The gold and silver hoard from Tell El-Amarna

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[This paper aims to analyze the 'hoard' found at Tell El-Amarna in its archaeological context and in the framework of exchange systems and forms of payment in the Levant. The metal hoard corresponds to the written descriptions in the Amarna Letters of silver and scrap metal carried or stored in jars and sacks. The 'gold and silver crock' of El Amarna corresponds to the archaeological evidence in the Late Bronze and Early Iron Ages that indicates that copper and silver ingots and metal objects were frequently broken up into small pieces and packed into sealed bags or stored in jars for exchange in the Levant.]

Keywords: Hoard, Scrap, Gold, Silver, Amarna.

1. *Introduction*

Hoards consisting of scrap silver ('Hacksilber'), were found at Tell el-Amarna, Arad, Megiddo, Gezer, Tel Miqne-Ekron, Beth Shean, Akko, Dor, Ugarit, and Zinçirli. Although many of these have been called 'silversmith's hoards', the practicability of exchange by weight suggests that *Hacksilber* could simultaneously be both material for a jeweler and for exchange[1].

The hoards primarily contained fragmented bits of silver or *Hacksilber*, a German noun in some ways analogous to the Akkadian *šibirtu*, the Hebrew *kesep*, and the Egyptian *hedj m qnqn*; all have been related to verbs meaning 'to break to pieces', 'to shatter', 'to beat', and 'to strike' and refer to pieces of silver used as currency. Pieces of *Hacksilber* were broken off of all sorts of ingots and worked objects including jewellery, vessels, and so on. Metal in this form was balanced on scales against standardized weights for the purposes of payment before and after the development of coinages. The presence of damaged jewellery in the hoards continues to lead to their erroneous attribution to smiths and jewelers[2].

But, silver was not the only metal found in the ancient hoards. Rings and bar shaped ingots of gold, silver, copper, and bronze were regularly used in the Bronze Age Eastern Mediterranean. These were small, ca. half a kg in weight. In Egypt, in a scene of the Tomb of Rekhmire, gold and silver rings are

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1. M.S. Balmuth, "The monetary forerunners of coinage in Phoenicia and Palestine", in A. Kindler (ed.), *The Patterns of Monetary Development in Phoenicia and Palestine in Antiquity*, Tel-Aviv 1967, pp. 27-29; "The Critical Moment: The Transition from Currency to Coinage in the Eastern Mediterranean", *WoAr* 6/3, 1975, 296.

2. Ch. Thompson, "Sealed silver in Iron Age Cisjordan and the 'invention' of coinage", *OJA* 22/1, 2003, 71.

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weighed, indicating their use as ingots[3]. One such ingot was found on the Uluburun wreck in a hoard of scrap jewelry[4].

The gold and silver scrap from Uluburun (ca. 1325-1300 BCE) wreck site has yet to be precisely weighed. Nevertheless, Pulak estimates that the 37 individual gold pieces, including pendants, a chalice, a Canaanite depiction of a falcon (KW 94), and a scarab inscribed with Nefertiti's name (KW 772), amount together to approximately 530 g, a value equivalent to 2 kg of silver or 213 Ugarit shekels[5].

The smallest gold pieces are three bits of scrap (KW 956), a bar (KW 928), a ring-shaped bar (ca. 61 g) (KW 2830), and two bun ingots (2; 23 g) (KW 280; 3018). The silver pieces are rings (ca. 8 g) (KW 369), bracelets (ca. 70; 10 g) (KW 92; 125; 273), plaques (ca. 17g) (KW 464), coils (ca. 7; 10 g) (KW 646; 3295), and scrap (L 504; 673; 1073; 11713; KW 599)[6]. The intentional destruction of the Uluburun gold ring (KW 603), which was deliberately cut in half, and the deteriorated condition of the silver ring (KW 650) reflect that these items were in the ship as scrap metal or bullion, not as pieces of jewelry[7]. These small gold and silver pieces could have been used as a form of payment in the transactions.

Small pieces of metal ('lump') and fragments taken deliberately from gold and silver artifacts ('scrap') found on board could have been used as a form of exchange or payment ('bullion') as well[8]. The analysis done on the copper ingots suggests that these were made (or designed) for an easy breaking into small pieces, using a simple hammer, for their future use as a form of payment in the transactions of the Eastern Mediterranean[9]. J. Derckson[10] suggests that copper ingots were frequently broken up into small pieces (referred to as 'broken-up' or 'small-sized' copper), and packed into sealed bags. With these small pieces, the merchants had the opportunity to check the metal quality, to weigh a given amount with precision, to prevent frauds and finally to facilitate their transportation[11]. A clear example of ancient fraud in ingot production was found on the Uluburun shipwreck; one of the plano-convex tin ingots contained 'unmelted bits of lead scrap or bars at its core'[12]. It is very likely that part of the metal cargo, such as the small ingots and scrap gold, was used as a form of payment in the system of exchange in the Eastern Mediterranean[13].

In the captain cabin area of the Cape Gelidonya wreck site (ca. 1200 BCE), there were found 18 small flat 'slab' type with rounded-end copper ingots, and one of them of bronze (measuring ca. 0.20-0.30 m

3. N. de G. Davies, *The Tomb of Rekh-mi-re at Thebes*, New York 1973, p. 35, pl. 55.

4. C. Pulak, "The Cargo of the Uluburun Ship and Evidence for Trade with the Aegean and Beyond", in L. Bonfante and V. Karageorghis (eds.), *Italy and Cyprus in Antiquity, 1500-450 BCE*, Nicosia 2001.

5. Ch. Monroe, "Sunk costs at Late Bronze Age Uluburun", *BASOR* 357, 2010, 23.

6. Ü. Yalçin, C. Pulak and R. Slotta (eds.), *Das Schiff von Welthandel vor 3000 Jahren. Katalog der Ausstellung des Deutschen Bergbau-Museums Bochum vom 15. Juli 2005 bis 16. Juli 2006*, Bochum 2005, pp. 611-615.

7. Bass *et al.*, "The Bronze Age Shipwreck at Ulu Burun: 1986 Campaign", *AJA* 93, 1989, 7, 23.

8. S. Sherratt, "Circulation of metals and the end of the Bronze Age in the Eastern Mediterranean", in Ch.F.E. Pare (ed.), *Metals make the World go round. The Supply and Circulation of Metals in Bronze Age Europe*, Oxford 2000, p. 87; I. Singer, "Ships Bound for Lukka: A New Interpretation of the Companion Letters RS 94.2530 and RS 94.2523", *AFo* 33/2, 2006, 256-257 (for Cape Gelidonya); Pulak, *The Cargo of the Uluburun Ship*, p. 24 (for Uluburun).

9. A. Hauptmann, R. Maddin and M. Prange, "On the Structure and Composition of Copper and Tin Ingots Excavated from the Shipwreck of Uluburun", *BASOR* 328, 2002, 19.

10. *The Old Assyrian Copper Trade in Anatolia*, Istanbul 1996, pp. 25, 41, 60.

11. M.R. Jones, *Oxhide ingots, copper production, and the Mediterranean Trade in copper and other metals in the Bronze Age*, Texas 2007, p. 89.

12. Compare the plano-convex ingots from Bahla in Oman, where the core of the ingot consists of slag. cf. C. Pulak, "The Copper and Tin Ingots from the Late Bronze Age Shipwreck at Uluburun", *Der Anschnitt* 13, 2000, 155.

13. G. Gestoso Singer, "El uso de pagos en los sistemas de intercambio en el Levante", *Davar Logos* 9, 1, 2010, 1-8; "Forms of payment in the Amarna Age and in the Uluburun and Cape Gelidonya shipwrecks", *UF* 42, 2010-2011, 266.

long by 0.06-0.08 m wide by 0.01-0.015 m thick)[14]. They were made of recycled scrap metal weighing 0.5 kg to 1 kg. Fragments chiseled from all type of ingots were found as well.

Evidently, these small ingots, bars and fragments of metal represent a pre-monetary form of currency used as payment[15]. Two characteristics of the copper stand out: the presence of a substantial degree of porosity and a high concentration of copper oxide inclusions. The material composition of the copper ingots provides an explanation for the previously vexing question of how an ingot of a metal as ductile as copper could have been broken up into small pieces, by smashing them with a hammer or other heavy tool[16], and then be used as a mean of exchange in the transactions. As such, the ingots could illustrate the earliest surviving example of the critical moment when a piece of metal exchangeable by weight is transferred to a pre-monetary kind of currency, by having it first made into a standard size and shape and then adding a sign or an inscription of authority[17].

The bronze scrap found in the wreck site were from bronze tools, principally of Cypriote origin, including a variety of objects useful in agriculture, woodworking, metallurgy, warfare, and domestic activities: picks, hoes, a shovel, a mattock, pruning hooks, sickle, double axes, adzes, axe-adzes, chisels, hammer, a swage block or anvil, awls, nails, needle, knives, spearheads, a razor, a spatula, bronze vessel fragments, tripod stand fragments, a spit, bracelets/anklets, rings, and hooks[18].

On the wreck site of Cape Gelidonya were discovered a bronze swage, stone hammerheads, stone polishers, a whetstone -all of them used for metalworking- and a large close-grained stone, which could have served as an anvil. These artifacts suggest that a tinker may have been on board[19]. G. Bass[20] argues convincingly that the merchant not only traded in metals, but also worked them himself. This ship could have served both as a carrier of metals and as a sort of itinerant smithy.

The fragments of intentionally broken copper ingots found on the Uluburun and Cape Gelidonya shipwrecks could have assisted in weighing procedures. The ingot fragments could have been used as 'small change' to add to given numbers of ingots during weighing, in order to obtain the specific weight of metal needed for a transaction. Hence, scrap bronze or copper could have served the same purpose as at Kanish in the early second millennium BCE[21].

In Assur and in the Levant, scrap bronze and copper circulated as well as complete or fragmentary metal tools (mainly sickles, hammers, and axes). The sickle seems to have been accepted as a 'unit of exchange'[22]. At nearby Kefar Samir (Israel), eight tin bar-shaped ingots and two plano-convex tin ingots, as well as seven lead ingots were found with five Late Bronze Age anchors and an Egyptian-style sickle sword[23]. In a 13th century BCE shipwreck site, Hishuley Carmel (Israel), three bronze axes (one of Hittite-

14. The copper is from Lavrion in Greece. Cf. G. Bass, "Cape Gelidonya shipwreck", in E.H. Cline (ed.), *The Oxford Handbook of the Bronze Age Aegean* (*ca. 3000-1000 BC*), Oxford 2010, p. 800; *Cape Gelidonya: A Bronze Age Shipwreck*, Philadelphia 1967, pp. 81-82; "Cape Gelidonya and Bronze Age Maritime Trade", in *H.A. Hoffner* (ed.), *Orient and Occident, Festschrift Cyprus Gordon*, Kevelaer 1973, pp. 29-38.

15. Sherratt, *Circulation of metals*, p. 87 (Cape Gelidonya); Pulak, *The Cargo of the Uluburun Ship*, p. 24 (Uluburun); Singer, *AFo* 33/2, 2006, 256-257.

16. Hauptmann *et al.*, *BASOR* 328, 2002, 19.

17. Balmuth, *WoAr* 6/3, 1975, 298.

18. Bass, *Cape Gelidonya: A Bronze Age Shipwreck*, pp. 84-111.

19. Bass, *Cape Gelidonya shipwreck*, p. 800.

20. *Cape Gelidonya: A Bronze Age Shipwreck*, p. 163.

21. Derckson, *Old Assyrian Copper Trade*, p. 46; Jones, *Oxhide ingots*, p. 20, n. 78.

22. Derckson, *Old Assyrian Copper Trade*, pp. 45-47; Jones, *Oxhide ingots*, p. 33, n. 131. For weapons and tools in Aegean hoards, see K. Branigan, "Early Aegean Hoards of Metalwork", *BSA* 64, 1969, 1-11.

23. Jones, *Oxhide ingots*, p. 65.

type) were found, as well as a bronze hoe (Cypriote-type)[24]. The last of these was a very common tool, used for practical daily tasks such as farming and woodwork. It is possible that the axes and principally the hoe were used by the merchants on board as scrap metal or means of exchange for their transactions. Although little evidence exists for 'axe-ingots' in the Eastern Mediterranean, P. Keswani[25] suggests that early examples of shaft-hole axes on Cyprus could have been imported from the Near East as 'major units of copper exchange' and prestige symbols, and that axe molds found on Philia (Late Chalcolithic/Early Bronze Age) phase site of Marki Alonia could have been used for making axes or axe-shaped ingots intended for export[26].

Also, small amounts of scrap metal were carried with merchants almost certainly to be used as a means of exchange to pay traveling expenses and supplies[27]. An Alalakh tablet shows: "*Receipt for 20* [?] *talents of copper from the palace received by Birriaššuwa, son of Irip-šeni, for the journey to the Hittite country*" [28].

According to Jones[29], such use of valuable metals as currency was widespread in the ancient world. This use of copper is similar to the use of 'loose tin' carried by Assyrian merchants in Anatolia described by Veenhof in the 19th century BCE Kanish tablets, as well as references to the use of specific weights of tin and bronze (as well as the more common 'currencies' of silver and gold) as payment for goods at Ugarit[30]. Tin was sometimes used as a type of currency to cover expenses of Assyrian caravans traveling to Anatolia, similar use of silver and gold in the same period[31]. The Assyrian merchants stored the smaller tin ingots and their scrap metal in small containers and bags of leather or wrapped them into bundles of 'textiles for wrapping', sealed with clay bullae[32].

Balance weights were essential for conducting long-distance commerce in pre-coinage societies. Weights of metal found in many Bronze Age sites and in the scrap jewelry on the Uluburun wreck were used as currency by captains and merchants as well[33].

During the Amarna Period, Aššuruballit I, king of Assyria, calculates like a merchant his benefits and losses from a commercial travel to Egypt, and mentions the payment of the 'expenses' of his messengers: "*Now, I am the equal of the king of Hanigalbat* (Mittanni), *but you sent me* […] *of gold, and it is not enough for the payment of the expenses*[34] *of my messengers on the journey to and back* […]. […] *We are countries far apart. Are our messengers to be always on the march with [only] such results*?"[35]

The king of Babylon complains to Akhenaten about the robbery of a caravan and the 'belongings' of the merchant. The Babylonian king requests not only the punishment of the responsible persons (i.e. the local authorities), but also the 'restoration' of 'his merchant's merchandise', and an economical

24. E. Galili, N. Gale and B. Rosen, "A Late Bronze Age Shipwreck with a Metal Cargo from Hishuley Carmel, Israel", *IJNA* 42/1, 2012, 10, 17.

25. "Death, Prestige, and Copper in Bronze Age Cyprus", *AJA* 109, 2005, 386, 392.

26. Jones, *Oxhide ingots*, pp. 81-82.

27. Derckson, *Old Assyrian Copper Trade*, pp. 45-47.

28. AT 403, in D.J. Wiseman, *The Alalakh Tablets*, Liverpool 1953, pp. 14, 105.

29. *Oxhide ingots*, p. 46.

30. K.R. Veenhof, *Aspects of Old Assyrian Trade and Its Terminology*, Leiden 1972, pp. 30, 80, 257; M. Heltzer, M., "The Metal Trade of Ugarit and the Problem of Transportation of Commercial Goods", *Iraq* 39/2, 1977, 204-207.

31. Jones, *Oxhide ingots*, p. 158.

32. Veenhof, *Old Assyrian Trade*, pp. 32-35.

33. Pulak, *The Cargo of the Uluburun Ship*, pp. 24-25, 45.

34. For *ana idi* as "*wages*", see A. Sachs, "Two notes on the Taanach and Amarna Letters", *AfO* 12, 1937-1939, 371-372; J. Black, A. George and N. Postgate, *A Concise Dictionary of Akkadian*, Wiesbaden 2000, p. 125; and as "*pay*", see W.L. Moran, *The Amarna Letters* (EA), Baltimore and London 1992, p. 39, n. 13.

35. EA 16: 26-31, 35-36. cf. G. Gestoso Singer, "Some economical terms in the Amarna Letters", *CCdE* 7/8, 2005, 197-198.

'compensation' for his losses: "*Twice has a caravan of Salmu, my messenger, whom I sent to you*, *been robbed*. *The first one Biriawaza robbed, and his second caravan, Pamaḫu, a governor of yours over a tributary region* [*māt kisri*], *robbed. When is my brother going to adjudicate this case*? *As my messenger spoke before my brother, so now may Salmu speak before my brother. His things*[36] *should be restored*[37] *to him and he should be compensated*[38] *for his losses*"[39].

Also in EA 8 the Kassite king denounces the attack of his caravans, the murder of his merchants, and the robbery of 'their silver' in the land of Canaan. The great king urges the Pharaoh for the punishment of the murderers, and for an economical compensation: "*My merchants, who traveled with Aḫu-tabu, remained in Canaan for their businesses*[40]*, after Aḫu-tabu continued to the presence of my brother. In the city of Hinnatuna in Canaan*, *Šum-Adda, son of Balumme, and Šutatna, son of Šaratum, of Akko, sent their men to kill my merchants and take their silver*. *I send you Azzu: ask him and he will inform you. Canaan is your land, and its kings are your servants. I was robbed in your land. Summon them and the silver they took; let them repay, and the people who killed my servants, kill them or compensate their blood! If you do not kill these men, they will go back and kill again either a caravan of mine or a messenger of yours and the* [*traffic of*] *messengers between us will be interrupted*"[41].

B. Lafont[42] confirms that in addition to the gifts they brought on behalf of their kings and those they took back in exchange, diplomats and merchants would receive personal presents in the form of garments, ornaments, weapons, metal objects and quantities of silver, the whole distributed according to extremely precise 'tariffs', based on quality and rank.

During the Late Bronze Age, the status of a merchant was that of a palace dependent[43]. But during the 13th century BCE, this relationship with the palace underwent some changes, and the merchants enlarged their private activities in order to increase their own profit[44]. According to M. Artzy[45], the period of transformation from the Late Bronze to the Iron Age was already slowly underway at least during the 13th and 12th centuries, if not earlier. Scrap metal, including bronze, became an attainable commodity for the sub-élites in the 13th-12th centuries BCE[46]. Nevertheless, the above mentioned texts and the archaeological evidence indicate that the changes were already in progress at the end of the Amarna Period.

36. Lit. *udē-šu*, i.e. "*his belongings*".

37. S.v. *târu*(*m*), in W. von Soden, *Akkadisches Handwörterbuch* (AHw), Wiesbaden 1981, vol. III, p. 1332.

38. S.v. *šullumtu*, in AHw, III, p. 1267; J.A. Brinkman, M. Civil, E. Reiner *et al.*, *The Assyrian Dictionary of the Oriental Institute of the University of Chicago* (CAD), Chicago 1992, vol. 17/3, Š, part III, pp. 242-243.

39. EA 7: 73-82.

40. S.v. *šīmātu*, in CAD, Š, part III, pp. 3-4.

41. EA 8: 13-33, in M. Liverani, *Prestige and Interest. International Relations in the Near East ca. 1600-1100 B.C.*, Padova 1990, pp. 97-98.

42. "International relations in the ancient Near East: The birth of a complete diplomatic system", *Diplomacy and Statecraft* 12/1, 2001, 49.

43. C. Zaccagnini, "The merchant at Nuzi", *Iraq* 39, 1977, 171-189; "Aspects of ceremonial exchange in the Near East during the late second millennium B.C.", in M. Rowlands, M.T. Larsen and K. Kristiansen (eds.), *Centre and periphery in the Ancient World*, Cambridge 1987, pp. 57-65; M. Liverani, "The collapse of the Near Eastern regional system at the end of the Bronze Age: the case of Syria", in Rowlands *et al.*, *Centre and periphery*, p. 69.

44. Liverani, *Collapse: the case of Syria*, p. 72.

45. "Nomads of the Sea", in S. Swiny, R.L. Hohlfelder and H.W. Swiny (eds.), *Res Maritimae, Cyprus and the Eastern Mediterranean from Prehistory to Late Antiquity*, Atlanta 1997, pp. 4-5.

46. M. Artzy, *The Jatt metal hoard in Northern Canaanite/Phoenician and Cypriote context*, Barcelona 2006, p. 20.

2. *The Hoard from Tell El-Amarna*

In 1930, a hoard was found at Tell El-Amarna dating from the end of the 18th dynasty. The hoard was buried in a small jar, closed with a saucer-lid[47], buried less than one foot below the modern surface, under the courtyard of house T.36.63 (in the North Suburb)[48]. It contained 24 bars of gold (about 20-24 cm long; weighing 237.6 to 286.53 g), 2 silver bars (about 20 cm long and 2-4.2 cm wide; weighing 287.95 and 479.2 g)[49], and 95 other items of silver, consisting of coils, scraps, and irregular pieces, some cut from vessels[50] and roughly-made earrings-crescent and silver rings[51].

The hoard includes a small silver figurine (2.86 cm; 11 g), now in the Egyptian Museum, Cairo (J 55408), which has been identified as Hittite[52]. A separate plate of silver has been attached to the feet to form a base. On the back is a worn metal ring, apparently also silver, 0.15 cm thick and 0.92 cm in diameter[53]. The piece must have reached Egypt through Levantine trade.

The hoard is divided between the Egyptian Museum, Cairo[54], and the British Museum, London (Plate 1)[55]. The total weight of the gold was 37 *deben* (ca. 3,375.36 g), and the total weight of the silver came to, at least, 12 *deben* (ca. 1,085.85 g)[56]. The bars and coils did not have a standard weight, but pieces were cut off to meet a specific demand, their weight, and accordingly value, determined by weighing. According to Bell and Černý[57], the ancient value of the hoard is quite astonishing. At the end of the 18th Dynasty, the hoard would have purchased about 129/172 head of cattle or 172 calves, and in the late 20th Dynasty, 43 men or 21 women[58].

The co-occurrence of ingots (whole or fragmentary), castings, scrap metal, slag, and miscellaneous (unidentifiable) pieces of metal, more obviously intended for re-melting than other categories of material, also indicates deposits valued for their metal content (as 'commodities'). Thus, these findings may be compared to the ingots and scrap found at Enkomi 'Foundry', Mathiati, Pyla, and Cape Gelidonya shipwreck during the 13th century BCE[59].

47. It is a "carinated globular jar with slight ring base and roll rim" type LVI/69, in T.E. Peet and C.L. Woolley, *The City of Akhenaten*, I, London 1923, p. 139, pl. 52.

48. The Amarna vessel, which contained the "Crock of Gold" hoard, is in the Cairo Museum (inv. J 55393), in H. Frankfort and J.D.S. Pendlebury, *The City of Akhenaten*, II, London 1933, p. 61, n. 1.

49. J.D.S. Pendlebury, "Preliminary report of excavations at Tell El-Amarnah, 1930-1931", *JEA* 17, 1931, 236.

50. Two cups, one with a "rope-like handle and thickened rim," and a "fluted vase", in Pendlebury, *JEA* 17, 1931, pl. 73.3.

51. 27 silver rings, three with "incised designs on the end", weighing 1.03 to 48.5 g; ten "spirally fluted rings", 1.47 to 9.5 g; two "earrings"-crescent, 3.62 g, and drop-shaped, 1.25 g, in M. Bell, "A Hittite Pendant from Amarna", AJA 90/2, 1986, 147.

52. "Hittite god in silver with a gold cap", in Frankfort and Pendlebury, *The City of Akhenaten*, p. 59, pl. 30/489; Pendlebury, *JEA* 17, 1931, 236, pl. 73.2, 4; E. Castle, "Shipping and Trade in Ramesside Egypt", *JESHO* 35/3, 1992, 255; Bell, *AJA* 90/2, 1986, 145-151, pl. 8, figs. 1-4.

53. Bell, *AJA* 90/2, 1986, 145.

54. Inv. J55393 (vessel); J55408 (silver figurine).

55. BM 68503; Reg. 1974,0223.1; Loc. G68/5/3/1 (gold and silver ingots, and silver scrap).

56. Frankfort and Pendlebury, *The City of Akhenaten*, pp. 59-61; pl. 43; B. Kemp, *Ancient Egypt, Anatomy of a Civilization*. London/New York 1993, pp. 244-246; fig. 82; P. Vargyas, "The Amarna Treasure and the Thief", in Z. Csabai (ed.), *From Elephantine to Babylon. Selected Studies of Péter Vargyas on Ancient Near Eastern Economy*, Budapest 2010, pp. 147-148.

57. Bell, *AJA* 90/2, 1986, 148; J. Černý, "Prices and Wages in Egypt in the Ramesside Period", *CdHM* 1, 1954, 906.

58. J.J. Janssen, "Prolegomena to the Study of Egypt's Economic History during the New Kingdom", *SAK* 3, 1975, 176.

59. B. Knapp, "Hoards d'oeuvres: of metals and men on Bronze Age Cyprus", *OJA* 7/2, 1988, 156.

Hoards of cut-up or folded jewelry and vessels are known from other sites in the Near East, as Ugarit, Tell el-'Ajjul, Megiddo, Gezer, Tel Miqne-Ekron, Beth Shean, Tôd, Tell Basta,Tell al-Deylam (Dilbat), and so on[60].

About the hoard found at Amarna, Bell[61] affirms that the gold and silver ingots, silver scrap, jewelry and vessels can reasonably be interpreted as the possessions of a metal-smith. The condition of the silver objects in the hoard, mostly crushed and/or cut into small pieces convenient for melting down, is strongly reminiscent of what may be seen in silversmiths' shops in Luxor today. Ancient Egyptian metal-smiths may have also melted down scrap into larger blocks for reworking and they could have worked at home[62]. The necessary tools were quite simple. Bell[63] concludes: "The Amarna hoard belonged to persons unknown but presumably Egyptians who were in the process of melting down miscellaneous silver objects into ingots, presumably for the manufacture of Egyptian items, and that Egyptian late 18th Dynasty sources of silver included Anatolian and probably Levantine manufactured goods".

Also, the large quantity of precious metal could also suggest that the hoard originally belonged to the workshop/treasury of a king or temple, where it was being processed[64]. But there is no archaeological evidence of tools or industrial fittings in the area excavated to support these hypotheses.

Since, however, the house in which the hoard was found seems to have been in a 'slum' and it contained no evidence for industrial activity; the material could have been a robber's loot[65]. Pendlebury[66] suggests that it must have formed part of a thief's loot, and that he had melted down all the gold and silver. According to Bell[67] the suggestion of Frankfort and Pendlebury that the hoard was a 'thief's loot' is not unreasonable, given its location in the 'courtyard of a hovel.' They saw the thief as working the metal: the gold had already been used (as the ingots have been cut), and the silver was being prepared- 'and then the end came'[68]. Nevertheless, Vargyas[69] believes that to prove this theory a thief must have hidden his tools with the raw materials as well.

We believe that a silver object or fragment, whatever its shape, had a value. Its placement in hoards alongside *Hacksilber* and ingots foregrounds its function as stored wealth. Since work generally adds value to metal beyond its intrinsic worth we might expect that the least refined pieces of jewelry often found their way into 'currency' hoards first[70].

60. For Ugarit: C.F.A. Schaeffer, "Les Fouilles de Minet-el-Beida et de Ras-Shamra: Troisième Campagne", *Syria* 13, 1932, 1; pl. 9; 16; *The cuneiform texts of Ras Shamra-Ugarit*, London 1936, p. 26; pl. 19. For Tell el-'Ajjul: F. Petrie, *Ancient Gaza* 4, London 1934, pp. 5, 7, 8; O. Negbi, *The Hoards of Goldwork from Tell el-'Ajjul*, Göteborg 1970, p. 23. For Tel Miqne-Ekron and Beth Shean: Thompson, *OJA* 22/1, 2003, 76-77. For Megiddo: G. Loud, *Megiddo II: Seasons of 1935-1939*, Chicago 1948, pl. 229. For Gezer: J.D. Seger, "Reflections on the Gold Hoard from Gezer", *BASOR* 221, 1976, 133-140. For Egyptian hoards, somewhat different in nature, cf. F. Bisson de la Roque, *Catalogue Générale des Antiquités Égyptiennes du Musée du Caire*, Trésor de Tôd, Nos. 70501-754, Cairo 1950; *Le Trésor de Tôd*, Cairo 1953; K.R. Maxwell-Hyslop, "A Note in the Anatolian Connections of the Tôd Treasure", *AnSt* 45, 1995, 248-249; W.K. Simpson, "The Vessels with Engraved Designs and the Repoussé Bowl from the Tell Basta Treasure", *AJA* 63, 1959, 29-45; Bell, *AJA* 90/2, 1986, 148, n. 29. For Tell al-Deylam (Dilbat): Ch. Lilyquist, "The Dilbat Hoard", *MMJ* 29, 1994, 8, 10, 17, 23-24.

61. *AJA* 90/2, 1986, 145, 150-151.

62. C. Aldred, *Jewels of the Pharaohs*, London 1971, p. 68; T.G.H. James, *Pharaoh's People*, Chicago 1984, pp. 183-186.

63. *AJA* 90/2, 1986, 151.

64. Aldred, *Jewels*, p. 67; C.R. Williams, *Catalogue of Egyptian Antiquities*, Nº 1-160, *Gold and Silver Jewelry and Related Objects*, New York 1924, p. 5.

65. Bell, *AJA* 90/2, 1986, 145.

66. Frankfort and Pendlebury, *The City of Akhenaten*, p. 61.

67. *AJA* 90/2, 1986, 151.

68. Frankfort and Pendlebury, *The City of Akhenaten*, p. 61; Pendlebury, *JEA* 17, 1931, 236, n. 2.

69. *Amarna Treasure*, pp. 150-152.

70. Thompson, *OJA* 22/1, 2003, 76.

In short, all items (except for the small silver figurine) were typical pre-coinage devices and were used as payment in transactions. The way of hiding them in a pot below floor level can be regarded as typical of difficult times, as during the end of Akhenaten's reign.

Three of the metal open rings in the El Amarna hoard are reported to have incised designs on their ends, perhaps to protect the integrity of the ring before the transactions. Rings or coils of valuable metals came to be milled around the edge[71]. Similar metal hoards have been found in several of the larger houses at Ugarit. They contained small ingots, open rings, pendants, coils, scraps, and irregular pieces cut from vessels of silver, electrum and gold[72].

There is no mention of charcoal or industrial fittings in the excavation records of the house to support the idea that the hoard could have contained the savings of a metal-smith[73]. But, the hoard could have belonged to a wealthy man or a merchant. Since most of the gold and silver objects were found broken, they could have been used in the economic circuit to obtain other goods.

Also, the 'Crock of Gold' was found in a courtyard of House T.36.63, in Quarter 7, SW, of the North Suburb of Amarna, so called because it lies to the north of the great buildings of the city center. H. Fairman[74] affirms the North Suburb was 'a middle-class business area and contains two very bad areas of slums with wretched houses, often little better than hovels, crowded together'. The southern part, where T.36.63 is located, 'appears to have been the quarter of merchants and traders and it is not impossible that the main quays of the city were situated at the river end of the wadi.' However, J. Janssen[75] has more recently described it as a normal residential area, much like that in the south: a mixture of rich and poor houses with some of the middle class. The possible merchant establishments are apparently only along one street.

The fairly well-defined context provides -as Bell[76] argues- further evidence of international connections in the Amarna period and a useful date for all the objects in the hoard. Perhaps, the hoard belonged to an Egyptian who was in the process of melting down miscellaneous silver objects into ingots, presumably for the manufacture of Egyptian items and exchange.

The 'crock of gold' found at Tell el-Amarna, filled with gold bars, silver fragments, and rings of silver, corresponds to the written descriptions of currency carried or stored in vessels, jars, and sacks. The written record also supports the hypothesis that seals were attached to precious metals in different parts of the Near East as a means of guaranteeing their composition[77].

During the 14th century BCE, an Amarna Letter from Burnaburiash, the king of Babylon, to Amenophis IV demonstrates that gold was sometimes sealed to verify its weight and purity: "*My brother should make a* [*personal*] *check, then my brother should seal and send it to me. Certainly my brother did not check the earlier* (shipment of) *gold that my brother sent to me. It was only a deputy of my brother who sealed it and sent it to me. When I pu*[*t*] *the 40 minas of gold that were brought to me in a kiln* [or cupel], *not* [even] [*10, I sw*]*ear, appear*[*ed*]"[78].

71. Frankfort and Pendlebury, *The City of Akhenaten*, p. 60; pl. 43, 4.
72. Schaeffer, *Syria* 13, p. 1; pl. 9; 16; *Ras Shamra-Ugarit*, p. 26, pl. 19; Castle, *JESHO* 35/3, 1992, 269, nn. 165-166.
73. Bell, *AJA* 90/2, 1986, 151.
74. "Town Planning in Pharaonic Egypt", *Town Planning Review* 20/1, 1949, 37.
75. "El-Amarna as a Residential City", *BiOr* 40, 1983, 281.
76. AJA 90/2, 1986, 151.
77. Thompson, *OJA* 22/1, 2003, 84.
78. EA 7: 63-72.

We do not know where the seal was applied in this instance; it may have been to ceramic vessels, cloth bags, accompanying tablets or something else. But, the text mentions a 'kiln', perhaps a 'cupel',[79] as this letter seems to describe the technique of cupellation by which base metals were removed from silver and gold.

In the 11th century BCE, Wenamun, an Egyptian official of the Temple of Amen at Karnak, left by sea to buy lumber in Byblos for the ceremonial barge of the god. The account we have from Wenamun tells a tale of adventurous wandering from city to city along the coast of Canaan and Phoenicia to Cyprus. A part of the material that he carried with him for payment is identified as gold and silver stored in a vessel, jars and sacks, with the value defined by weight: "*One vessel of gold, amounting to 5 deben; four jars of silver, amounting to 20 deben, and a sack with 11 deben of silver* […]. *Total: gold 5 deben, silver 31 deben*"[80].

According to R. Leprohon[81], the amount of precious metal carried by Wenamun should have been enough to buy thousands of cubic meters of wood, at least during the times of Egyptian power. In broad terms, Wenamun's 5 *deben* of gold were the equivalent of 600 *deben* of copper; while his 31 *deben* of silver were worth 1,860 *deben* of copper, a total of 2,460 copper *deben*[82]. This was a fortune for Wenamun, considering that the salary of a worker during late Ramesside times was the equivalent of about 11 *deben* of copper a month, and a scribe about 15 *deben* of copper. Leprohon[83] affirms: 'It is quite possible that only the bag containing the 11 *deben* of silver (ca 660 *deben* of copper) was meant to purchase the lumber, while the gold and silver vessels were to be distributed as gifts', emphasizing the fact that the silver vessels were worth the same -5 *deben*- as the gold vessel[84]. We agree with Leprohon that the sack of silver was used to purchase the lumber. Scrap metal was often stored in a sealed sack, and used in transactions. But we believe that the gold and silver vessels were probably used in transactions as well, precisely because each one of the silver vessels was worth the same as the gold vessel. This equivalence between the value of gold and silver may be attributable to a shortage of silver or, most likely, because the gold contained in the vessel was poor scrap.

Here we have vivid documentation of payments made in a pre-monetary kind of currency, perhaps as gold and silver ingots and/or rings, stored in jars and sacks, the value determined by weight[85]. The tale reflects a clash between a new price-based system and an older, state-run and tribute-based one[86].

Archaeological evidence indicates that copper and silver ingots were frequently broken up into small pieces and packed into sealed bags[87]. The 34 Iron Age hoards from Cisjordan contained at least 33 bundles of silver wrapped in cloth, but most have not survived time or excavation well. Bundles of linen-wrapped silver or 'money-bags' were found at Tel Dor, Tell Keisan, and Beth Shean (in Israel); and one made of

79. It is a porous vessel made of clay or bone ashes designed to absorb base metals as oxides and leave behind purified silver and gold (Thompson, *OJA* 22/1, 2003, 85, n. 25).

80. *Wenamun* I: 10-12, in M. Lichtheim, *Ancient Egyptian Literature*. II. *The New Kingdom*, London 1976, p. 225.

81. "What Wenamun Could Have Bought: the Value of his Stolen Goods", in G.N. Knoppers and A. Hirsch (eds.), *Egypt, Israel, and the Ancient Mediterranean World*: *Studies in Honor of Donald B. Redford*, Leiden 2004, pp. 167-169.

82. Janssen, *SAK* 3, 1975, 155.

83. *Wenamun*, p. 167, n. 5.

84. cf. C. Zaccagnini, "Ideological and Procedural Paradigms in Ancient Near Eastern Long Distance Exchanges: The Case of Enmerkar and the Lord of Aratta", *AFo* 20, 1993, 37.

85. Balmuth, *WoAr* 6/3, 1975, 295.

86. Ch. Monroe, "Money and Trade", in D. Snell (ed.), *Companion to the Ancient Near East*, Oxford 2005, pp. 155-156.

87. Derckson, *Old Assyrian Copper Trade*, pp. 25, 41, 60.

'textiles for wrapping' at Old Babylonian Larsa[88]. In several cases, bullae were used to lock the little sacks, and indicate their weights. There are indications that bullae were sometimes attached to the bundles by ropes or strings, but they could have been placed on accompanying tablets in other instances[89].

3. *Conclusions*

During the 14th century BCE, the gold and silver hoard from Tell El-Amarna, stored in a jar, by a merchant or wealthy Egyptian, reflects the existence of a kind of pre-monetary currency, used as payment in transactions. The metal hoard corresponds to the written descriptions in the Amarna Letters of silver and scrap metal carried or stored in jars and sacks.

During the 11th century BCE, the gold and silver stored in a vessel, jars and sacks, mentioned in the Tale of Wenamun, reflects another example of the well known clashes between a new price-based system and an older tribute-based one.

The cargoes of both ships, Uluburun and Cape Gelidonya, reveal the forms of payments (such as small copper ingots, fragments of gold and silver artifacts, and scrap bronze tools), used ca. 1300-1200 BCE. Small copper ingots ('slab' ingots), gold bars, silver rings, small pieces of metal ('lump'), fragments taken deliberately from gold and silver artifacts, and bronze tools ('scrap'), and silver coils could illustrate different examples of the decisive moment when a piece of metal exchangeable by weight is transformed into a pre-monetary kind of currency. The captain of the Cape Gelidonya ship had in its cabin small ingots of copper and scrap metal, used as a mean of exchange in his transactions[90].

The 'gold and silver crock' of El Amarna corresponds to the archaeological evidence in the Late Bronze and Early Iron Ages that indicates that copper and silver ingots and metal objects were frequently broken up into small pieces and packed into sealed bags or stored in jars for exchange in the Levant.

Finally, the textual and archaeological evidence mentioned above indicates the changes underwent by the systems and means of exchange throughout the Eastern Mediterranean at the end of the Late Bronze Age. Although recycling was not a new practice, it became much more widespread. Copper, silver, gold and bronze were exchanged by independent merchants in small quantities. The centralized élites, who were obtaining metals, in bulk talent-sized, were slowly displaced by individuals or small groups of merchants, who exchanged small scraps of metal for other goods and increased their profits through the accumulation of metals. Written sources and archaeological finds reflect the carrying and storage by merchants or wealthy individuals of scrap metals in vessels/jars and sacks/bags, indicating a new price-based system. Scrap metal became a reasonable commodity for sub-élites from at least ca. 1350/1300 BCE.

88. E. Stern, "Buried treasure, the silver hoard from Dor", *BAR* 24/4, 1998, 48 (Tel Dor); E. Nodet, "Le trésor du Loc. 635", in J. Briend and J.B. Humbert (eds.), *Tell Keisan (1971–1976): Une Cité Phénicienne en Galilée*, Fribourg 1980, p. 325 (Tell Keisan); Thompson, *OJA* 22/1, 2003, 80, fig. 13 (Beth Shean); J. Bjorkman, "The Larsa 'goldsmith's' hoards – new interpretations", *JNES* 52, 1993, 1–23 (Larsa).

89. Thompson, *OJA* 22/1, 2003, 86.

90. G. Gestoso Singer, "El barco naufragado en Uluburun y el intercambio de bienes en el Mediterráneo Oriental", *Davar Logos* 7/1, 2008, 25.

El Amarna Hoard
Plate 1