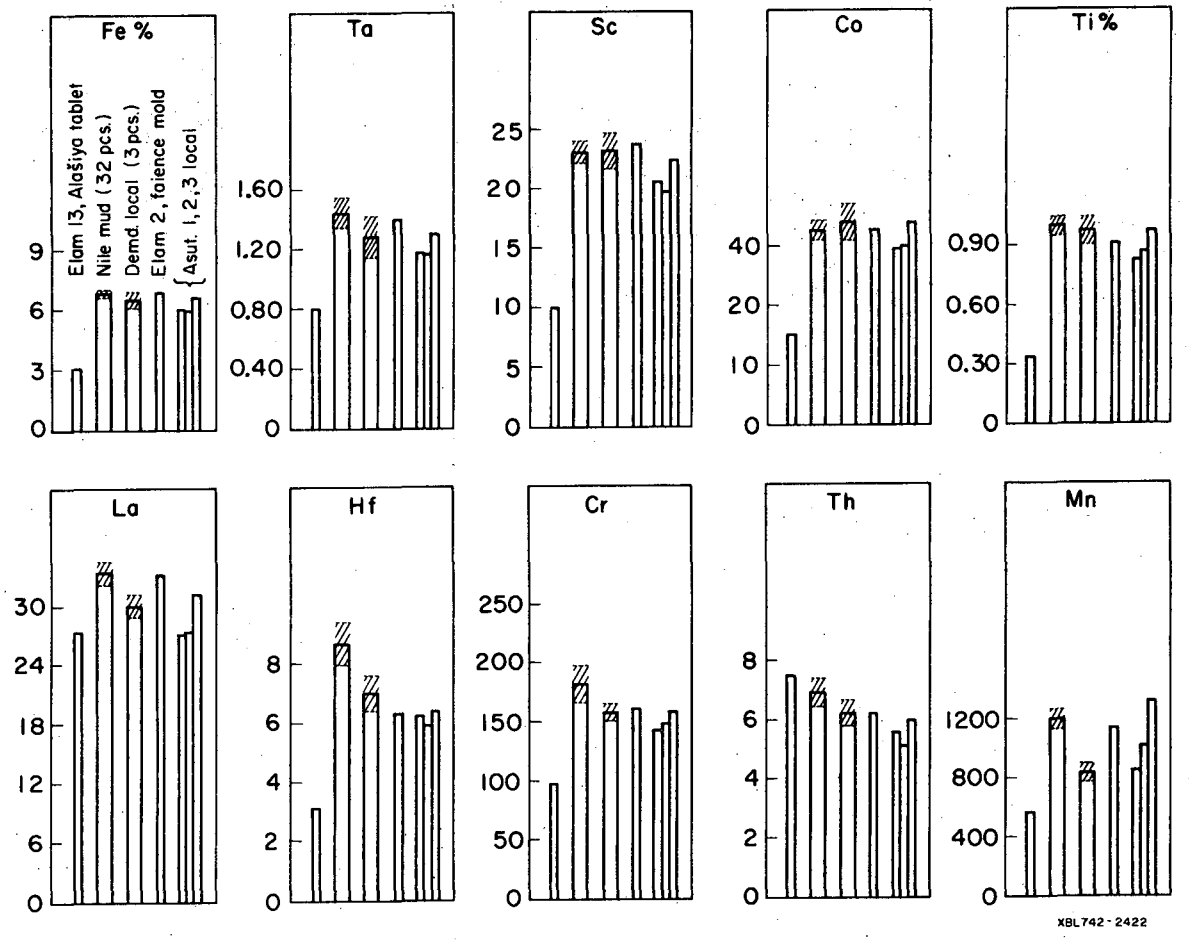
Fe %
Elam 13, Alašiya tablet
Nile mud (32 pcs.)
Demd. local (3 pcs.)
Elam 2, faience mold
Asut. 1,2,3 local
Ta
Sc
Co
Ti %
La
Hf
Cr
Th
Mn
XBL742-2422

Fig. 3

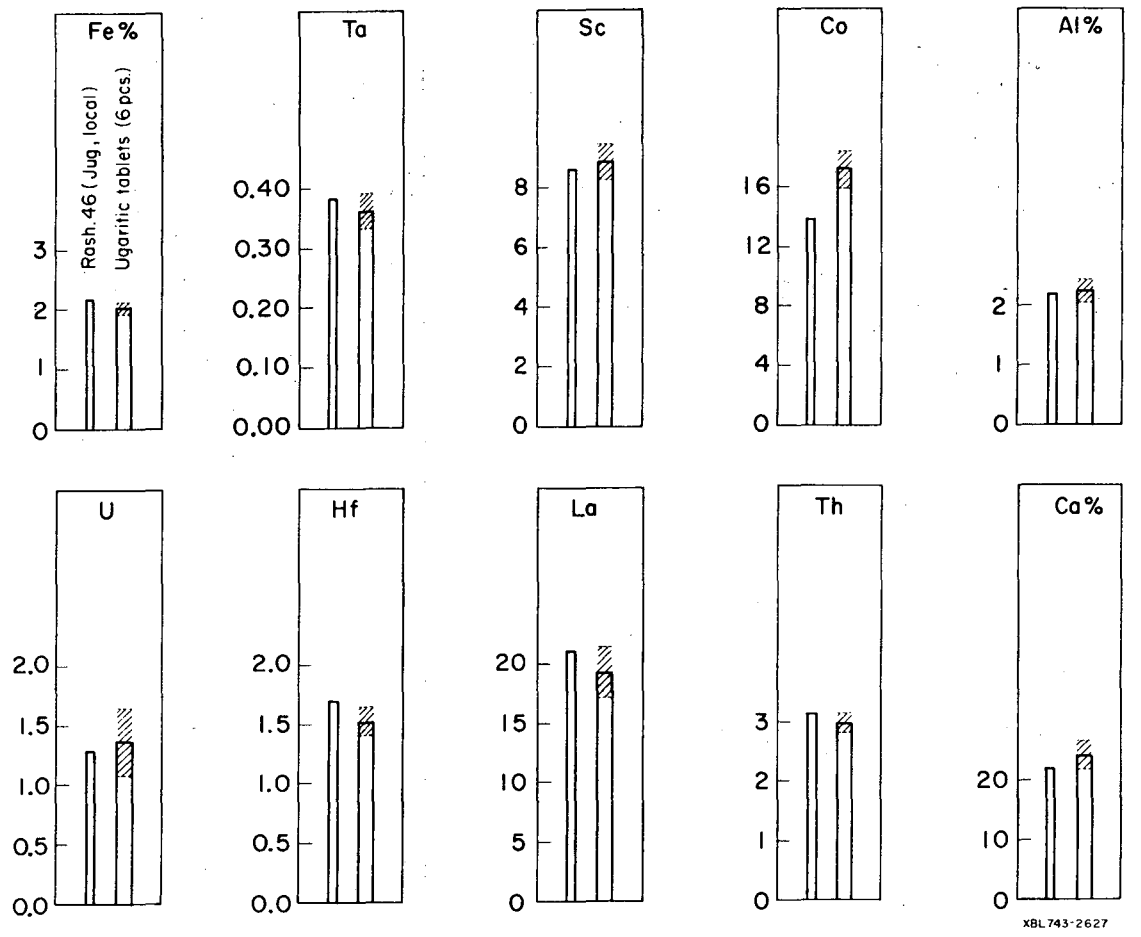
Fe%
Rash. 46 (Jug, local)
Ugaritic tablets (6 pcs.)
Ta
Sc
Co
Al%
U
Hf
La
Th
Ca%
XBL743-2627

Fig. 4

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