

IRANIAN ART
High Relief Decoration on Ancient Iranian Metal Vessels:
Development and Influence

By: P. R. S. Moorey

Hammered high relief decoration worked in *repoussé* is recurrent among the most spectacular metal objects from sites in Crete and Cyprus, in the Aegean and Greece, and in Italy, occupied in the Orientalizing Period of the eighth and seventh centuries BCE.[1] It is particularly characteristic of the bronze shields from the Idaean Cave in Crete,[2] of the scattered bronze horse-harness fittings[3] and, above all, of the hammered sheetbronze protomes for cauldrons made most often in the shape of griffin heads, but also including those of bulls, lions and sirens.[4] The continuing rarity of comparable objects from controlled excavations in the Near East ensures enduring controversy over where particular objects may have been made and by whom, and over what does or does not belong to particular local schools of metalworking.[5] But there is agreement over the Near Eastern origin of this technique, since it may be traced back to isolated Iron Age artefacts from excavations in Syria[6] and includes examples bearing West Semitic inscriptions among those found in the West.[7]

However, these objects are all decorated fittings for horse-harness. They do not throw any direct light upon the ultimate origin of the hammered protomes. Were they, or at least was this form, of Near Eastern origin or was it a western development of age-old oriental motifs already long established both in East and West? This paper attempts to trace the history of high relief decoration on sheet metal vessels in Iran, the only region of the Near East where it may at present be documented more or less continuously from the late prehistoric period into the Iron Age.

Such an inquiry requires an initial word of caution. Only one of the objects discussed here has been the subject of exhaustive laboratory examination (see note 9). Thus important structural features have been assessed by eye, either by the author of the original publication or by me. Repousse decoration is a technique through which a design is hammered up from the reverse of a piece of sheet metal, so that it appears on the obverse in relief of varying height. It is normally executed with a blunt tool against a yielding surface. Detail is chased or engraved on the surface.

1. Elamite Precursors ca. 3000-2250 BCE

The dexterity and imaginative vigour of Iranian metalworkers in shaping sheet metal is apparent early, though its most spectacular exemplar at this stage has no recorded source. Fortunately its style and imagery are distinctive. In the Metropolitan Museum, New York, there is a hollow sheet-silver figurine of a bovid seated in a human attitude holding a spouted vase (fig. 1).[8] It is typical of the style and imagery, on cylinder seals and in small stone sculpture, of the ProtoElamite Period, ca. 3100-2750 BCE, when, for a brief period, animals in



Fig. 1. Silver kneeling bull holding a spouted vessel, Iran, ca. 2900 BCE ("Proto-Elamite"). 16.3 cm high. Photo: Reproduced by courtesy of The Metropolitan Museum of Art, Purchase, Joseph Pulitzer Bequest, 1966, 66.173. (Click to enlarge)

human attitudes enjoyed a popularity very rarely encountered thereafter. "The hollow figurine is made up of fifteen, and possibly seventeen, pieces of flat silver that were rolled into the approximate rounded shapes, scarf joined by overlapping the metal, and then soldered along the lap Though the general shape was not executed by raising, there are tool marks inside the body and the head."^[9] This figurine illustrates two enduring characteristics of Iranian metalworking: a fine sensitivity in rendering animal forms, often touched by a degree of fantasy, and a technical mastery of modelling whether, as here, in working sheet metal with a hammer and a blunt tool or, as elsewhere, in making wax models for casting.

True *repoussé* technique is evident in another silver vessel without secure provenance, attributed to Fars, in the Archaeological Museum in Teheran.^[10] This is a tall cylinder with a Linear Elamite inscription in an encircling band just below the rim. On one side in high *repoussé* stands a woman in an elaborately fleeced dress; on the other a woman similarly dressed, but with a prominent triple necklace, squats on the lower edge. Their richly patterned garments, with detail chased or engraved on the surface, introduces another trait which was to be recurrent in Iranian sheet metalwork. The body surfaces, notably of animals, are richly patterned with elaborations of natural forms or in formal geometric designs. The imagery of cylinder seals found in excavations at Tepe Malyan (ancient Anshan) in Fars indicates that this silver vessel belongs to what has been defined as the Kaftari phase at the Elamite capital, in the last quarter of the third millennium BCE^[11]



Fig. 2. Copper alloy bowl decorated with a lion attacking a bull, Tepe Hissar, Iran, ca. 2200-2000 BCE 25.5 cm diameter. Photo: Reproduced by courtesy of the University Museum, University of Pennsylvania. (Click to enlarge)

2. An Early Bronze Age Tradition: Shahdad and Hissar ca. 2250-2000 BCE

By this time, when the first firm archaeological basis for the study of high relief decoration on vessels in Iran becomes available, the technique was used by craftsmen working in copper, servicing a demand wider than that of the courts or temples which the silver examples just described had satisfied. At this period the technique is documented by a series of shallow circular bowls with flat broad bottoms and low, slightly flaring, vertical sides. On the bottoms, designs were raised by hammering the metal up from below so that the motifs appear in various degrees of relief on the inside of the bowl. Over fifty years ago an example of this group of vessels in copper was found in the "Burnt Building" at Tepe Hissar in northwest Iran attributed to level IIIB (fig. 2). It was associated with plain vessels in gold, silver and copper.^[12] In the centre of the bottom a lion preys on a bull. The lion is rendered with its neck and head in high three-dimensional relief, whilst the rest of its body and the bull are in low relief. For years, save for an example attributed to "Luristan" in the David Weill Collection,^[13] this bowl was an isolated witness to the skill of Iranian metalsmiths using sheet copper at the end of the Early Bronze Age.

Then, during excavations at Shahdad, 120 kilometres northeast of Kerman, in the late 1960s and early 1970s, a number of examples of comparable bowls were recovered from graves attributed to the last quarter of the third millennium BCE^[14] The zoomorphic designs on the bowls, and on a number of others circulated through the antiquities market, include animals of prey, bovids, cervids, fish, snakes and birds; a glimpse of that love of motifs drawn immediately from the natural world characteristic of craftsmen in ancient Iran. The height of these designs varies, sometimes achieving a full three-dimensional effect, as with the recumbent bovid on the bowl in the David Weill Collection (now Louvre AO 24797), at other times barely rising above the level of the base, as with swimming fishes on a bowl from Shahdad.^[15] In some cases eyes were inlaid with stone. Whether, as Amiet argued,^[16] the Hissar bowl was an import from workshops in the Kerman area or whether production of such bowls was more widely spread through central and eastern Iran is an open question. Certainly, there is no reliable evidence at present for such vessels being made in western Iran, or beyond in Mesopotamia.

However, the situation further east may be indicative of manufacture in a number of workshops over a wide area. There are examples of this type of bowl in the literature, from unknown sources,[17] that have stylistic traits distinct from those found in graves at Shahdad. They may be more readily matched among designs on vessels, in metal and stone, said to be from plundered graves in Afghanistan (Bactria").[18] One or two overland routes for long distance exchange, always restricted by natural obstacles in this part of the world, at this time linked Kerman with both northeast Iran and also, further east, with Bactria, source of desirable semi-precious stones and metals like gold, silver and tin. The exchange systems active in the late third and early second millennia BCE facilitated the spread of artistic and technological information as much as the passage of semi-processed raw materials and manufactured goods, largely explaining the unusually extended range of intercultural traits at this time.[19]



Fig. 3. Copper alloy breastplate for a horse, Hasanlu (level IV), Iran, ca. 900-800 BCE 42.8 x 20.2 cm. Photo: Reproduced by courtesy of the University Museum, University of Philadelphia. (Click to enlarge)

3. Iron Age Traditions: Marlik, Hasanlu and "Ziwiye" ca. 1350-700 BCE

Unfortunately, archaeological knowledge of this vast area of eastern Iran and adjacent regions in the Middle and Late Bronze Ages remains minimal, so that it is not yet possible to trace the development of craft techniques locally through into the Iron Age. The metalwork of western Iran at this time is also relatively unknown by comparison with what had gone before in the third millennium and what was to follow in the Iron Age. However, textual references may indicate the prevalence of sheet-metal vessels in Iran on which high relief decoration continued to be popular. In the texts from the palace at Mari on the Middle Euphrates in Syria dating to the eighteenth century BCE, there are references to metal drinking vessels in the shape of animal heads, "of *Tukrish*," indicating their origin or a style associated with *Tukrish*. [20] Well documented in the Iron Age, surviving metal animal-headed rhyta are rare in the Bronze Age, though pottery versions are not uncommon throughout the region. [21] The exact location of *Tukrish* is not known for certain, but it lay within Iran, perhaps somewhere in the northwest of the country with access to the "Great Khorasan Road," the primary overland route for trade between East and West. In the third millennium BCE, *Tukrish* was renowned in Mesopotamia as a source of gold and lapis lazuli and in the later second millennium BCE for distinctive gold personal ornaments and for textiles. [22]

It is possible that the remarkable vessels in precious metals found at Marlik Tepe during Negahban's excavations in 1961-1962 [23] are a later aspect of the still unidentified repertory of metalsmiths in *Tukrish*. Be that as it may, these vessels illustrate the range of repoussé decoration current from Iron I to the transition from Iron II to III (ca. 1350-700 BCE) in western Iran. Their chronology remains controversial in the absence of a systematic publication of the excavated tomb groups. Stylistic comparisons [24] and the evidence of associated cylinder seals [25] together indicate that an early group belongs to Iron I, beginning in the second half of the fourteenth century BCE, whilst a later one belongs to the first quarter of the first millennium BCE. These comparisons also highlight the varied cultural influences under which the manufacturers worked, at least for the earlier group, when Middle Elamite, Middle Assyrian and Kassite, as well as local, traits are evident in their style and imagery, explaining why it is virtually impossible, in the absence of comparable vessels from elsewhere, to decide whether any are imports from the West. The present weight of evidence favours production within Iran for them all.

In the graves which may be attributed to Iron I at Marlik are one or two vessels relevant to this survey. The most spectacular is a tall goblet of gold from grave 26, decorated with winged ram pant bulls, their heads turned outwards, rendered in high relief, with ears and horns fitted separately. [26] From grave 52, which also contained unbridged spouted vessels typical of iron I, comes a badly damaged gold goblet on which winged demons and sphinxes rampant are shown in combat, their heads rendered in relief, but not projecting out from the surface as in the previous example. [27] A gold bowl decorated with spread-winged eagles threatening rams passant has all the heads rendered in high relief, though again not freestanding. It was in tomb 36, a chronologically controversial context. Muscarella [28] has taken the bronze fibula found in this tomb to indicate that this "was closed not earlier than the late 8th century, and possibly in the 7th century BCE" Howes-Smith [29] attributes a simply decorated gold bowl also found in this tomb to the ninth century BCE, whilst Haerinck [30] has pointed out that tomb 36 may be an example of a grave first used in Iron I, then used again in iron III; the difficulty being to distinguish the burial goods of each use one from the other.

Tomb 32 at Marlik contained both a gold bowl, decorated with standing eagles, their heads turned forwards to stand out from the surface, and a very distinctive type of bronze spouted vessel, with a frieze of lions passant, their heads projecting in three-quarter view from the surface. The spout projects from the mouth of a lion, its head rendered three-dimensionally. [31] In the same grave were bronze cauldrons and spouted vessels of types paralleled in cemetery B at Tepe Sialk, suggesting an Iron II/III dating. [32] Taken together, these vessels indicate an extended fashion in northwest Iran with which many vessels reported through the antiquities market in the last thirty years have been associated. At least one, whose authenticity has not been seriously doubted, has lions passant round the sides, their heads separately attached and projecting forwards from the surface. [33]

The more recent group of vessels at Marlik is contemporary with examples of high relief decoration in base metal from the destruction level of Hasanlu IVB, where high repousse work is most spectacularly evident on a bronze breastplate for a horse, showing the upper part of a helmeted human figure projecting dramatically between two bulls, their heads turned forward (fig. 3). If it is all hammered up from a single metal sheet, it is a masterpiece of the art of repousse, but this has not yet been conclusively established. [34] Other harness fittings, vessels, rhyta and belt buckles in sheet bronze display a recurrent use of high relief to give dramatic frontal projection. [35] It is only through the few surviving animal-headed rhyta that this skill with sheet metal may be more widely tracked in the ancient Near East in the eighth and seventh centuries BCE [36] when a number of centres were manufacturing such vessels.

The vitality of a taste for vessels with animal friezes rendered in prominent relief throughout western Iran was illustrated in the excavations at Susa by the most remarkable example of all, this time in bronze (fig. 4). It is decorated with two registers. In the upper, four recumbent bovids encircle the vessel; in the lower, four horses or onagers passant. In both cases the bodies are shown in high relief with the necks and heads projecting prominently from the surface. [37] It is not known exactly where in the French excavations at Susa this vessel was found, so its date is usually set by its similarity to the vessels in precious metal found at Marlik in the early Iron Age; but whether it came from a workshop in northwest Iran or was made in Elam remains uncertain. The recent appearance, through the antiquities market, of a silver vessel very like it, but with bulls *passant* above recumbent bulls, and a small pedestal foot, does little to resolve the question, [38] save



Fig. 4. Copper alloy vase decorated with animal friezes, Susa, Iran, ca. 1200-1000 BCE 11.5 cm high. Photo: Reproduced by courtesy of the Louvre, Paris. (Click to enlarge)



Fig. 5. Silver and gold beaker decorated with bulls in high relief, Iran, exact source unknown, ca. 1200-1000 BCE 12.9 cm high. Photo: Reproduced by courtesy of the Shelby White and Leon Levy Collection (photograph by Sheldon Collins). (Click to enlarge)

that the addition of a separate sheet gold band with a double guilloche round the rim and a six-petalled rosette incised on the base are features closely paralleled on the Marlik gold vessels (fig. 5). It is reported in both cases that the heads and necks, worked completely in the round, were made separately and then skilfully fitted to the surface of the vessel.

The Archaeological Museum in Teheran possesses two detached sheet-gold griffin heads (7-8 cm high; 4.5 cm wide) and two detached sheet-gold lion heads (5.6 cm high; 4.5-7 cm wide), which have been associated with the notorious "Treasure of Ziwiye" since its first publication.[39] They were identified by Ghirshman as fittings for a cauldron.[40] So far there is no evidence of such sheet-metal fittings on cauldrons in Iran, though they might perhaps have been attached to vessels with high relief designs and projecting heads, like those from Marlik. Their date is an open question; sometime in Iron III (ca. 800-600 BCE) seems most probable. Amandry[41] drew one of these griffin heads into the debate about the source of the hammered bronze griffin heads found in the West, regarding the number of shared characteristics as strong evidence for some kind of relationship. "On conviendra que ces variantes de détail ne comptent guère, en face de tant d'analogies fondamentales."

It was also Amandry[42] who noted the significance of the cores of bitumen and sand inside a number of the hammered protomes found in the West, recognizing it as an eastern, not a western, trait, identified first by Layard in the Neo-Assyrian hammered zoomorphic bronze terminals he found at Nimrud.[43] Amandry cited an analysis of such a core: "fame d'une protome de lion, trouvee a Olympie, contient 27.60% d'asphalte, 31 % de sable, 10.14% de chaux, 4.87% de glaise, 2.67% de magnesie." [44] This mixture, poured in liquid, served to reinforce the high relief hammered sheet metal when it hardened. It was not a core over which the design was formed. Comparable mixtures were used in animal-headed rhyta in the Near East, some at least of which had an inner cup set in the bitumen; but bitumen cores have not been observed within the high relief on the goblets and bowls from Iran considered here.

Bitumen was, however, a material traditionally favoured by craftsmen in Khuzistan (Susiana), where it was locally available and used in a variety of forms. A series of "Middle Elamite" decorative roundels of the fourteenth or thirteenth centuries BCE found at Susa and Haft Tepe, as well as in clandestine excavations at unknown sites, are instructive examples of bitumen used as cores, with the design cut into them and then plated with leaf metal of silver or gilded silver.[45] Amiet reports an analysis of one of these cores as "un mélange appelé *bitume sdiceux*, qui diffère d'un 'mastic' par sa faible teneur en carbonate de calcium et par l'association du bitume pur a du sable fin." [46] An example in the Louvre has a lion's head projecting in high relief from the centre, surrounded by a floral *cloisonné* design (fig. 6)[47] such lion heads were later to appear at the centre of disk-headed pins in Luristan[48] and as shield bosses in Assyria and elsewhere,[49] forming a distinctive aspect of the use of high *repoussé* work in the East that is to be found also in the orientализing shields of the West.[50]



Fig. 6. Lion-head roundel of bitumen with silver gilt overlay, Iran, exact source unknown, ca. 1400-1250 s.c. 8.3 cm diameter. Photo: Reproduced by courtesy of the Louvre, Paris. (Click to enlarge)

4. From East to West

Irene Winter[51] has shown how a "consonance of motifs suggests that not only across media, but also across polities of the Ancient Near East in this period [ninth to eighth centuries BCE], there was a shared culture of appropriate imagery associated with specific classes of object." There was also a shared technology, as comparisons between metalwork from Hasanlu IVB, from the royal palaces of Assyria and from sites in Syria and Anatolia exemplify. The products of workshops throughout this wide area passed back

and forth within it as booty or tribute, as gift exchanges or traded goods, in the first quarter of the first millennium BCE, in retrospect obscuring centres of production. Examples of metalwork manufactured in western Iran certainly reached the Aegean at this time^[52] but so did much else from intervening regions. It is the two traits highlighted here, the use of high relief hammered decoration on metal vessels, including the separate attachment of three-dimensional heads, and the use of bitumen cores to support exceptionally high relief, that indicate an Iranian connection more comprehensively than the random survival of Iranian metal objects in the West.

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Notes:

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- [1] In general, see J. Boardman, *The Greeks Overseas* (London, 1980/, pp. 64-71.
- [2] For the primary account, see E. Kunze, *Kretische Bronzereliefs* (Stuttgart, 1931).
- [3] . For a listing up to 1970, see O. W. Muscarella, "Near Eastern Bronzes in the West: The Question of Origins," in *Art and Technology: A Symposium on Classical Bronzes*, ed. S. Doeringer et al. (Cambridge, Mass., 1970/, pp. 109-28, esp. 116ff.; see also I. J. Winter, "North Syria as a Bronzeworking Centre in the First Millennium B.C", in *Bronzeworking Centres of Western Asia c. 1000-539 BCE*, ed. J. Curtis (London, 1988/ (hereafter BCWA/, pp. 193-225.
- [4] For the basic study, see H. V. Herrmann, *Die Kessel der orientalisierenden Zeit*, *Olympische Forschungen* 6 (Berlin, 1966/; for important discussion of griffin protomes as oriental imports, see S. Fillipakis et al., "Bronzes grec et orientaux: Influences et apprentissages," *BCH* 107 (1983/, pp. 111-32.
- [5] See Curtis, BCWA.
- [6] See H. Kantor, "A Bronze Plaque with Relief Design from Tell Tainat," *INES* 21 (1962/, pp. 93-117.
- [7] Cf. H. Kyrieleis and W. Rollig, "Ein altorientalischer Pferdeschmuck aus dem Heraion von Samos," *MDAI, Athenische Abteilung* 103 (1988/, pp. 37-75; D. Parayre, "Apropos d'une plaque de hamais en bronze decouverte a Samos. . . .", *RAAO* 83 (1989/, pp. 45-51.
- [8] D. Hansen, "A Proto-Elamite Silver Figurine in the Metropolitan Museum of Art," *Metropolitan Museum Journal* 3 (1970/, pp. 5-26.
- [9] K. Lefferts in Hansen, "A Proto-Elamite Silver Figurine," p. 15.
- [10] W. Hinz, *Altiranische Funde und Forschungen* (Berlin, 1969/, pp. 11-44.
- [11] Cf. P. Amiet, *L'dge des echanges inter-iramens 3500-1700 avant J.-C.* (Paris, 1987/, p. 157, pl. 110.
- [12] E. Schmidt, *Excavations at Tepe Hissar, Damghan* (Philadelphia, 1937/, fig. 112; cf. R. H. Dyson and S. M. Howard, *Tappeh Hesar: Reports of the Restudy Project 1976* (Florence, 1989/.
- [13] P. Amiet, *Collection David Weill: Les antiquites du Luristan* (Paris, 1976/, no. 21 (colour plate/; Amiet, *L'dge des echanges inter-iraniens*, p. 164, n. 7, cites further examples from the antiquities market.
- [14] A. Hakemi, *Catalogue de Pexposiition LutXabis (Shadad) (Teheran, 1972/, nos. 252-53 (colour plate/; A. Hakemi and S. M. S. Sajjadi, "Gli scavi di Shahdad nel contesto della civiltà delle oasi," in *Battmana: Una antica civiltà delle oasi delle sabbie dell' Afghanistan*, ed. G. Ligabue and S. Salvatore (Venice, 1988/, fig. 3; P. Amiet, "La civilisation du desert de Lut," *Archeologia* 60 (July 1973/, p. 27; idem, "Antiquites du desert de Lut-II," *RAAO* 70 (1976/, p. 5, fig. 9.*
- [15] Hakemi and Sajjadi, "Gli scavi di Shahdad," fig. 3, left.
- [16] Amiet, *L'dge des echanges inter-iraniens*, p. 164.
- [17] H. Pittman, *Art of the Bronze Age: Southeastern Iran, West Central Asia, and the Indus Valley* (New York, 1984/, fig. 6; Amiet, *L'dge des echanges inter-iraniens*, p. 164, fig. 122 (as "Lut")
- [18] Pittman, *Art of the Bronze Age*, p. 27.
- [19] Amiet, *L'dge des echanges inter-iraniens*, passim.

- [20] S. Dunham, "Metal Animal Headed Cups at Mari," in *To the Euphrates and Beyond: Archaeological Studies in Honour of Maurits N. Van Loon*, ed. O. M. C. Haex et al. (Rotterdam, 1989), pp. 213-20.
- [21] K. Tuchelt, *Tiergefsdsse in Kopf- and Protomengestalt* (Berlin, 1962).
- [22] A. Michalowski, "Magan and Meluhha Once Again," *Journal of Cuneiform Studies* 40 (1988), pp. 156-64.
- [23] E. O. Negahban, *A Preliminary Report on Marlik Excavation* (Teheran, 1964).
- [24] E. Porada, "Iranische Kunst," in W. Orthmann, *Der alte Orient* (Berlin, 1975), p. 372.
- [25] P. Amiet, "Autour de Marlik," in *Archaeologia Iranica et Orientalis: Miscellanea in honorem Louis Vanden Berghe*, ed. L. de Meyer and E. Haernick (Ghent, 1989/), pp. 311-22; idem, "Marlik and Tchoga Zanbil," *RAAO* 84 (1990/), pp. 44-47.
- [26] E. O. Negahban, *Metal Vessels from Marlik* (Munich, 1983/), no. 8, (hereafter MVM/), plates in colour on pp. 34-36.
- [27] *Ibid.*, no. 15, colour plate on p. 47.
- [28] *Ibid.*, no. 11, colour plate on p. 38; O. W. Muscarella, "Fibulae and Chronology, Marlik and Assur," *Journal of Field Archaeology* 11 (1984/), p. 416.
- [29] P. H. G. Howes Smith, "A Study of 9th-7th Century Metal Bowls from Western Asia," *IA* 21 (1986), p. 20.
- [30] E. Haerinck, "The Iron Age in Guilan: Proposal for a Chronology" in *BCWA*, p. 65.
- [31] MVM, no. 13, colour plate pp. 40-41; no. 57, colour plate p. 52.
- [32] Cf. R. Ghirshman, *Fouilles de Sialk*, vol. 2 (Paris, 1939/), pls. XXIII-IV.
- [33] E. Porada, *Ancient Iran: The Art of Pre-Islamic Times* (London, 1965), fig. 61.
- [34] I. Winter, *A Decorated Breastplate from Hasanlu, Iran*, University Museum monograph 39 (Philadelphia, 1980/), figs. 1, 17-31.
- [35] *Ibid.*, figs. G4-67, 69-71.
- [36] Cf. P. Calmeyer, "Zum Tongefass in form eines Gazellenkopfes," in W. Kleiss, *Bastam*, vol. 1 /Berlin, 1979/), pp. 195-201, pls. 45-47.
- [37] P. Amiet, *Elam* (Paris, 1966), fig. 356; *Suse: 6000 ans d'histoire* (Paris, 1988), pl. 61.
- [38] D. von Bothmer, ed., *Glories of the Past: Ancient Art from the Shelby White and Leon Levy Collection* (New York, 1990/), no. 35.
- [39] A. Godard, *Le tresor de Ziwiye, Kurdistan* (Haarlem, 1950/), fig. 30; R. Ghirshman, "Le tresor de Sakkez, les origines de Part mede et les bronzes du Luristan," *ArtAs* 13 (1950/), pp. 191-92, pls. 15-16; cf. O. W. Muscarella, "'Ziwiye' and Ziwiye: The Forgery of a Provenience," *Journal of Field Archaeology* 4 (1977), pp. 197-219; for recent bibliography see B. Goldman, "Ziwiye Miscellany," *BAI* 3 (1989), pp. 1-13.
- [40] R. Ghirshman, *Persia from the Origins to Alexander the Great* (London, 1964/), pls. 138-39 (colour).
- [41] P. Amandry, "Objets orientaux en Grece et en Italie aux VIIIe et VIIe siecles avant J.-C.," *Syria* 35 (1958), pp. 91-92, pl. VII-c.
- [42] *Ibid.*, pp. 85-86.
- [43] A. H. Layard, *Discoveries in Nineveh and Babylon* (London, 1853), p. 199.
- [44] Amandry, "Objets orientaux en Grece et en Italie," p. 86.
- [45] P. Amiet, "Appliques iraniennes," *Revue du Louvre* 27 (1977/), pp. 63-69; cf. use of bitumen and precious metal overlays for pins: P. de Miroshedji, "Note d'orfèverie neo-elamite," in *Melanges Jean Perrot* (Paris, 1990/), pp. 181-94.
- [46] *Ibid.*, p. 64.
- [47] *Ibid.*, fig. 7.
- [48] P. R. S. Moorey, *Catalogue of the Ancient Persian Bronzes in the Ashmolean Museum* (Oxford, 1971), p. 209.
- [49] B. Hrouda, *Die Kulturgeschichte des assyrischen Flachbildes* (Bonn, 1965), pl. 23-23.
- [50] Cf. J. Boardman, *The Greeks Overseas*, fig. 27.
- [51] In *BCWA*, p. 197.
- [52] P. R. S. Moorey, "Ancient Persian Bronzes from the Island of Samos," *Iran* 12 (1974/), pp. 190-95.

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