

CHAPTER TWENTY-EIGHT

THE INDUSTRY OF VITREOUS MATERIALS IN ELAM

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In the introduction to his seminal work, Pierre Amiet in 1966 highlighted “the fundamental originality” of Elam (Amiet 1966: 24), an entity whose chronological and geographical boundaries were still to be detailed. At that time, Elamite civilization was primarily documented through excavations conducted at Susa, Choga Zanbil and Haft Tepe, supplemented by Elamite and Mesopotamian cuneiform sources. This originality results firstly from its unique alliance of complementary territories, the Susiana Plain on one side and the mountainous hinterland of Iran’s southwest on the other, and secondly from its material culture which, although regularly subject to the influence of its Mesopotamian neighbours, outlines the contours of a consistent cultural community. The industry of glass materials, which expanded in the second half of the second millennium BC and was nourished by Syro-Mesopotamian innovations while adapting to new media and new functions, certainly epitomizes one of the superior facets of Elamite culture.

Considered as vitreous materials are all artificial materials entirely or partially vitrified, namely, besides glass, all objects covered with vitreous glaze, whatever the nature of their media: soft rock, siliceous paste or a clay paste. The nature of these materials, which poorly resist the conditions of burial, has long represented a hindrance for archaeologists. In 1994, Roger Moorey deplored the lack of research on these materials as well as the wide disparities between terminologies used in the archaeological literature, terminologies which vary from one language to another (Moorey 1994: 166). This lacuna has been largely filled in the course of the past two decades, particularly in the context of research specifically dedicated to siliceous paste.

Pierre Amiet’s publication (1966; 1967) and 20 years later Suzanne Heim’s (1989) doctorate devoted to Elamite glazed architectural decoration, as well as the important work of Moorey, can be regarded as precursors. Subsequently, the development of research programs dedicated to vitreous materials and the development of archaeometry opened the way for the exploration of new problems, in particular the identification of raw materials, techniques and their circulation and transfer. In the early 2000s, the department of the Near Eastern Antiquities in the Musée du Louvre and the *Centre de Recherche et de Restauration des Musées de France* led major campaigns

of scientific analyses of vitreous material in the collections department (Caubet et al. 2007). A temporary exhibition *Faïences antiques, de l’Égypte à l’Iran* (Caubet and Pierrat Bonnefois 2005) allowed the observation of this production on a larger scale under the prism of Egyptian and Mesopotamian production. The important work led by M.S. Titus and A.J. Shortland at Oxford University has also shed light on this specific production.

Before exploring the peculiarities of Elamite production using examples from the sites of Susa, Choga Zanbil, Haft Tepe and Anshan (Tell -i Malyan), integrated into the wider context of vitreous material industry in the Near East, we will first outline the terminology now unanimously accepted to describe the different types of materials that are the subject of this review.

With the exception of glazed baked clay, vitreous materials are made from similar, easily accessible, ingredients: sand, quartz powder and plant ash provide their main components, namely, silica, lime, soda and potash. They only differ in recipes and proportions. However, to manufacture these synthetic materials requires specialized craftsmen with highly developed skills, able, among other competences, to control high temperatures. As such, objects in vitreous materials have long been considered objects of prestige and ceremony. The following development explores differences and similarities amongst archaeological faïence, frit, glass and glazed terracotta.

ARCHAEOLOGICAL FAÏENCE

Since the mid-twentieth century, archaeological faïence has been defined as an artificial material made of siliceous paste covered with glaze. The nature of this paste distinguishes it from modern faïence: clay ceramics with lead glaze opacified with tin that were produced from the beginning of the fifteenth century in the Italian city of Faenza. The popularity of these products was such that the name of the city was bequeathed to them.

The body of archaeological faïence is a mixture composed of more than 90% of a fine powder of quartz or sand to which is added an alkali flux to lower the melting temperature and water to make it plastic and malleable. In Elam, this alkali flux is mainly made of vegetable ash (Caubet et al. 2007: 26). Shaping and glazing are performed before firing. Because of their viscosity, siliceous pastes are difficult to turn. In the Elamite world, as in Mesopotamia and Egypt, artisans therefore favour modeling and molding techniques for making figurines, decorative bricks and plates, vases, cylinder seals and faïence beads.

The glaze, alkaline in antiquity, is applied after shaping. It is most often a liquid paste composed of the same ingredients as glass but with a higher concentration of silica and a lower concentration of lime. This paste is coloured by the addition of metal oxides: copper oxide, which gives a green or blue color, is the most frequently used colorant in the early periods; lead antimonate is later used for yellow; cobalt blue for a more intense blue; manganese oxide and iron for black or brown glazes. Glaze may be applied to different supports: soft rocks, siliceous paste or clay pastes, they transform their appearance and impart colour, gloss and impermeability. In the Elamite world, glazes are applied exclusively by immersion or painting, the glaze being then applied to its support with a brush.

Firing between 800°C and 1000°C results in the cementing in the vitreous phase of the quartz grains comprising the body of the faience and in the vitrification of the surface glaze. After firing, faience becomes generally whitish and coarse grains are visible to the naked eye. It is more or less friable and takes on an aspect sometimes qualified as saccharoidal (Caubet et al. 2007: 13). Faience differs from glass only in its firing temperature, which is less elevated.

As all publications devoted to this material highlight, the origins of faience production in the Near East, in Egypt or in the Indus Valley (Bouquillon and Barthelemy Saizieu 2000), are little known. Because of their nature and state of conservation, beads and small adornments were little documented during early excavations. Moreover, the earliest objects in faience are sometimes difficult to identify and to distinguish from frit or soft stone ornaments such as those in glazed steatite. Considering the territory that would later correspond to the Elamite world, Moorey (1994: 172) cites the discovery of a blue faience bead at the site of Tall-i-Mushki in Fars, in a level dating to the end of the 7th millennium BC, contemporary with the Mesopotamian culture of Hassuna. According to the evidence, however, this bead was intrusive in an earlier level. Some isolated findings likely reflect the occurrence and the development of faience techniques by the sixth and fifth millennium. For instance, the grave of a child at Qabr Sheykheyn in Khuzestan delivered some bracelets of faience beads at the end of the fifth millennium (Moorey 1994: 172). Nonetheless, these attestations are still very rare compared, for instance, to the thousands of glazed steatite and faience beads attested in North Syria during the same period. Faience becomes only truly visible in the end of the fourth millennium in Iran.

FRIT

Frit, which is often confused with faience, is made of the same ingredients but is not covered with glaze (Moorey 1994: 167). In the industry of vitreous materials, metal oxides used as colorants are sometimes unstable: they are water-soluble or volatile at high temperatures. Frit manufacture favours their stabilisation by firing all of the components at low temperature in an oxidizing atmosphere, until a coloured bisque is obtained. Frit can then be directly worked or can serve in turn as a pigment for the fabrication of other small objects whose fabric is then coloured throughout (Caubet and Pierrat-Bonnefois 2005: 13).

GLASS

Glass is an artificial material whose amorphous structure, that is to say, non-crystalline, is relatively transparent and translucent. Like all vitreous materials, it consists of very accessible ingredients, mainly sand or crushed quartz pebbles that provide the necessary amounts of silica. In order to lower their melting temperature (1713°C) and to facilitate the shaping of the objects, a flux, soda or potash, and a lime stabilizer are added. Metal oxides may be added to the mixture to colour the paste, and adding opacifying agents can make it opaque. All these ingredients are brought to melting point at a temperature of about 1200°C. Thus, raw material blocks, glass ingots, are obtained and these can then be reworked by heating again. Because of its structure, glass, like metal and unlike faience, is in fact recyclable: ingots and broken fragments

can be passed again through the oven and melted for new uses (Caubet and Pierrat-Bonnefois 2005: 14).

One generally distinguishes between primary workshops that produce the raw glass ingots and the secondary or processing workshops that shape finished objects. But as will be discussed later, no glass workshop, primary or secondary, is yet attested with certainty in the Elamite world.

GLAZED TERRACOTTA

While ceramic in the Near East dates back to the Neolithic, glazed terracotta appears only later. The invention of this latter technique, which is very different from painted pottery, is closely linked to the development of the vitreous materials industry. A clay body, usually a kind of marl, is covered with alkaline glaze (Caubet et al. 2007: 15). The firing in an oxidizing atmosphere at a temperature of about 1000°C enables the covering applied to the paste to vitrify. Glazed terracotta is used from the second half of the second millennium in Elam, as in Mesopotamia, to manufacture different categories of ceremonial furniture: architectural designs, ceremonial vessels, monumental sculpture and so on. It becomes increasingly popular during the first millennium until it permanently replaces faience in the Seleucid era.

A world on the margins of the principal innovations (3000–1500 BC)

Between 3000 and 1500 BC, while the production of faience rose and expanded in Egypt with the development of figurines, game boards and even architectural decoration (Caubet and Pierrat-Bonnefois 2005: 35), this specific material was reserved in the Near East for small luxury objects; mostly jewellery, glyptic and vessels. Further east, evidence is scarcer. The ancient site of Susa, located on the northwestern edge of the Khuzestan plain, halfway between the Mesopotamian plain and the southeastern Iranian plateau, has provided much of the material that is discussed below.

Susa's long occupation sequence, from the first settlements at the end of the fifth millennium BC until the site was abandoned in the thirteenth century AD, makes it one of the best testimonies to the production of objects in vitreous materials, especially for the earliest periods. Because of its location, Susa lived throughout the ages in the rhythm of a complex dialectic between the ebb and flow of Mesopotamian influence and the assertion of its Elamite identity, autonomy and cultural uniqueness. In early times, Susa's discoveries are very modest, quite a distant echo of the technological development happening in the Near East. Even if a native craft existed at that time, most of the faïences are probably imports flowing from one region to another, reflecting the different swings of the balance between the Mesopotamian plain and the Elamite plateau.

The first faience objects dated with certainty appeared in the end of the fourth millennium during the Late Uruk Period when contacts between Susiana and the Mesopotamian plain became closer, as evidenced by their similar material cultures. Two small faience "eye idols", originally covered by a blue or green glaze, demonstrate these close links. These intriguing objects, with their bell-shaped body topped with two perforated circles belong to a typology widely attested in

Mesopotamia and northern Syria during the Late Uruk Period. Whether they are to be considered as votive figurines or as spinning weights (Gaubet et al. 2007: 102) is still under discussion. The two examples from Susa are certainly the only samples in faience attested to-date, yet nothing allows us to consider them as local products.

Later on, around 3100 BCE, major changes occur at Susa. Western influence decreased significantly with the collapse of the Uruk Period civilisation, whereas links with the highlands of Southern Iran in the east became tighter. The Proto-Elamite culture (3100–2750 BC), with its specific art and writing, developed and spread from Fars towards Susa. At that time, faience production increased slowly, being firstly used for glyptic, one of the main artistic achievement of the Proto-Elamites alongside sculpture. Faience cylinder seals of both Mesopotamian and local origin then coexist in Susa. A series of so-called “popular” cylinder seals (Amiet 1972: 111) in faience or baked steatite originated in Mesopotamia. Their rectilinear geometric decoration contrasts with more elaborate compositions, mainly of animal inspiration, and the sculptural quality of Proto-Elamite productions (Amiet 1988: 57). Another production of baked steatite cylinders whose production centers reside along the western edge of the Susiana increases in parallel (Amiet 1972: 143). Their stylistic treatment, with flat engraved figures and strong highlighted grooves, integrates them into the sphere of Proto-Elamite productions, diffused across both southeast Iran on the Iranian plateau and central Mesopotamia.

From the middle of the third millennium, Susa rejoined the Mesopotamian milieu, integrating into the network of small Sumerian city-states before being absorbed into the Akkadian empire.

Faience cylinders of Guri tradition dating to the period of Akkadian domination have been discovered at Susa. These were often decorated with a horned master of animals, testifying to the presence of mountain people from the Iranian foothills in the plain of Susa (Amiet 1972: 195).

Susa took part in the broad network of long-distance exchange that characterized the second half of the third millennium. A faience vessel fragment found in the “*Yase à la cachette*” (Harper et al. 1992: 109) reflects this integration. It belongs to a category of small vases often covered with a blue-green glaze, which reproduce in faience vessels made of fine ceramic, stone and metal. A burial on the tell of the *Ville Royale* dated to the second half of the third millennium has delivered a very similar carinated vase, as well as small faience cups in the shape of shells and a couchant goat figurine comparable to Akkadian figurines discovered in a tomb at Ashur dated to the same period (Gaubet et al. 2007: 104; Amiet 1966: 234). While we do not know whether all of these objects are imported or locally produced, they intersect very clearly with contemporary Mesopotamian productions.

During the Middle Bronze Age, Egyptian and Levantine workshops once again prove their dynamism and multiply their innovations (Gaubet and Pierrat-Bonnefois 2005: 35–43). The Egyptian Middle Kingdom established the golden age of faience figurines, among which small hippopotamuses are certainly the most celebrated. The techniques of fashioning testify to a perfectly mastered *savoir faire*, particularly in the area of glaze achieved by immersion, application or efflorescence. In Syria, as in Anatolia, faience remains a luxury and expensive material, often found in palatial settings, which have delivered traces of fabrication workshops.

At Susa, on the other hand, the technique remains in its infancy at the margins of this phenomenon, incomparable with the qualitative and quantitative threshold that would later be crossed by Elamite craftsmen in the second half of the second millennium.

Under the reigns of the Shimashki sovereigns and then the Sikkalmahs, who adopted the double title “king of Susa and Anshan”, artistic production experienced a significant renewal, particularly in the field of metallurgy and ceremonial vessels. Bitumen mastic products were also particularly prestigious. The development of metallurgy, which involves the mastering of viscous materials processed at high temperatures, such as that of the technique of annealing (Henderson 2013: 4), fostered without doubt a favourable framework for the experimentation and accumulation of know-how comparable to that required for vitreous materials. Yet the production of faience remained underdeveloped: only a few ornaments such as a grotesque head of Humbaba, a pendant bead of Babylonian tradition (Gaubet et al. 2007: 104; Amiet 1966: 268) and rare fragments of figurines are to be mentioned. One is a small smiling head with inlays, which perhaps reflects a more Elamite inspiration, unless it is considered a local imitation of the removable heads of Central Asian statuary (Amiet 1966: 285).

The Middle Elamite period: the golden age of innovation

The middle of the second millennium marked a significant break: in the Elamite world and in the entire Near East, the vitreous materials industry experienced an incomparable technological leap with the diversification of faience production and above all with the appearance of new materials such as glass and glazed terracotta. In the Elamite kingdom, this technological effervescence can be observed mainly in the Susiana plain: in the fifteenth century at Haft Tape (ancient Kabnak), the seat of the king Tepti-Ahar, but even more so a century later at Choga Zanbil and Susa, first under the leadership of Untash-Napirisha (ca. 1340–1300 BC) and then of the Shurnukid rulers during the twelfth century.

Located 40 km southeast of Susa, the holy city of Choga Zanbil, or Dur Untash-Napirisha, was the major achievement of the reign of Untash-Napirisha. Baptized in the name of its sponsor, it covered an area of almost 100 hectares and comprised a zigurat, temples and a palace surrounded by a wall of over 4 km length. The intensive building activity (Pots 1999: 2012) sponsored by the fourth ruler of the Ighalkid dynasty provided a climate conducive to the development and improvement of know-how in the field of vitreous industry. Technological innovations became more and more numerous with the growth and development of the art of faience and glass, adapted particularly to architectural decoration: the introduction of polychrome glazes and the development of glazed terracotta. Leading a vast empire, Untash-Napirisha was able to mobilize significant cohorts of workers and artisans to complete the construction of Choga Zanbil. The extent of this labor mobilization is reflected in the breadth and variety of material remains uncovered. While the vitreous materials industry was very limited in previous eras in the Elamite world, its unprecedented expansion at this time raises many questions. The Middle Elamite kingdom adopted and adapted the innovations that had appeared in northern Mesopotamia, at Nuzi in the heart of the Mitannian kingdom, about two centuries earlier. Did the

close links between the Ighalkid dynasty and the Kassite dynasty promote the transfer of *savoir faire* or the mobility of certain artisans? Due to the lack of sufficient archaeological and historical evidence, this question remains open.

Among the new materials, glass was widely employed at Choga Zanbil, both in architectural decor, with polychrome glass tubes enlivening door panels and circular appliques enhancing knobbed plaques, and in glyptics and small votive objects (anthropomorphic and zoomorphic figurines, maces). Whatever their function may have been, all testify to a mastery of shaping methods, whether casting or mounting on a clay core, or the technique of annealing to perfect finishings.

The invention of glass, whose components are the same as faience but brought to melting point, dates back to the third millennium in Egypt and the Near East (Gaubert et al. 2007: 14). Its production was perfected at the end of the Middle Bronze Age, between 1650 and 1500, especially in the workshops of the Mitanni kingdom.

During the Bronze Age, glass circulated in the form of ingots produced in so-called primary workshops in Egypt or the Near East. The content of the wreck of Ulu Burum with its 350 kg of glass is one of the most compelling stories of the Mediterranean, but ingots discovered in Falaka equally illustrate their circulation in a more eastern network (Pulak 2008: 314). Even if the originality and quantity of the products of Choga Zanbil implies local production, the craftsmen probably worked from small blocks of imported raw material. The location of these processing plants is still uncertain, although Ghirshman (1966: 95) mentions the presence of workshops and kilns in the annexes of the west temple of Kiritirisha which, according to him, were dedicated to the production of small votive objects like the manufacturing workshops associated with Mesopotamian temples.

Glazed terracotta is another of the major innovations of the Middle Elamite period, appearing once again under the leadership of Untash-Napirisha at Choga Zanbil. This material is attested in the field of architectural decoration, favoured for the production of knobbed plaques and the manufacture of remarkable monumental animal door guardians [Figure 28.1]. Hence, a bull covered with blue glaze was placed at one of the entrances to the zigurat, on the steps of the northeast stairs (Ghirshman 1966: 57) [Figure 28.1c]. Housed in the Tehran National Museum, it bears an inscription of 16 lines indicating the name of its sponsor, Untash-Napirisha, and its dedication to Inshushinak. In this dedication Untash-Napirisha takes credit for being the first sovereign to have used this material (Potts 1999: 225–226). Measuring nearly 1.3 m in height and apparently modeled over a bronze core for support, this statue is indeed a true technical feat. Other remains of very damaged door guardian animals were also found at the various entrances to the zigurat, among which were at least two griffins (Ghirshman 1966: 40) [Figure 28.1b]. In the twelfth century, the Shurrukids adopted this technique and near the temple of Inshushinak on the Susa acropolis placed a pair of imposing protective glazed terracotta lions [Figure 28.1a] whose dimensions once again reveal a great technical achievement (Amiet 1988: 106; Gaubert and Pierart Bonnetois 2005: 90).

The introduction of these new materials was immediately perceived as a major innovation, to the point that from the reign of Untash-Napirisha new Elamite terms appear to describe them. Glazed terracotta, for instance, was designated by the term *mushi*. Thereafter, the Shurrukid rulers (1190–1120) proclaimed the invention of a new architectural decoration technique implementing a highly siliceous paste called

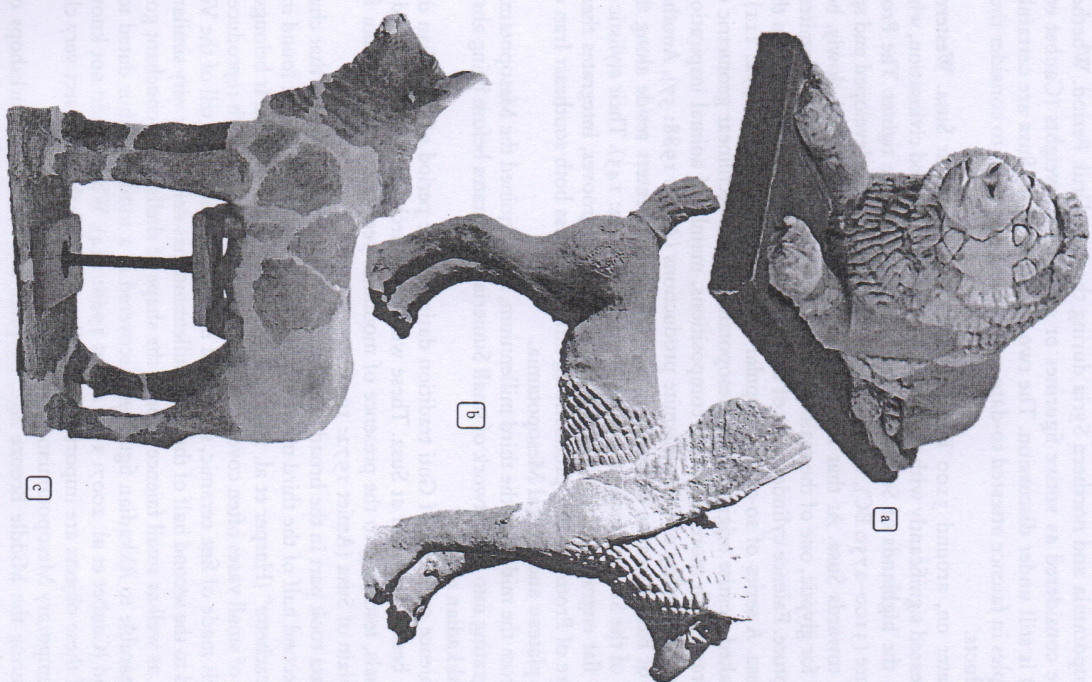


Figure 28.1 Monumental glazed terracotta sculpture: temple gate guardians: [a] Lion from Susa (photograph courtesy RMN-Grand Palais, Musée du Louvre/Franck Raux); [b] Griffin from Choga Zanbil (photograph J. Alvarez-Mon, Museum of Susa); [c] Bull from Choga Zanbil (photograph J. Alvarez-Mon; National Museum of Iran).

u-pa-at ak-ti-in-ni-ma or *u-pat aktyva* which, when formed into decorative brick, imitates stone, a particularly rare resource in the region. As testified in Egypt and Mesopotamia (Caubet and Pierrat-Bonnefois 2005: 29), the different techniques of glass materials were also granted a special status in the texts. The interpretation of the various terms, however, remains difficult because of insufficient written sources to illuminate the different recipes of the workshops.

The variety of architectural decoration: an Elamite originality

If the emergence of these new materials, glass and glazed terracotta, in the Elamite world is part of an international trend, their use in the field of architectural decoration is a local singularity, which continued until the end of the Neo-Elamite period and was inherited by the Achaemenid empire.

As in Mesopotamian architecture, Elamite buildings were constructed of mud-bricks, the most prestigious ones being covered with a facing of baked brick. Since the construction of the first monumental buildings in Susa, namely, the high terrace erected on the Susa acropolis, different types of decoration had been employed for both exterior and interior walls in order to bring to life the sometimes-dull brick facings: whether clay nails coated with paint like those of Malyan in the Banesh period (Heim 1989: 100), or plaster coating engraved with geometric patterns, as in the halls of the “funerary temple” at Haft Tepe (Negahban 1991: 14). During the Middle Elamite era, first under the reign of Tepti-Ahar in the fifteenth century and then under the Iginalkid and Shurrukid dynasties, vitreous materials were used for the first time to animate the walls of prestigious buildings. Newly emergent forms of architectural decoration, sometimes inscribed, were remarkable for their diversity: antefixes or knobbed plaques, decorative nails, figurative protomes and siliceous bricks.

The knobbed or antefix plaques were made of clay or siliceous paste up to several centimeters in thickness. Square in shape, they were perforated at the center to insert a knob: a kind of nail whose sometimes moulded foot is topped by a decorated or inscribed circular head. This knob could be either removable or fixed to the plaque. These decorative plaques are amongst the most characteristic Elamite architectural decorations. The first knobbed plaques appeared in the fifteenth century in Haft Tepe (ancient Kabnak), the residence of Tepti-Ahar. They were perhaps inspired by Kassite precedents (Heim 1989: 168). While some are made in stone, the faience versions are an innovation that can be attributed to Elamite workshops (Amiet 1966: 337).

The sites of Susa and of Tell-i Malyan (ancient Anshan) in Fars, provided decorations of this type. But Choga Zanbil was definitely the site where their production experienced the greatest development. Numerous knobbed plaques were found stored in warehouses (rooms 26 and 28) of the ziggurat [Figure 28.2], and also in situ, dumped on the slopes of the ziggurat and the surrounding courts (Ghirshman 1966: 37), as well as close to the gates and monumental passages. The Ishnikarab and Kirišisha temples and the Hypogeum palace also delivered many samples.

At Susa, knobbed plaques attributed to the Shurrukid sovereigns are attested in the Inshushnak temple on the Acropolis and in a monumental tomb built nearby (Heim 1989: 39). Others were found scattered on the tells of the Apadana and the Ville Royale, either devoid of any documented context or reused in later structures.

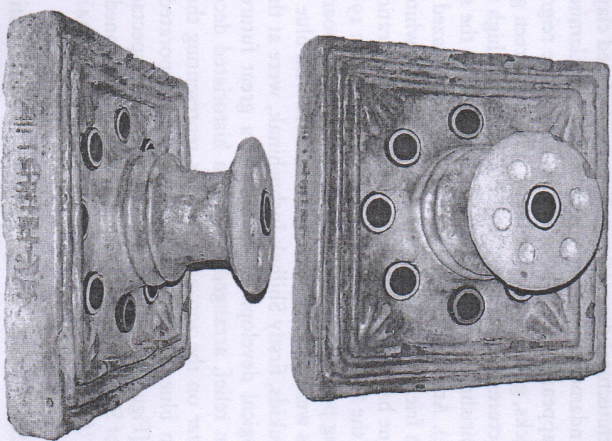


Figure 28.2 Glazed knobbed plaques from Choga Zanbil. Plaques in situ in room 26 (photograph after Ghirshman 1966, vol. 1, pl. XVIII). Plaque inscribed with the name Untash-Napirishsa (photograph J. Alvarez-Mon; National Museum of Iran).

Elizabeth Carter's excavations at Anshan in building EDD also brought forth knobbed plaques, but of much smaller proportions (Carter 1996: 45).

The iconographic repertoire shows great variety: at Choga Zanbil certain plaques, composites, are enriched with circular encrustations of glass; others are molded and decorated (quarrels of rosettes placed in the corners) [Figure 28.2]. When they are inscribed, the knobbed plaques mention the name of the royal sponsor and that of the recipient deity, usually Ishnkarab (Heim 1989: 169). Covering both Middle and Neo-Elamite periods (not always distinguishable from one another), Susa has delivered the largest repertoire: motifs with geometric designs (networks of lozenges); vegetal decorations of rosettes; zoomorphic designs (animals confronting each other in a heraldic attitude); or anthropomorphic designs (geniuses, sometimes dominating monsters or animals). Some among them offer an innovative iconographic repertoire, dancer or genius, sometimes attributed more to a palatial than cultic context (Amiet 1966: 400).

Some nails also seem to have been directly inserted into the masonry, without an adjoining plaque, as if to emphasize the directions of the lines of the buildings they decorated. Edith Porada (1970: 21) has suggested that some architectural decorations were echoed in contemporary glyptic.

In terms of architectural decoration, siliceous or glazed clay bricks equally constitute one of the fundamental innovations of the Middle Elamite period. Monochrome or colored, they appear first at Choga Zanbil during the reign of Urtrash-Napirisha. Monochrome bricks, generally covered with a blue or green glaze, underline certain architectural structures: they covered without doubt the high temple, the *kukunum* dedicated to Napirisha and Inshushinak, which stood at the summit of the ziggurat (Potts 1999: 224). At this time, the first polychrome glazed bricks also appeared. Ornamented with friezes of black concentric circles on a white background or green diamonds on a blue background, they constituted the decoration of 11 offering tables arranged around the four courts of the ziggurat (Auberson 1966: 109–111).

In the following period, Shurrukid sovereigns took on board this innovation, and many monuments were adorned with brick facades with blue or green monochrome glazes. The Shurrukids, firstly Shilhak Inshushinak, were at the origin of an unprecedented technological development promising a great future: the manufacture of siliceous bricks in relief, arranged to form a historiated decoration. In the dynastic chapel or *sukter* on the acropolis, effigies representing the Shurrukid kings and queens colored in blue, green and yellow were incorporated into the masonry of mud-brick walls [Figure 28.3]. The monument was so spectacular that the foundation inscriptions of Shilhak Inshushinak specifically mentioned its colored bricks as a true achievement (Caubet and Pierrat Bonnefois 2005: 90–94).

Small objects, expressions of an international taste or Elamite identity?

From the Middle Elamite period, faience was widely used for small votive or funerary objects. Alongside examples of stone and glass, the storerooms of the ziggurat at Choga Zanbil delivered a profusion of votive maces, while chapels III and IV situated inside its enclosure wall contained numerous small animal figurines and seals of faience.

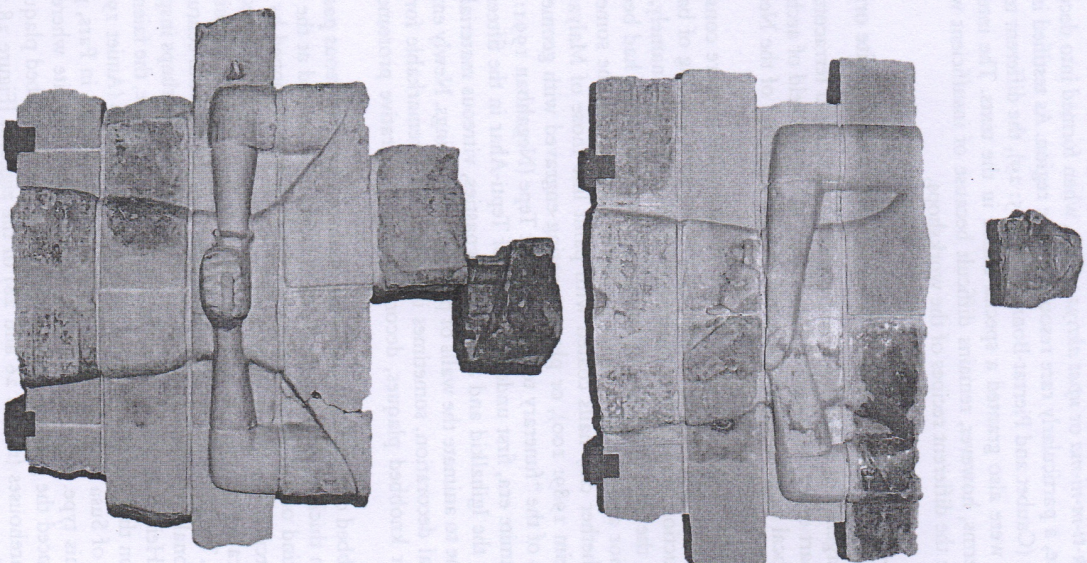


Figure 28.3 Monumental facade of moulded glazed bricks from Susa representing a royal couple, possibly Shilhak-Inshushinak and his queen (1150–1120 BC) (photographs J. Alvarez-Mon; Musée du Louvre).

As Agnes Spycket emphasized, the production of these faience figurines at Choga Zanbil can once again be attributed to Urtrash Napirisha. In addition to the small animals (wild boar, monkeys, etc.) from the chapels of the zigurat, the temple of Pinikir delivered examples of female figurines in faience, more or less fragmentary, that reproduced the attitude of queen Napirasu in her monumental statue (Spycket 1992: 217). The Middle Elamite period witnessed a fundamental shift in the production of the Susian coroplasts, with the appearance of naked women supporting their breasts, luteists and elegant maternal figures. The production of figurines in faience was instead limited to the representation of worshippers in an attitude and costume similar to those of small contemporary metal figurines. Some productions, like a series of masks in frit, on the other hand, were linked with international productions attested throughout the Near East.

The manufacture of faience cylinder seals was perpetuated in the Middle Elamite period. They were found at Haft Tepe as well as Chogha Zanbil and Susa. Even if the seals from Haft Tepe, found scattered throughout the tell (Negahban 1991: 49), were linked to the traditions of the first half of the second millennium (Amiet 1996: 142), glass and faience cylinder seals from Choga Zanbil indicate a revival of Elamite production. Probably deposited as offerings in the chapels III and IV of the southwest precincts of the zigurat, they were in line with a fairly basic decoration dominated by scenes of cult with pseudo-inscriptions and mythological scenes (Amiet 1966: 339). The banquet scenes found on Middle Elamite Susian faience cylinders probably derived from Kassite glyptic (Harper et al. 1992: 211).

Faience vessels, whose forms diversified from the Middle Elamite era, fit within the flow of international trade and a shared taste for this luxury production. They include vessels decorated with female faces and banquets, spouted beakers and pyxides. The latter are more varied than those produced by the workshops of the Levant and Mesopotamia. They can be square or cylindrical shaped with walls bearing engraved or molded decorations, often animated by zoomorphic and anthropomorphic motifs. Unlike the rest of the Near East their production remains strong in the first millennium, but due to lack of sufficient archaeological documentation they are sometimes difficult to date.

Continuity of the industry of vitreous materials in the Neo-Elamite period

The late twelfth century saw the disappearance of the Shutrurkid dynasty after Nebuchadnezzar I (1126–1105) defeated Huturlutush-Inshushinak. Elamite history in the following centuries is unclear. Between the eleventh century and the second half of the eighth century royal inscriptions and other written documents are unknown, a situation which according to Pierre de Miroschedji (1990: 76–77) results from the dislocation of the centralized political organization of the Shutrurkids.

Nevertheless, during the first millennium, Elam witnessed a phenomenon of continuity in the manufacture of objects in vitreous materials, whereas production declined in Mesopotamia at the same time. Susa delivers the best evidence, even if it is sometimes difficult to propose a precise chronological sequence due to a lack of sufficiently documented archaeological contexts. Architectural decorations, figurines and luxury tableware are perpetuated, and sovereigns like Shutrurk Nahunte

II (716–699) claimed the heritage of their Middle Elamite predecessors (Cauter and Pierrat-Bonnefois 2005: 108). On the whole, the discoveries indicate a transmission of know-how within the Elamite workshops and at the same time a clear dynamism, since certain new innovations come to light.

The increasingly well-mastered technique of polychromy through the application of glazes of different colors epitomizes advances in the domain of faience production in the Neo-Elamite era. Their juxtaposition is favored by the invention in the ninth century BC of a system of partitions drawn in a brown or black glaze tinted with iron oxide or manganese with high siliceous concentration and low alkaline presence (Hollakooei 2014: 780). Their refractory qualities help prevent glazes of different colors from mixing during the firing process. The use of this “cloisonné” technique is attested in architectural decoration, in which the artisans perpetuate the production of decorative plaques, knobs, historiated brick friezes without relief, as well as in ceremonial vessels and figurines. Soft colors are preferred: light blue, yellow, white and green make up the bulk of the Neo-Elamite palette.

Linked to economic and political conditions, Susian achievements of this period are not in the domain of monumental undertakings. In the southeast part of the Susa acropolis, Shutrurk Nahunte II built a small square temple with a simple plan that brings it closer to Urartian buildings of the same era. It differs, however, in its rich polychrome decoration of plaques fixed to the walls by nails with animal protome terminals. The temple walls were made of bricks glazed with green both inside and out. Nearby, bricks of siliceous paste were discovered constituting what Amiet considered as an “enameled table” made of several layers of brick like the Middle Elamite podiums at Choga Zanbil: “It is not impossible that the podium leaning against the back wall, of which only the base was discovered, was built in historiated brick, decorated on the sides with horses, lionesses, griffins and winged scorpions, while on the horizontal portion of the table, griffins face each other in a stylized plant network” (Amiet 1967: 27). These bricks were inserted, in any case, in the heart of an ensemble where the faience architectural decoration took pride of place, since fragments of knobs, large square plaques carved in low relief and fragments of historiated squares, some in relief, were also found.

Likewise, fragments of anthropomorphic and zoomorphic figurines discovered in the temple attest to the continuity of this production during the Neo-Elamite period [Figure 28.4]. At Susa about 30 human faience figurines (Martinez-Seve 2002: 56–57) representing deities or worshippers in prayer were found [Figure 28.4a]. They are very similar to statuettes attested in neighboring Luristan at Surkh Dum and Chigha Sabz. The zoomorphic figurines [Figure 28.4b–c] are often without documented archaeological context and are much more difficult to date, but their production seems to be upheld almost without discontinuity between the Middle Elamite and Neo-Elamite periods.

In the field of vessels, a climate of technological competition saw the production of small vases in siliceous paste in similar forms to those made in terracotta covered with glaze. During the Achaemenid period, this latter technique spread and would eventually completely replace the production of faience during the Seleuco-Parthian period (Cauter and Pierrat-Bonnefois 2005: 113). Neo-Elamite vases in faience or terracotta usually exhibit a narrow neck and molded belly. They are sometimes enhanced with a decoration of colored chevrons or dotted circles. Those with globular body and

pointed base mimic a luxury vessel in metal, while, according to their decoration, others may have imitated small Mesopotamian glass vessels circulating in the Elamite world. Found mostly in funerary contexts, faience and glazed terracotta vessels were probably intended to contain ointments and perfumes, or even, as suggested by Heim (1992: 203), liquids for quenching the thirst of the deceased in the afterlife.

CONCLUSION

Despite the turbulent history of the Elamite kingdom in the first half of the first millennium BC, production of objects in glass materials, mainly faience and glazed terracotta, continued. This astonishing permanence, which contrasts with the gradual abandonment of these materials in Mesopotamia, attests to the maintenance of specialized workshops and the transmission of know-how between the Middle-Elamite and Neo-Elamite periods. Nevertheless, the political situation did not allow for the production of decoration on a monumental scale, which requires the mobilization of substantial cohorts of craftsmen. The sack of Susa by Assyrian troops in the year 646 destabilized the Neo-Elamite kingdom, yet the Elamite culture did not completely disappear. It seems that the principalities, including Susiana, reformed timidly during the sixth century, before being integrated into the Persian empire. In the field of vitreous industry, the Elamite knowledge did not disappear. The ambitious program of siliceous decorative glazed bricks that animated the walls of the palace of Darius at Susa is indeed the direct heir of *savoir faire* developed during the previous millennium.

NOTE

* Translated from French by Javier Alvarez-Mon and Yasmina Wicks.

BIBLIOGRAPHY

- Amiet, P. 1966. *Elam*. Auvers sur Oise: Archée.
 Amiet, P. 1967. Elements émaillés du décor architectural néo-élamite. *Syria* 44: 27–46.
 Amiet, P. 1972. *Glyptique susienne*. Mémoires de la Délégation Archéologique en Iran XLIII. Paris: Geuthner.
 Amiet, P. 1988. *Suse, six mille ans d'histoire*. Paris: RMN.
 Amiet, P. 1996. Observation sur les sceaux de Hafir Tépé. *Revue d'Assyriologie et d'Archéologie Orientale* 90: 133–143.
 Auberson, P. 1966. Tables d'offrandes en briques émaillées. In: Ghirshman (ed.) *Tchoga Zanbil, vol. I. la Ziggurat*, Mémoires de la Délégation Archéologique en Iran XXXIX. Paris: Geuthner, 109–111.
 Bouquillon, A. and Barthelemy De Saizieu, B. 2000. Émergence et évolution des matériaux vitrifés dans la région de l'Indus du 3^e au 1^{er} millénaire (Mergharh-Nausharo). *Paleorient* 26: 93–112.
 Caubert, A., Bouquillon A., Kaczmarczyk A. and Matroian, V. 2007. *Faïences et matières vitrées dans l'Orient Ancien dans les collections du musée du Louvre*. Paris: Snoeck.
 Caubert, A. and Pierrat Bonnefais, G. 2005. *Faïences. Faïences de l'Antiquité. De l'Égypte à l'Iran*. Paris: Musée du Louvre Editions.
 Carter, E. 1996. *Excavations at Anshan (Tale-Malyan): the Middle Elamite Period*. Philadelphia: The University Museum of Archaeology and of Anthropology of Pennsylvania.

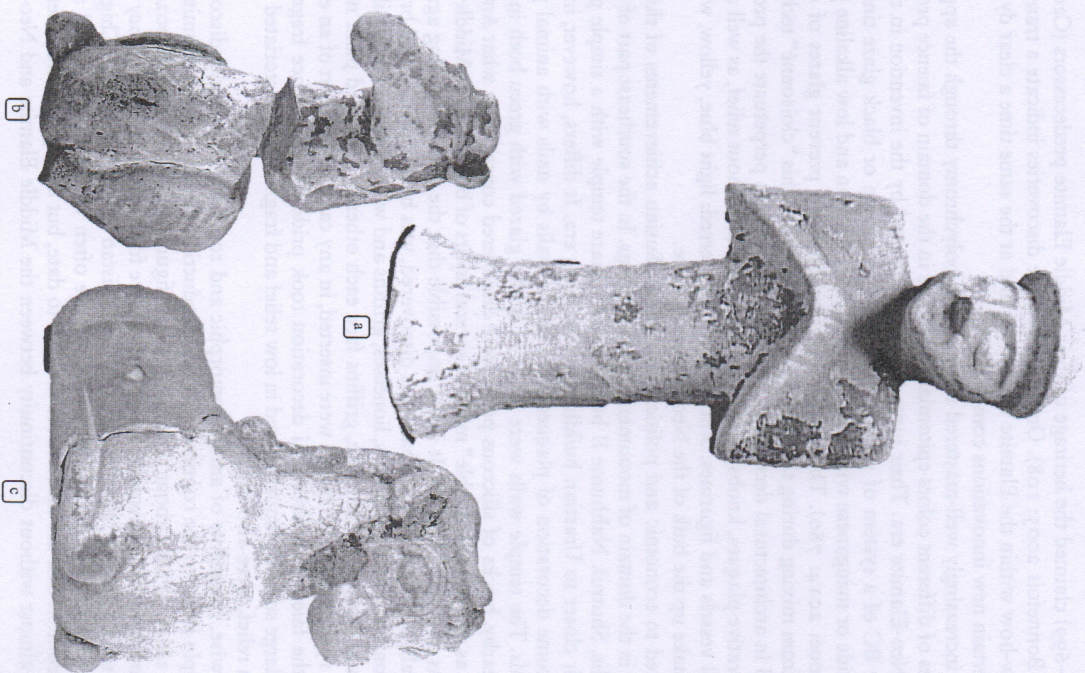


Figure 28.4 Neo-Elamite faience statuettes from Susa.
 [a] Male worshiper (photograph courtesy RMN-Grand Palais, Musée du Louvre/Hervé Lewandowski); [b, c] Horse and bull knobs (photographs J. Alvarez-Mon; Musée du Louvre).