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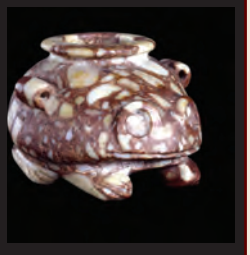
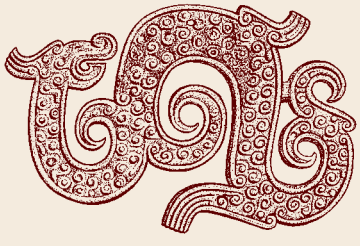

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FOREWORD

In the past, civilizations of both the Old and New World rose and fell. Through gemstones, we get a glimpse into the history of these civilizations. This book presents a large colourful fresco of the ancient world and the people who loved and admired beautiful stones.

Archaeogemology (a sub-discipline of geoarchaeology) studies gemstones used by ancient and prehistoric societies across time and space. It studies their employment in the production of tools, jewellery, amulets, gems and many other objects. Archaeogemology also involves the dating of these artefacts and the determining of the geological sources of raw materials.

The traditional names of gemstones used by archaeologists and historians often do not correspond to modern mineralogical and petrographic terminology and are frequently incorrect. The purpose of this publication is therefore to eliminate these inaccuracies and to standardize the terminology.

While working on this book, it was necessary to address not only the question of which raw materials could be considered gemstones but also the issue of which artefacts actually fall in the category of decorative objects. Like with the definition of the concept of gemstones, a broader approach was chosen, so various artefacts that do not have a clearly defined function or relationship to the cultural area were included among clearly decorative objects as well.

Highly valued gemstones followed the paths of the ubiquitous trade, and can therefore serve as markers of these ancient trade routes, literally crossing whole continents. The "stone trails" connect not only distant lands but also distant eras in time. They thus help uncover the economic and cultural contacts – sometimes truly surprising – between different regions and periods of the ancient world. And since gemstones were not used solely for decorative purposes, they also provide indirect evidence of the social and religious aspects of life in ancient societies.

The colourful world of gemstones attracts people today just as it did in ancient times. Like in the times long gone, even today the owners of precious stones believe in the protective and healing power of these spectacular creations of nature and the human hand.

ON GEMSTONES

Gemstones are masterpieces of nature, and their mysterious sparkle has enchanted people since time immemorial. The ancient belief in the magical, healing, fortune-bringing and enlightening power of gemstones contributes to this no less significantly. Because of their uniqueness and rarity, gemstones were viewed as symbols of wealth and power. The special beauty of gemstones has been a constant source of inspiration to the artistically gifted individuals in many ancient cultures that have left a distinct mark on the path to our modern civilization and their extraordinary properties secured them a firm place in the ancient history of mankind.

The term "gemstone" is not a mineralogical one but a technical one. A gemstone is supposed to have, above all, a beautiful appearance conditioned by colour, luster, transparency and other properties. It must be as unbreakable as possible. Furthermore, the rarity of occurrence is taken into account when evaluating a gemstone, while fashion, mystery and territorial peculiarities also play a part.

With regard to these criteria, any mineral, rock or organic substance from which a gemstone cut can be made – a facetless or facet-cut stone for jewellery purposes – can be considered a gemstone, or can be employed in jewellery in its natural (unworked) state, as well as in a wide range of creations, the most important of which are gems (cameos and intaglios), mosaics, gemstone inlays, gemstone vessels and sculptures. Gems are produced by stone engravers (glyptic artists).

The list of stones to which we assign the "precious" attribute changes and expands with each subsequent use of the mineral chosen for the manufacture of one of the above objects. The former division of gemstones into precious, semi-precious (these differ from precious stones in that their properties are not perfect in all aspects and their occurrence is more common) and ornamental stones is now considered inaccurate and is therefore no longer used. The term "semi-precious" stones was abandoned in 1955 with the publication of new standardized terminology for stones by the international organisation BIBOA

– Bureau International des Associations de Fabricants, Grossistes et Détaillants de Joaillerie, Bijouterie, Orfévrerie et Argenterie located in The Hague (CIBJO: Pierres précieuses et fines/Perles Définitions).

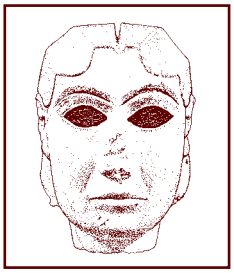
Nevertheless, the summarizing and broad meaning of the word "gemstone" retrospectively causes its blurring and partial discrediting, and thus becomes somewhat misleading, especially for the special needs of gemology, practical stone-working and commercial purposes. For the study of gemstones in antiquity, however, this "all-encompassing" term is highly appropriate. The ancient stonecutters used for decorative purposes mainly the stones which they were able to work at a particular stage of technological development. As a result, they preferred – typically in the early stages of a culture's development – softer raw materials, some of which do not, by today's standards, meet all the requirements to be classified as gemstones.

Materials of organic origin, organolites, also hold an important place in ancient stone-working. Fossil organolites include amber, jet (gagat), lignite and anthracite. More recent ones include pearls (sea and river pearls), shell (mother-of-pearl), coral, ivory, bone, horn and tortoiseshell, which were and still are among the favourite raw materials used by artisans, and the book thus also discusses ornaments made of these accompanying or supplementary materials.

Some rocks are not only used as gemstones, they are also employed in architecture and sculpture as so-called noble or decorative stones (architectural and stonework elements, statues, reliefs). The most typical of these is alabaster, but we can also mention marble, travertine (onyx) and "common" limestone, as well as "ancient porphyries" and other rocks.

CIVILIZATIONS OF THE OLD WORLD

EASTERN CIVILIZATIONS OF THE OLD WORLD



"EX ORIENTE LUX" – MESOPOTAMIA

The ancient land of Mesopotamia, situated between the Tigris and Euphrates rivers, is now referred to as Iraq. The presence of these two rivers established the country as the cradle of our civilization. Consequently, our journey to the gemstones of antiquity will commence in this region of Mesopotamia.

Moorey (1999) suggests the following Mesopotamian chronology: Prehistory: Pre-Pottery Neolithic (8000–6500 BC), the Hassuna/Samarra/Halaf culture (6500–5500 BC), the Ubaid culture (5500–4000 BC), the early/middle Uruk culture (4000–3500 BC), the late Uruk/Jemdet Nasr culture (3500–3000 BC). History: Early Dynastic Period I (3000–2750 BC), Early Dynastic Period II (2750–2600 BC), Early Dynastic Period III (2600–2350 BC), Akkadian period (2350–2100 BC), Ur III (2100–2000 BC), the Isin-Larsa period, the Old Babylonian/Old Assyrian Period (2000–1600 BC), the Kassite/Mitanni/Middle Babylonian/Middle Assyrian Period (1600–1000 BC), the Neo-Assyrian period (1000–612 BC), the Neo-Babylonian period (612–539 BC), the Achaemenid period (539–330 BC).

The alluvial deposits of Mesopotamia, which lack both metallic and stone-based materials, compelled the region to rely on external sources. It is curious that Mesopotamian stoneworkers and jewellers were able to attain such an early level of expertise in working with gold, silver, and gemstones, given that the primary Mesopotamian gemstones, lapis lazuli and carnelian, originated from distances that are hard to imagine. Lapis lazuli can be described as a significant contributing factor in the formation of ancient Near Eastern civilizations. Mesopotamia was directly linked to the Lapis Lazuli corridor from Afghanistan, and lapis lazuli became a stone of great civilizational importance. The only local materials used as raw materials for gemstones or as materials needed for the creation of gemstone artefacts were alabaster, limestone and solid bitumen (the base for gemstone mosaics and inlaid eyes of statues).

In addition to stones sourced from Assyrian quarries, the local building materials included clay, reeds and solid bitumen. If we consider Egypt as a

civilization characterised by stone, Mesopotamia should be regarded as a "civilization of clay".

The artefacts from prehistoric Mesopotamia presented by Charvát (2002) included items made of a variety of gemstones. In northern Mesopotamia, the Hassuna, Samarra, and Late Neolithic Halaf cultures flourished. The Hassuna culture is characterised by the presence of female statuettes made from "alabaster" (travertine – onyx), with eyes inlaid with shell, and "alabaster" vessels (as evidenced at *Tell es-Sawwan*), bead and pendant necklaces made from shell, chalcedony, rock crystal, carnelian, (Iranian?) turquoise, and chipped obsidian tools. The presence of carnelian (*Yarimtepe I*) and turquoise (*Tell Hassuna*), typical stones of Mesopotamian civilizations, in the 6th millennium BC context confirms the existence of long-distance trade contacts. In the Neolithic period, the earliest known examples of stamp seals appeared, crafted from dark, soft stones and featuring intricate geometric patterns. Over time, these seals began to incorporate animal and human figures. Ornaments of the Halaf culture commonly include bead necklaces of white marble, limestone, or shell; red carnelian; and black obsidian. Finds include both real-size and miniature vessels made from marble, chloritic schist, and obsidian. They also include stone human statuettes (*Tell Arpachiyah*). Stamp seals made of steatite, serpentinite, or marble display a preference for geometric patterns and animal motifs. Zoomorphic amulet seals are also common.

Southern Mesopotamia was inhabited by the people of the Ubaid culture, belonging to the Chalcolithic period. This culture gradually spread throughout Mesopotamia, replacing the Halaf culture. In the Late Ubaid layer (5th millennium BC), lapis lazuli (*Tepe Gawra*) made its first appearance in Mesopotamia. In the Ubaid culture, beads were crafted from carnelian, turquoise, lapis lazuli, diorite, marble, shell, and obsidian. Stone statuettes and vessels were also popular, often made from steatite and obsidian. Stamp seals, which featured geometric patterns and representations of animals and humans, were crafted from steatite and chloritic schist.

The Uruk culture, which gave rise to urban civilization, was a continuation of the Ubaid culture in southern Mesopotamia. The white marble female head is believed to originate from *Uruk*. The priest-king statuettes of limestone and alabaster (eyes of shell and lapis lazuli) represent the inaugural manifestation of the Mesopotamian tradition of royal statuettes. The limestone animal statuettes from *Uruk* feature eyes inlaid with lapis lazuli. The Eye Temple (*Tell Brak*) yielded a number of fascinating idols with accentuated eyes ("eye

idols"), crafted from limestone, marble, and alabaster. The vessels crafted from alabaster, steatite, and limestone are characterized by their relief decoration or polychrome geometric mosaics. Cylinder seals made from marble, limestone, magnesite, alabaster, steatite, chloritic schist, lapis lazuli, diorite, jasper, and rock crystal, offer a rich and diverse array of iconographic representations, making them a crucial source of insight into the social and cultural life of the era. They did not entirely replace the earlier stamp seals. The Uruk culture in northern Mesopotamia includes the Gawra culture, named after the site of *Tepe Gawra* where a vast quantity of beads made of turquoise, carnelian, lapis lazuli and other stones have been discovered.

During the Early Dynastic Period, southern Mesopotamia was subdivided into a number of Sumerian city-states. Free sculpture is characterized by uniformity of type. With the exception of animal figures, the sculpture depicts a single subject: the worshipper, male or female, in the position of supplicant before the deity. These votive statuettes, crafted from alabaster, limestone, or travertine – onyx, have been found in temples. The distinctive gaze of the inlaid eyes (made of shell, irises of black limestone or lapis lazuli) is one of their most striking features. Metal sculptures were also embellished with inlaid eyes. Artists created vessels from travertine – onyx, limestone, slate, marble, obsidian and steatite or chloritic schist. Some vessels were decorated with reliefs or geometric mosaics made from shell and coloured stones. A significant number of jewellery items and other artefacts originate from the Royal Cemetery at *Ur* dated to 2600–2300 BC (Woolley 1934). The beads and pendants were carved from lapis lazuli and carnelian. Rosettes and other metal objects were inlaid with lapis lazuli and carnelian by use of the cloisonné technique. Geometric and figurative mosaics enjoyed popularity during this period and were used to embellish musical instruments, game boards, and columns within temples. They were made of shell, lapis lazuli, red limestone and black slate. The presence of extra-long carnelian beads and etched carnelian beads provides evidence of interactions with the Harappan civilization. Two distinct themes are evident in the cylinder seals crafted from limestone, alabaster, marble, travertine – onyx, lapis lazuli and shell: scenes of a feast and a struggle between animals and humans (or gods). Stamp seals were also used.

The rulers of Akkad conquered the Sumerian cities and established a unified Mesopotamia under their rule. The power and wealth of the Akkadian Empire were reflected in the arts. Notable artefacts include diorite sculptures, travertine – onyx reliefs and animal statues crafted from alabaster. Akkadian bead necklaces consist of gold, carnelian, carneolonyx, sardonyx, onyx, rock

crystal, and lapis lazuli. The most sophisticated artefacts are the cylinder seals, crafted from serpentinite, rock crystal, jasper, lapis lazuli and limestone. They illustrate a rich iconography that elucidates the relationship between the world of the gods and the world of men. Some seals also feature water buffaloes, which indicate the cultural influence of the Harappan civilization.

In the mid-22nd century BC, the Akkadian kings relinquished their control of the Sumerian south. The Ur Empire was established in Ur. During the Ur III Dynasty, artists adhered to the stylistic conventions of the Early Dynastic Period. Neo-Sumerian statuettes of humans and animals (most often a lying bull with a male head) were carved from steatite, chloritic schist, alabaster, and limestone. The practice of inlaying the eyes of statues was no longer common under the Ur III Dynasty. Steatite vessels were decorated with reliefs or inserts of coloured stones. The presence of exceptionally long carnelian beads and etched carnelian beads indicates that trade with the Harappan civilization persisted. Two subjects recur with striking regularity on cylinder seals crafted from hematite, jasper, and limestone. In the opening scene, the supplicant was led before the enthroned deity by an intercessor, a minor deity. The other theme depicted the fight between animals.

During the Old Babylonian period, the Sumerian tradition of votive statuettes in temples showed no signs of decline. The statuettes made of limestone or marble featured eyes inlaid with shell or white limestone, and lapis lazuli. Notable examples of amulets included those featuring votive eyes crafted from onyx and sardonyx. The necklaces were made of carnelian, onyx, sardonyx, lapis lazuli, and gold beads. The import of Harappa carnelian beads continued. The iconography of ancient Sumerian culture is evident in Old Babylonian cylinder seals crafted from hematite and lapis lazuli, which offer a vibrant contrast to the otherwise monotonous Neo-Sumerian tradition. The hematite weights were either barrel-shaped or zoomorphic (i.e. shaped like a sleeping duck or frog). Onyx eyes dedicated to the gods also originate from the Kassite period. Kassite cylinder seals were crafted from chalcedony, agate, jasper, limestone, hematite, and lapis lazuli.

Given the dearth of available sources, our understanding of Assyrian history during the initial three-decade span of the 2nd millennium BC remains limited. One exception is the existence of Old Assyrian trading colonies in Anatolia (see chap. 'Anatolia: The Bridge Between East and West'). The kingdom of Mitanni was established around the middle of the 2nd millennium BC. The Mitannians exerted considerable influence over Assyria, both politically and culturally. They adopted the Mesopotamian type of cylinder seal. The cylinders were engraved

with original motifs featuring mythical animals, sacred columns, stylized trees of life, winged discs, palmettes and figures. In Mesopotamian tradition, heroes traditionally display hair of six curls. In addition to hematite, the Mitannian-style seals were made of chalcedony, agate, carnelian, jasper, chert (hornstone), and dark, soft stones. In circa 1300 BC, the Mitanni were conquered by the Assyrians and incorporated into the Assyrian empire. Assyrian glyptics was influenced by the art of the Mitanni. It features a plethora of animals, hybrid beings, and deities. The level of vitality and the modelling of the figures reach a standard hitherto unknown in Mesopotamia since the Akkadian period. In the 13th century BC, cylinder seals depicting a fight between animals (e.g. a fight between a winged horse and a lion) were produced. The rich Middle Assyrian Grave 45 in *Ashur* contained travertine (onyx) jugs or amphorae with handles on a tall foot. Similar examples have been found in *Nineveh*.

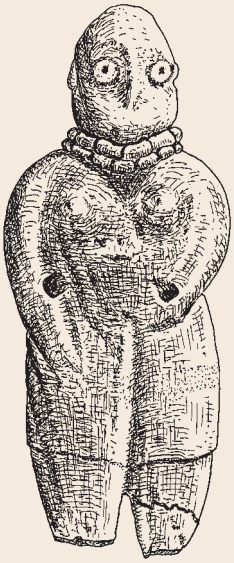
In the Neo-Assyrian Empire, the local "Mosul marble" – alabaster (gypsum) – was used on a massive scale. The walls of rooms and courtyards in royal palaces and temples were lined with alabaster relief panels, and palace entrances were guarded by alabaster monsters, which took the form of winged bulls or winged lions with bearded human heads. Vessels were made of alabaster, travertine – onyx, and steatite, as well as rock crystal, chalcedony, agate, and obsidian, which were reserved for the production of luxury items. Furniture decorated with plaques of carved ivory was a symbol of wealth. Ivory objects in the style of Phoenician, Syrian and Assyrian art were accentuated by polychromy or gold leaf and inlaid with carnelian, lapis lazuli, and glass. The gold jewellery of the Neo-Assyrian queens of *Nimrud* (Kalhu), inlaid with turquoise and carnelian, is characterised by the prominent use of onyx, sardonyx and carnelian eyes. Necklaces dominated by gold, carnelian and onyx beads were common. Cylinder seals crafted from carnelian, chalcedony, serpentinite, grossular and steatite displayed motifs that were adapted in style to align with contemporary alabaster reliefs, which depicted deities, cult scenes and battles against winged monsters. Stamp seals, which replaced cylinder seals, made a return.

Babylonia of the Neo-Babylonian period marked the final chapter of Mesopotamian culture. Vessels were made from alabaster, marble, and agate, while cosmetic boxes were carved from ivory. The treasure from *Ur* includes a gold pendant featuring a sardonyx eye. An eye-shaped bead crafted from sardonyx is part of a necklace comprising carnelian and agate beads. In some cases, eyes carved from onyx or sardonyx have been found to be engraved with an inscription. Eye-shaped amulets are regarded as a distinctive feature of Achaemenid material culture. Nevertheless, the Achaemenids merely

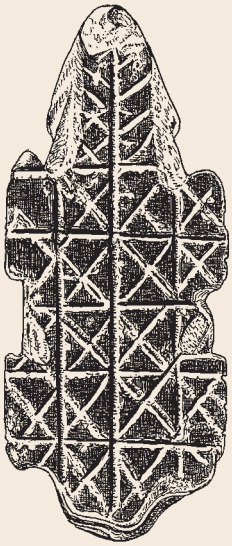
perpetuated the traditional Mesopotamian practice of carving eyes from onyx, sardonyx and carneolonyx, a tradition that originated in ancient Babylonia and persisted throughout the Neo-Assyrian and Neo-Babylonian periods (Mrázek 2011, 2013). Amulets made of blue chalcedony, obsidian, and shell were particularly popular. Weights in the traditional form of a sleeping duck were carved from sardonyx. Cylinder seals depicting a battle scene were made from chalcedony, carnelian, and lapis lazuli and were used in conjunction with stamp seals in the shape of a pyramid, cone, or duck.

In the Achaemenid period, Mesopotamia produced vessels made of granite, basalt, limestone, marble, alabaster, slate, and serpentinite. Agate was used for precious vessels.

Statuettes from the Parthian period were made of alabaster, limestone, marble, and ivory. Gold jewellery was decorated with almandine, chrysoprase, malachite, and pearls.



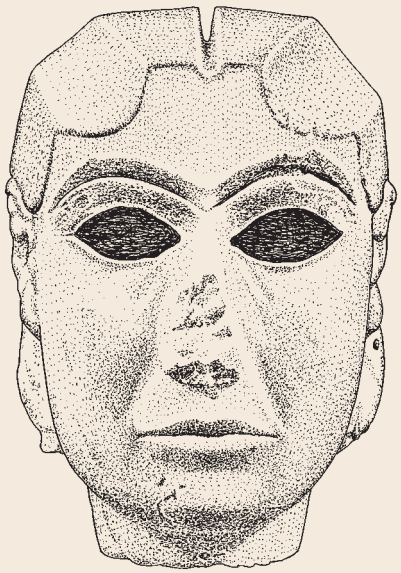
Standing female figurine made of travertine (onyx), with shell inlays set in bitumen representing the eyes; the figurine wears a necklace made of beads (Tell es-Sawwan, Iraq, Neolithic, c. the middle of the 7th millennium BC, Iraq Mus.). (Drawing: Lea Píchová)



Stamp seal (1.4 × 1.1 × 2.6 cm) made of steatite or chloritic schist. This seal represents a hedgehog, its stamping surface is decorated with geometric patterns (Northern Mesopotamia or Syria, Halaf period, c. 5600–5000BC, Metropolit. Mus.). (Drawing: Lea Píchová)

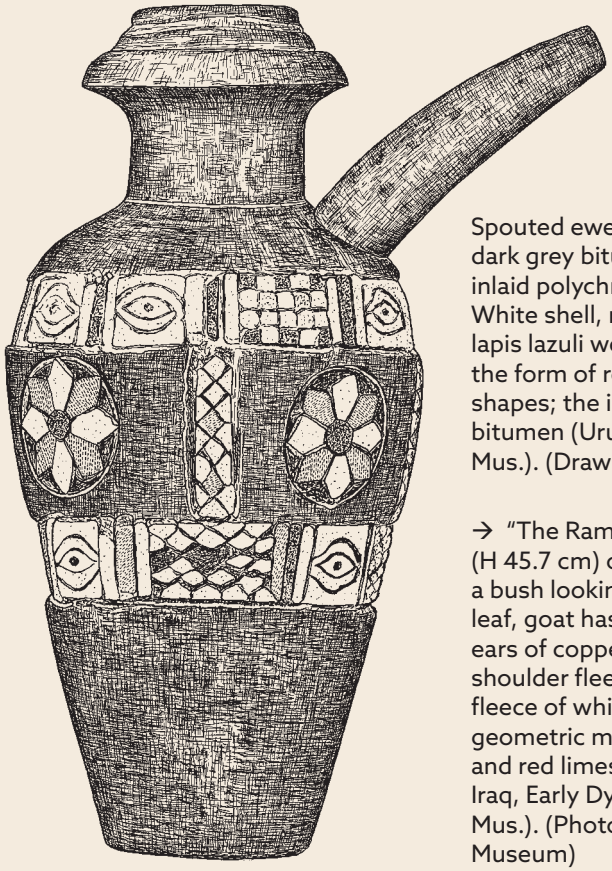
Vessel made of banded travertine – onyx (Tell es-Sawwan, Iraq, Neolithic, c. the middle of the 7th millennium BC, Iraq Mus.). (Drawing: Lea Píchová)

Stamp seal (0.5 × 2 × 2.1 cm) made of steatite or chloritic schist, decorated with horned animal and stylized bird (Syria or Anatolia, Ubaid period, 6th–5th millennium BC, Metropolit. Mus.). (Drawing: Lea Píchová)



The head – mask, known as "The Lady of Uruk or Warka", is considered to be the first life-size (H 20.1 cm) depiction of the portrait of a woman. This mask of white marble was most likely originally part of a whole, life-size statue. The hollowed out eyes and eyebrows may have been inlaid with shell used for the whites and lapis lazuli for the irises. Performations at the ears indicate that the head once wore earrings (Uruk, Iraq, Uruk Period, 3500–3250BC, Iraq Mus.). (Drawing: Lea Píchová)

Standing male worshiper (29.5 × 12.9 × 10 cm) made of alabaster (gypsum), with clasped hands and a wide-eyed gaze. It was placed in the "Square Temple" at Tell Asmar. The eyes are inlaid with shell and black limestone (Mesopotamia, Eshnunna – modern Tell Asmar, Sumerian, Early Dynastic I–II, c. 2900–2600BC, Metropolit. Mus.). (Drawing: Lea Píchová)



Spouted ewer (H 14 cm) carved from dark grey bituminous limestone has inlaid polychrome design – mosaic. White shell, red limestone and blue lapis lazuli were used to form inlays in the form of rosettes, eyes or geometric shapes; the inlays were secured with bitumen (Uruk, Iraq, c. 3000BC, Iraq Mus.). (Drawing: Lea Píchová)

→ "The Ram in the Thicket" – statuette (H 45.7 cm) of a goat perched against a bush looking for food; tree is of gold leaf, goat has face and legs of gold leaf, ears of copper-alloy, horns, eyes and shoulder fleece of lapis lazuli, body fleece of white shell; pedestal with geometric mosaic decoration in shell and red limestone (Royal Cemetery Ur, Iraq, Early Dynastic III, 2600BC, Brit. Mus.). (Photo: © Trustees of the British Museum)

Bearded bull's head (23.5 × 23 × 12.1 cm) cast of copper is brought to life with inlaid eyes of lapis lazuli and shell (Mesopotamia, Sumerian, Early Dynastic III, 2600–2450BC, Saint Louis Art Mus.). (Drawing: Lea Píchová)