

The Gulbenkian Torso of King Pedubaste: Investigations into Egyptian Large Bronze Statuary

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AMONG THE ARTWORKS EXHIBITED in the 1999–2000 exhibition “Only the Best”: Masterpieces of the Calouste Gulbenkian Museum, Lisbon” was the richly inlaid bronze torso of King Pedubaste (ca. 818–793 B.C.) (Figures 1–3). This still-spectacular fragment is one of the great monuments of the Egyptian Third Intermediate Period, a politically decentralized and obscure era marked, nonetheless, by a high level of inventiveness and artistry in metalwork.

Close visual and technical examination of the figure at the time of the exhibition, and subsequently at the Gulbenkian Museum in Lisbon, laid the groundwork for this study, in which several points of historical, technical, and artistic interest have been pursued in depth.¹ Investigation of the modern history of the statue is suggestive with regard to its origin, which in turn has further implications for the much-discussed question of the power base of the historical King Pedubaste. Technical description of the figure, incorporating insights gained from elemental, radiographic, metallographic, and petrographic analyses, contributes to a growing body of scientific studies of ancient Egyptian metal statuary. It also provides evidence regarding casting technology and finishing processes, as well as sophisticated alloying practices and artificial patinations. The combined results of the technical and art historical studies permit at least partial reconstruction of the original and its figural decoration, along with an appraisal of the remarkable visual impact of the statue, both confirming and extending the findings of other recent studies of large Third Intermediate Period bronze statuary.

MODERN HISTORY OF THE BRONZE AND ITS RELATION TO ARCHAEOLOGICAL PROVENANCE

The torso fragment, Gulbenkian Museum inventory number 52, comprises a section from the midchest to knee measuring twenty-seven centimeters of an elaborately decorated, costumed, and inscribed statue of King Pedubaste that was probably originally seventy-four to seventy-eight centimeters high.² Before entering the collection of Calouste Gulbenkian (1869–1955) and thence coming to his museum in Lisbon, the statue had been in the collection of Count Grigory Sergeievich Stroganoff (1829–1910), a member of the famous Russian family of connoisseurs and collectors.³

How Stroganoff acquired the work is not recorded and cannot now be fully reconstructed, although a brief sketch of his life and collecting activities as they relate to Pedubaste and Egyptian art and archaeology, and a careful examination of the context surrounding the earliest mention of the statue, are germane. The highly cosmopolitan Stroganoff and his family traveled extensively from the early 1860s on, maintaining Rome as their winter home.⁴ They certainly went to Egypt in 1879–80, although the Pedubaste fragment is not included among the antiquities specifically listed as purchased on that trip, and there may well have been other visits to Egypt before that. Additionally, however, the count is known to have purchased from dealers throughout Europe.⁵ By 1880 the statue of Pedubaste was definitely in his possession: at least from that time, for an undetermined period, it was exhibited with the rest of his Egyptian collection by the Museumsverein in Aachen, where Stroganoff had long been a part-time resident.⁶ The six-year period from 1877 through 1882, which saw the deaths of his teenage son and wife and during which he bought the house in Rome that was to be associated with him



Figure 1. Torso fragment of King Pedubaste (ca. 818–793 B.C.), Egypt, Dynasty 23, find spot unknown. Bronze, with precious metal inlay, h. 27 cm. Museu Calouste Gulbenkian, Lisbon, 52 (photo: B. Barrette)



Figure 2. Pedubaste torso fragment, three-quarter right profile (photo: B. Barrette). See also Colorplate 20



Figure 3. Pedubaste torso fragment, left profile (photo: B. Barrette)

and his major holdings, also seems to have been a turning point in Stroganoff's life as a collector.⁷ The paintings and other antiquities for which he is best known were acquired mostly after 1880,⁸ and he seems to have moderated his activities as a collector of Egyptian antiquities.⁹ Significantly, the statue of Pedubaste is the only Egyptian artwork included among the antiquities in the select catalogue of his collection that he commissioned (Figure 4). Written by Ludwig Pollak and Antonio Muñoz, this was published in 1911–12, shortly after his death.¹⁰ Some of Stroganoff's artworks were sold by his daughter before World War I and the Russian Revolution, others by surviving family members who reached Rome from Russia in 1921.¹¹ The sale of the Pedubaste

torso to Gulbenkian in late 1921 is probably to be associated with the second dispersal.

Émile Brugsch, then assistant to Auguste Mariette at the Boulaq Museum, Cairo (forerunner of the Egyptian Museum), wrote the catalogue prepared for the Aachen exhibition, as noted in the volume: "Der Katalog ist von Herrn Emil Brugsch in Kairo verfasst worden."¹² Pedubaste's statue is described on page 8 under number 81 as: "Bronze torso. Vollständig mit Gold eingelegt und mit Namen des Königs Petsibast; besonders bemerkenswert durch die in dieser Form zum ersten Male vorkommende Schreibung des Names. RRR. [code in the catalogue for "most singular"]." Although the brief, bland listings in the catalogue might obscure the presence of other



Figure 4. Pedubaste torso fragment. From Ludwig Pollak and Antonio Muñoz, *Pièces de choix de la collection du comte Grégoire Stroganoff à Rome*, pt. 1, *Les antiques*, by Ludwig Pollak (Rome, 1911), pl. 28 (photo: B. Barrette)

important pieces, the statue appears to be the most artistically significant of the described Egyptian objects, which otherwise consist largely of “historical scarabs,” bronze gods, and small faience items. A section entitled “Terracotten und Bronzen des Grafen Gregor Stroganoff, von ihm in Aegypten 1879–1880 gesammelt” begins on page 24, and, unlike the earlier part of the catalogue, lists works from the Greco-Roman period and gives their places of purchase (mostly Alexandria, but also Zagazig, the Fayum, Upper Egypt, Tyre, and Cyprus).

While testifying to the count’s presence and purchasing activity in Egypt, the catalogue offers little information about when and where the other Egyptian objects were acquired or when Brugsch might

have seen them. The form of the acknowledgment of his authorship suggests that he actually wrote in Cairo and may have seen the pieces there. Indeed, he may well have been involved in the procurement of some or all of Stroganoff’s collection.¹³ Still, in the absence of definite information, other interpretations are possible. However, Brugsch’s specific remarks in the entry on the Pedubaste statue tend to support the likelihood that he saw it in a different condition from that visible in Aachen. He comments on the unusual writing of the king’s name, presumably referring to the occurrence of “Bastet” twice, as compared to the writing used by Seheribre Pedubaste-Son-of-Bastet, who was already known to him and who wrote the sign only once for two uses. At the same time, he fails to mention the additional name that appears both in the belt cartouche and in the upper cartouche on the apron (Figure 5). If he had at any point viewed the fully cleaned statue, this would be a rather surprising omission since together the names offered what was then an important attestation of a new royal name—an item of particular interest to Brugsch, who with Urbain Bouriant published in 1887 a listing of known kings’ names that included only Seheribre Pedubaste.¹⁴ Thus, it seems most likely that Brugsch saw the bronze, probably in Cairo, before it was adequately cleaned—and therefore closer to its original excavated condition. The names certainly were visible by the time Alfred Wiedemann viewed the torso on exhibition in Aachen, sometime before 1886, leading him to publish the full inscriptions and correct the attestation.¹⁵ Nothing in this history, then, contradicts the possibility that the statue’s uncovering in Egypt might not long antedate its appearance in the count’s collection in 1880.

Despite the fact that in these early references there was no indication of any original archaeological find spot, W. M. Flinders Petrie twice quite explicitly states in his 1905 *History of Egypt* that the statue comes from Tanis and uses this information as the basis for a rather specific, if erroneous, argument in his historical exposition.¹⁶ While the absence of documentation means that Petrie’s claim for a Tanite find spot has been widely disregarded in studies of the political development of the period, circumstantial evidence and Petrie’s reputation for character and integrity would argue that his assertion should not be discounted lightly. Moreover, there is an overlooked and much earlier reference to Pedubaste’s Tanite find spot by Gaston Maspero himself in 1887.¹⁷ Maspero and Petrie certainly interacted, and each was in a position to have information that descended from independent sources in Egypt. Maspero was head of the museum in Cairo from 1881, and in 1887 he issued a set of incomplete unpublished reports that he was

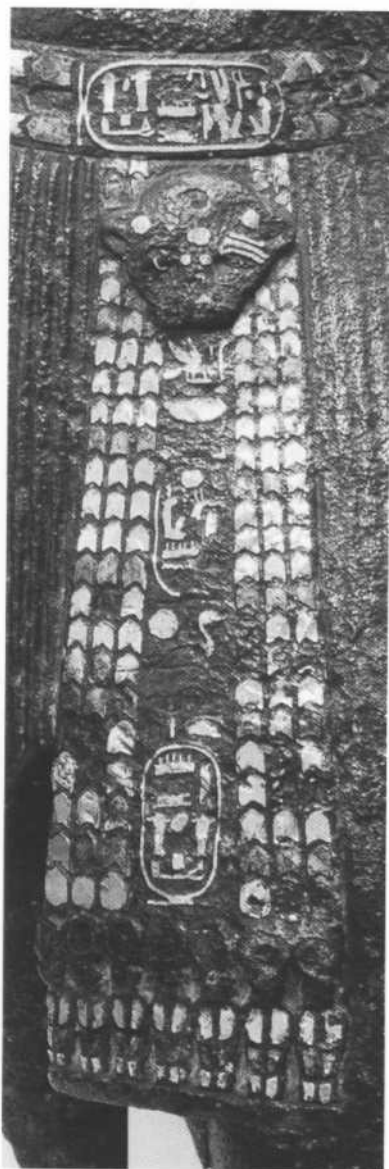


Figure 5. Pedubaste torso fragment, detail with cartouches on belt buckle and feather apron (photo: B. Barrette)

Figure 6. Reconstruction of cartouches on belt buckle and feather apron (computer image: J. P. Allen)



able to collect about the protracted excavations at Tanis, beginning with Auguste Mariette between 1860 and 1864 and continuing with reconnaissance by various deputies of Mariette, including Brugsch himself, from about 1869 to 1875.¹⁸ Petrie of course excavated at Tanis himself in 1883–84 and noted that he employed an old foreman who had worked with Mariette and knew much about Tanis.¹⁹

PEDUBASTE AS A HISTORICAL FIGURE

The subject of the torso is identified by a horizontal cartouche on the belt that contains both coronation and personal names (reading right to left) and by a titular on the central column of the feather apron, with the names in separate cartouches (reading right to

left, from top to bottom) (Figure 5; a rendering of the restored inscriptions is given in Figure 6).²⁰ The former reads “Usermaatre-Chosen-of-Amun, Pedubaste-Son-of-Bastet-Beloved-of-Amun,” and the latter “King of Upper and Lower Egypt, Lord of the Two Lands, Usermaatre-Chosen-of-Amun, Son of Re, Lord of Diadems, Pedubaste-Son-of-Bastet-Beloved-of-Amun.” Inscribed monuments from the Third Intermediate Period (Dynasty 21 through Dynasty 25; ca. 1070–664 B.C.) attest to at least a twenty-three-year reign for an Usermaatre Pedubaste, and Kenneth Kitchen’s fundamental account of the period identifies this figure with the Pedubaste whom the ancient chronologist Manetho listed as the first king of Dynasty 23, who ruled for twenty-five years. On the basis of various synchronizations, this monarch has been assigned dates of ca. 818–793 B.C.²¹ Instances in which an Usermaatre Pedubaste employed an additional volitional epithet—usually Son-of-Bastet but in one case Son-of-Isis—are all ascribed to the same king. Kitchen considered Dynasty 23 a line contemporary with roughly the second half of Dynasty 22, which extended from ca. 945 to 713 B.C., and conjectured that it ruled from some northern capital outside that dynasty’s capital of Tanis, since simultaneous dynasties in one capital seemed unacceptable. The Tanite find spot given by Petrie for the statue was set aside because it appeared to be unsupported by earlier statements.

However, the Third Intermediate Period has always been understood as distinguished by the existence of more than one significant power focus, and continuing scholarly thought has only further emphasized the complexity of political organization during the period. While consensus still holds that Usermaatre Pedubaste reigned in the last decades of the ninth century,²² some have argued with considerable persuasive power that the Dynasty 23, with a capital somewhere in the north, to which Pedubaste and several other kings had been assigned, is a modern construct and that, judging from their predominantly Theban attestations, Pedubaste and these other kings actually constitute a secondary line of pharaohs ruling from that southern capital. These scholars suggest that Manetho’s coherent Dynasty 23 is not contemporary with Dynasty 22 but a late successor to it and that the Pedubaste of Manetho’s Dynasty 23 is another Pedubaste altogether.²³

While it may be appropriate to give great weight to the Theban attestations of Usermaatre Pedubaste and to consider associating him with other Theban-attested kings, these arguments have generally accepted the convenient dismissal of Petrie’s assignment of a Tanite find spot to the statue, and, in what seems a recrudescence of error, have sought to virtually nullify the

provenance and internal evidence provided by three private stelae and by patterns in the use of the volitional epithet Son-of-Bastet that do imply some kind of northern affiliation for the king.²⁴ Such problems, among others, have given rise to yet more theories regarding Pedubaste's regional power base and capital.²⁵ Quite recently, one scholar closely involved in these historical discussions has revisited the question and, while continuing to set aside any evidence from the bronze, relies mainly on synchronisms to argue that Pedubaste Son of Isis/Son of Bastet must have reigned in the last decades of the ninth century *outside* the two series of kings constituting northern and southern Dynasty 22—but with influence in both areas.²⁶

These extremely complicated matters have given rise to highly ramified and contingent arguments that form a specialized area of competence. Insofar as they bear on the bronze torso of Pedubaste, there is no chronological change, nor has any definitive terminological distinction resulted from the suggested revisions, although the manner of thinking about the period's organization has clearly shifted. However, as far as the discussions pertain to specifying the king's area of influence and thus acknowledging possibilities for the find spot or production of the bronze, there are distinctions. Ideas emerging in the most recent discussions would seem to accord best with the evidence for a Tanite find spot.

TECHNICAL EXAMINATION

Investigations of the figure of Pedubaste were carried out in the Sherman Fairchild Center for Objects Conservation at the Metropolitan Museum and in the Oficina de Restauro at the Museu Calouste Gulbenkian. X-ray radiography, energy-dispersive X-ray spectroscopy (EDS), scanning electron microscopy (SEM),²⁷ metallography, and polarized-light microscopy,²⁸ in addition to visual examination under magnification, were carried out in order to determine its present condition, to characterize the materials and methods used to produce this elaborate work, and to establish its place in the technological development of ancient Egyptian bronze statuary.

Condition

The fragment extends from the lower rib cage to the top of the left knee and the middle of the right knee. The measurement of twenty-three centimeters from hipbone to midknee suggests an original height of seventy-four to seventy-eight centimeters, exclusive of any possible headdress.²⁹ Much of the back side is lost

(Figure 7), including what was a large patch used presumably to repair a casting flaw. The bronze appears to have suffered several strong, intentional blows that gouged the surface (Figure 3), distorted the leopard head on the apron (Figure 5), cracked the metal above the left hip (Figures 3, 8), and deformed the metal above the buttocks at the break edge, probably thereby helping to dislodge the patch. Longitudinal cracking and distortion of the wall along the break edge on the proper side of the left leg (Figure 9) may likewise be the result of percussive impact. Alternatively, the latter damages could have occurred during casting, when the molten metal cooled and contracted around a hard, unyielding core,³⁰ or after deposition, from the pressure produced when an iron armature inside the leg rusted, increasing its volume in an enclosed space too small to accommodate it.³¹

The current condition of the figure and the distribution of corrosion within the dendrites of extant metal, observed in a polished section during metallographic examination, both confirm that when found the bronze was covered with a massive crust of archaeological corrosion. At what point the figure was cleaned is undocumented, as discussed above, but this surely took place before Wiedemann recorded the hieroglyphic inscriptions. After removal of the corrosion, the surface of the bronze probably appeared as it does today, a dull brownish black and heavily pitted (Figure 2; Colorplate 20). In some areas it is more severely eroded, as demonstrated by the loss of surface detail and by the difference between the relatively raised position of some of the gold inlays, which corresponds more or less to the original surface, and the current surface (Figure 10). There are occasional patches of massive green and red corrosion products, and a few bright green spots of active bronze disease were noted when the figure was examined in the Sherman Fairchild Center.

The interior surfaces are covered with a layer of pale green corrosion, and some core material survives in the cavities. Two paper labels are adhered to the back side of the abdomen wall. The larger, rectangular label is handwritten and makes reference to the bronze as number 612 in the Muller sale of 1921, at which Gulbenkian acquired the statue (Figure 11).³² The text on the smaller, round label, perhaps stamped rather than handwritten, is illegible.

Three gold chevron inlays in the belt over the right hip, visible in the photograph that appeared in the Pollak and Muñoz catalogue (Figure 4), are no longer in place. Located fourth from the center on the top row, and third and sixth on the middle row, these inlays do not appear in photographs made for the catalogue of the 1937 British Museum exhibition³³ and



Figure 7. Pedubaste torso fragment, reverse
(photo: B. Barrette)

Figure 8. Pedubaste torso fragment,
detail showing damage to left hip
(photo: D. Schorsch)

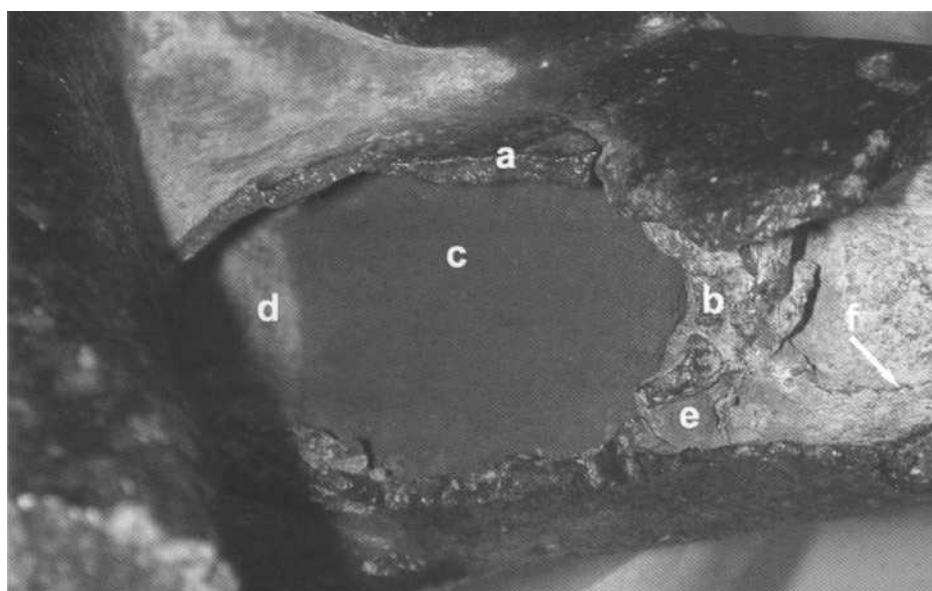


Figure 9. Pedubaste torso fragment, interior of left leg, showing (a) distorted and cracked wall of leg, (b) bronze wall between core cavities, (c) black and (d) red cores in main core cavity, (e) red core in leg core cavity, and (f) casting fin
(photo: D. Schorsch)



Figure 10. Pedubaste torso fragment, detail showing location of original surface, indicated by hieroglyph inlays, and adjacent eroded areas (photo: D. Schorsch)



Figure 11. Pedubaste torso fragment, detail showing labels on interior wall of abdomen (photo: B. Barrette)

were probably already missing in 1922, when the figure was on display in the Exposition Champollion in Paris, to judge from a photograph taken during the exhibition.³⁴ Parts of some hieroglyphs may have been restored, but this is difficult to ascertain as many of the inlays probably had tarnished after they were cleaned

and are barely discernible or entirely obscured in the early photographs. They were revealed again only after a second, superficial cleaning, probably carried out before the figure was displayed in the British Museum. In any case, the head of the goose and the spot over the leopard's right eye appear to be modern, while the smaller spot just to the right of the leopard's right eye may be a replacement for a fragment of a spot that was visible in the 1911–12 catalogue photograph. The chevrons on the belt and feather apron are heavily abraded, perhaps as a result of the first cleaning, and many bear deep scratches or linear gouges that are continuous across the front of the figure. Little remains of the gold sheet used to inlay a ritual scene on the torso just above the waist. When the statue was displayed in New York in 1999–2000 and reexamined in Lisbon in 2003, thin tarnish films covered many of the “copper” chevrons and several gold ones.³⁵ The entire surface of the figure appears to have been coated with a wax or resin.

Manufacture: Casting Technology

The statue of King Pedubaste is hollow (Figure 12) and was cast using the direct lost-wax method. Hollow-cast statuary was first produced in Egypt during the Middle Kingdom (ca. 2051–1650 B.C.),³⁶ and although a handful of hollow royal figures can definitely be dated to the New Kingdom (ca. 1550–1070 B.C.),³⁷ it was during the Third Intermediate Period that elaborately decorated bronzes displaying the refinement, the ambition in execution, and the scale of this royal figure first appear. These many centuries, from the beginning of the second millennium until the middle of the first millennium B.C., were experimental years in Egyptian bronze casting. By virtue of its manufacture, each direct lost-wax cast is unique, but statuary dating from this period is particularly variable in its production, especially when compared with the small statuettes of kings, deities, and sacred animals produced in large numbers during the Late, Ptolemaic, and Roman periods (664 B.C. to A.D. 330), which are not only technologically more uniform but often aesthetically less significant.³⁸

The traditional lost-wax method consists of the following series of steps. An exact model of the final object is formed in wax and invested with a refractory mixture of clay and sand with some organic matter. If the cast is to be hollow, the wax is modeled over a core made from a mixture similar in composition to that of the investment. The wax is slowly melted and poured or volatilized from the investment, leaving a void that replicates exactly the contours and dimensions of the model. The ceramic investment is fired and molten

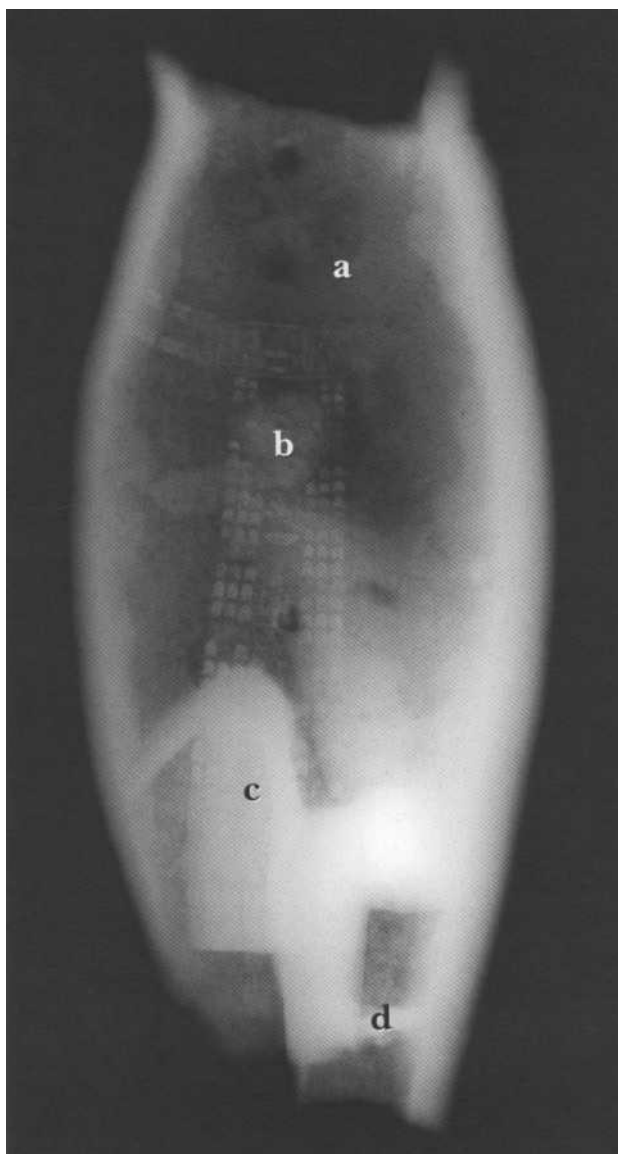


Figure 12. Pedubaste torso fragment, frontal radiograph showing (a) navel, where wax was thinned when forced into depression modeled in core, (b) leopard head and (c) feather apron, both added in relief to wax model, and (d) bronze wall between adjacent core cavities (photo: D. Schorsch)

metal poured in. When the assemblage has cooled, the investment is cracked open and the cast is then removed.³⁹ Anthropomorphic figures may have integrally or separately cast arms, but on hollow bronze statuary from Egypt, they generally were made separately. The arms on the Pedubaste figure may have been hollow or solid, but its large size makes hollow casts more likely; almost certainly the arms were cast separately and attached mechanically with some type of mortise-and-tenon join.

After the wax model is prepared and before the investment is applied, a gating system consisting of a

sprue and runners, and sometimes gates and vents, is added in wax. When melted away, the sprue creates a central vertical channel for the metal to flow into the runners, which are vertical members attached directly to the model. The model can be connected indirectly to the runners by horizontal channels known as gates, while vents allow gases that accumulate in the investment, the core, or the molten metal to disperse. Core supports may be inserted before or after the investment is applied. When the investment is removed, the sprue, runners, gates, and vents—now replaced by metal—are chiseled away, and the surfaces are then cleaned by chasing, grinding, and polishing.

The torso fragment has two core cavities, which indicate that at least two separate cores were modeled, clad with wax sheets, and invested together to be cast as a single piece. The larger cavity, contained within the body, the right leg, and the upper part of the left thigh, is separated from the second cavity in the lower part of the fragmentary left leg by a bronze wall that now replaces the wax sheet used to join the two cores (Figures 9, 12). Such joins are seen in larger hollow-cast Egyptian bronzes and have been observed even in relatively small examples. The location of the joins varies, but human or anthropomorphic figures often have a solid neck with a separate core in the head or, if seated and wearing a long garment, a separate core in their lower legs separated by an internal bronze wall near the knees (Figure 13).⁴⁰ Casting cores, after they have dried, can be friable and are easily damaged. The use of multiple cores may have been intended to avoid the problem of breakage and certainly was a practical solution when it did occur.

Casting cores in Egyptian bronzes typically were left intact,⁴¹ unless the pieces were intended to function as sarcophagi, which is the case for many of the hollow-cast animal figures dating to the first millennium B.C.⁴² While most of the core material originally inside the Pedubaste figure probably eroded and dispersed during burial or was removed after retrieval, there are remains of two different casting cores. A hard black core, similar in appearance to those commonly found inside ancient Egyptian bronzes, is concentrated in the left leg; adjacent, in the same cavity, where the leg joins the body, is a second, even harder, red core (Figure 9). A trace of red core material also survives in the separate cavity in the left leg. The transition between the red and black materials in the main cavity is relatively sharp, as though the modeling of the core had begun with one material, with the second applied to a smoothed edge. The use of two different cores within a single cavity in an ancient Egyptian bronze, or even in two different cavities in the same cast, is previously unreported.



Figure 13. Statue of the goddess Wadjet (MMA 10.175.134, h. 38.5 cm), radiograph of bronze figure cast with three cores, one in the uraeus, one in the body and base, and one in the lower legs: (a) bronze wall between upper and lower legs, (b) core supports, and (c) solid feet (photo: D. Schorsch)

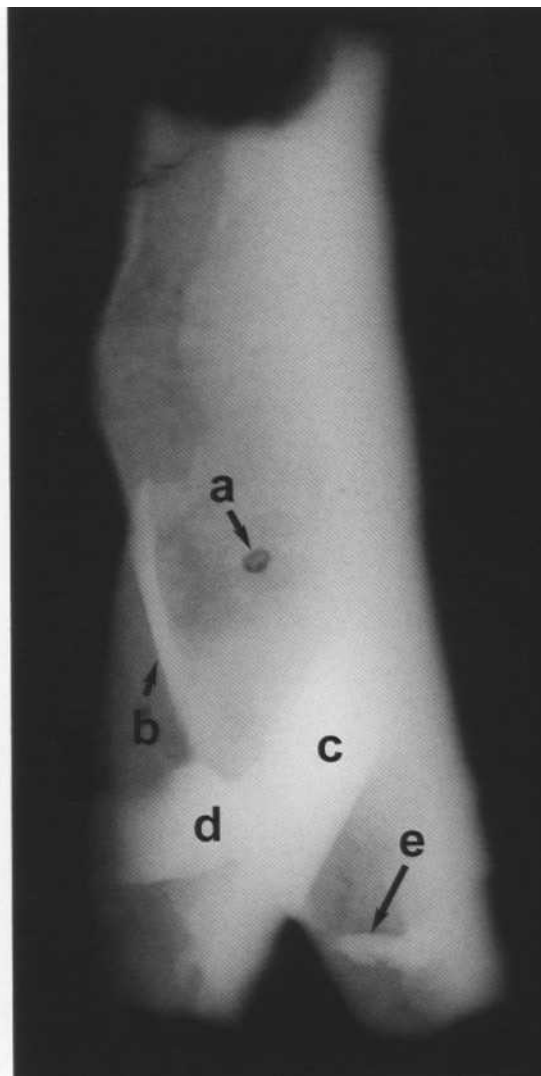


Figure 15. Pedubaste torso fragment, side-view radiograph showing (a) core support in hip, relative thicknesses of (b) back and (c) front walls, (d) increased radiopacity of kilt modeled in wax, and (e) internal wall between core cavities in left leg (photo: D. Schorsch)

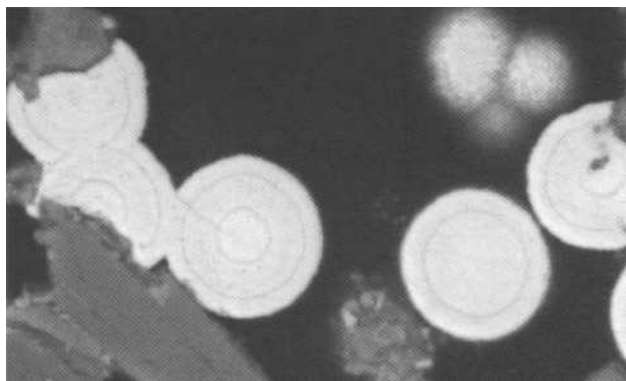


Figure 14. Pedubaste torso fragment, scanning electron photomicrograph of red core from interior cavity, showing copper-rich spheres, which appear green in the photomicrograph thin section (photo: M. T. Wypyski)

In fact, little attention has been paid to the cores present inside ancient Egyptian hollow-cast metal statuary,⁴³ although some consideration has been given to the potential use of thermoluminescence analysis for dating works.⁴⁴ Samples of both core types in the figure of Pedubaste were mounted and prepared as thin sections and examined using transmitted light and in the scanning electron microscope, supplemented with EDS analysis. As expected, in their basic aspect the cores are quite similar, consisting primarily of quartz, clay minerals, and some feldspar. Since both cores contain comparable amounts of iron, probably associated with the clay and also present as an impurity in other constituents, and were heated within the cavity under the same atmospheric conditions, it is

presumably the absence or presence of organic materials in the two mixtures that accounts for the red and black colors. Unrelated to this aspect, but also a significant difference between the two, is the occurrence in the red core of substantial numbers of green, copper-rich spheres, approximately fourteen microns in diameter (Figure 14), as well as lead-rich crystals and some metallic lead, all of which were undetected in the black core. The concentric structure of the green copper-rich inclusions suggests that they formed *in situ* over an extended period of time around metal particles entrained in the core.⁴⁵ It seems likely, therefore, that incorporated in the red core was refractory material, recycled from another metallurgical process, which contained microscopic metal particles that corroded within the core cavity during burial. In view of the lack of comparative studies of ancient casting cores, no further conclusions about the cores can be made at this time, but the near absence of casting fins on the statue's exposed interior surfaces (Figure 9) may attest to their hardness. Casting fins are narrow ridges that form when molten metal flows into cracks in cores, investments, or molds. When present, such flaws are generally removed from exterior surfaces during the finishing process.

When hollow statuary is cast, some provision must be made to support the core after the wax has been removed from the investment. Sometimes part of the core is made to extend through the wax cladding, where it can be embedded in the investment.⁴⁶ Two other traditional means of supporting a core during casting are metal armatures that run through the core and extend into the investment, usually through the undersides of the feet on figural statuary, and small core pins, also called chaplets, that are forced through the investment wall and wax layer into the core.⁴⁷

Iron came into general use in Western Asia during the second half of the second millennium B.C., but Egypt was very slow to adopt ferrous metallurgy. With a few notable exceptions, among them one of the daggers discovered on the body of King Tutankhamun (ca. 1336–1327 B.C.),⁴⁸ few iron artifacts found in Egypt have confirmed dates prior to 1000 B.C., and they continued to be relatively rare until the mid-first millennium.⁴⁹ Nevertheless, iron core supports were already used in Egypt during the Third Intermediate Period; during the Late Period (664–332 B.C.) and onward, hollow bronzes were cast almost exclusively using small wrought-iron core pins that were square or rectangular in section (Figure 13).⁵⁰

The surviving torso fragment has five quite large iron chaplets. They are located in the center of the chest just below the break edge, in the upper cartouche on the feather apron, near the bottom center

of the buttocks, and one in each thigh. The rectangular sections—sometimes displaying a laminar structure that confirms their manufacture by hammering—are clearly visible in the radiographs (Figures 15, 16), despite how distorted by corrosion the supports themselves appear on the inside of the figure (Figure 17).⁵¹ Unlike Greek and Roman bronze founders, who typically removed core supports and hammered or cast bronze plugs into the holes left behind,⁵² ancient Egyptian metalworkers cut off only the end of each chaplet where it extended outward from the exterior surface. The remaining lengths of the supports, however, are rarely preserved in a metallic state, usually surviving only in the form of corrosion.⁵³

Imbedded in the core of the Pedubaste figure was at least one section of iron armature, which would have given it additional strength during the manufacturing process. Although well-positioned armatures may be used to support the core during casting and eliminate the need for chaplets, when armatures are present in ancient Egyptian bronzes there are usually also core supports. All else being equal, armatures are more likely to be found in larger statuary, and in Egypt, the use of iron armatures may be an innovation of the Third Intermediate Period. Iron armatures are present inside several figures in the British Museum⁵⁴ and in a female figure in Leiden,⁵⁵ all dated to the Third Intermediate Period. Large Egyptian statues excavated at the Temple of Hera on the Greek island of Samos were part of later deposits but seem to be stylistically datable to this period.⁵⁶ Armatures, intact or in traces, can be seen inside some of the more fragmentary works with exposed cores, such as a torso of a priest, two right leg fragments, a fragment of a garment with a right leg, and possibly a second torso fragment.⁵⁷ The Samos

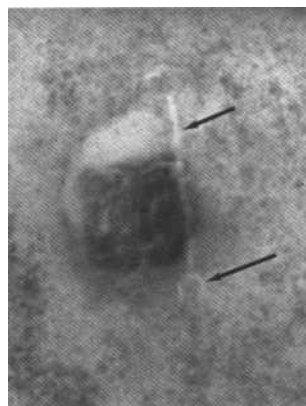


Figure 16. Pedubaste torso fragment, detail of front-view radiograph showing core support in abdomen and inlaid *was* scepter, indicated by arrows (photo: D. Schorsch)

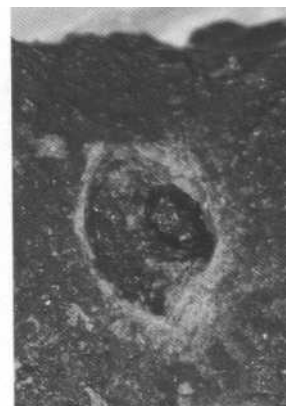


Figure 17. Pedubaste torso fragment, detail of core support on interior wall of abdomen (photo: D. Schorsch)

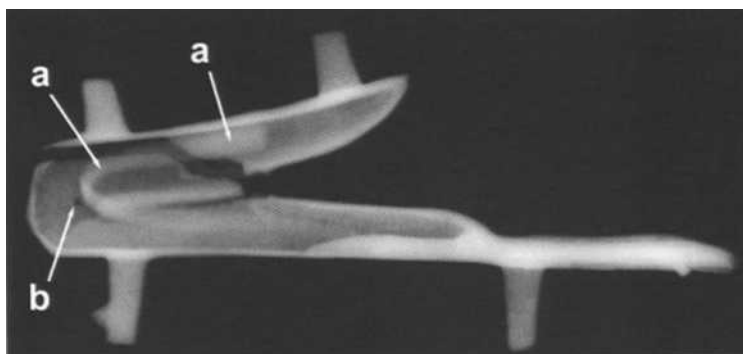


Figure 18. Copper-alloy leg attachment from Egyptian ibis sarcophagus (whereabouts unknown, l. ca. 18 cm), radiograph showing (a) internal iron armature and (b) core support (photo: D. Schorsch)

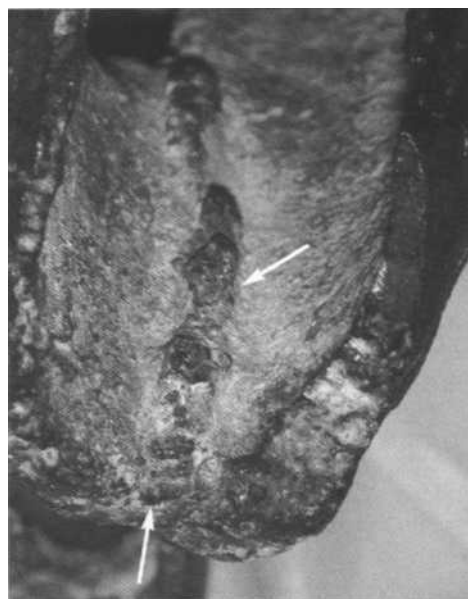


Figure 19. Pedubaste torso fragment, detail of iron armature imbedded in front wall of right leg (photo: D. Schorsch)

bronzes, which have not been radiographed, appear to have core supports as well as the armatures; the British Museum bronzes also display both features.⁵⁸ Even some quite small casts, such as a leg attachment for an ibis sarcophagus measuring approximately eighteen centimeters in length, occasionally contain iron armatures (Figure 18).⁵⁹ The iron armature here seems superfluous because it is entirely internal and was not used to anchor the core in the investment during casting; a single core support is visible in the side-view radiograph.⁶⁰ The cracking of the metal walls is probably due to the expansion of the iron as it corroded. An unusual U-shaped, flat, cupreous armature is present inside a small bronze figure of the Nile god Hapy, which may well date to the Third Intermediate Period.⁶¹

As for the figure of Pedubaste, the combined efforts of armature and core supports did not prevent the cores from slipping backward and slightly to the right during casting, producing extremely thick walls that measure up to two centimeters in the front of the torso and the advancing left leg (Figure 15). This was at the expense of the now barely extant back wall, which, owing in large part to its extreme thinness, was both more susceptible to mechanical damage and more vulnerable to the corrosive burial environment. When the cores slipped, the armature in the right leg cavity became imbedded in the inside of the front wall of the leg (Figure 19). Although iron has an atomic weight slightly lower than copper, and substantially less than tin and lead, armatures within casting cores typically are easily seen in radiographs of hollow bronzes (Figure 18). In the Pedubaste figure, however, the armature fragment is not visible because of

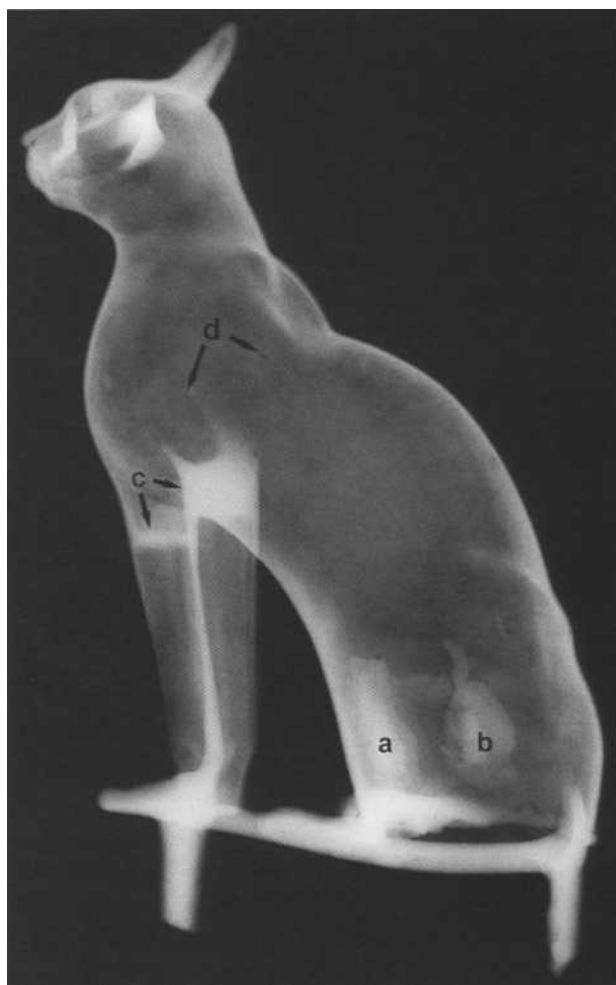


Figure 20. Cat sarcophagus (MMA 56.16.1, h. 28 cm), radiograph of hollow-cast bronze showing (a, b) cast-in repairs, (c) bronze walls between core cavities in legs and body, and (d) core supports (photo: D. Schorsch)

the substantial radiopacity of the thick bronze wall in which it is embedded.

Barring such accidents, the thickness and evenness of the walls depend entirely on the character of the wax sheets used to clad the core: if the wax is applied in sheets of a consistent thickness, the walls of the cast will be even. Hollow casts often terminate in independently modeled solid components, and depending on their size, figures with hollow legs, for example, often have solid feet (Figure 13). The Pedubaste torso has no surviving extremities, but the use of solid wax components that were modeled separately and applied to wax sheets over the core was noted in visual examination and confirmed in the radiographs. These include the leopard head, the lower section of the feather apron where it extends over the right leg (Figure 12), and the adjacent lower edge of the kilt, which then flows across the legs, articulated only in shallow relief. The wax sheet applied to the abdomen was thinned where forced into a depression for the navel modeled in the core (Figure 12).

Other than the shifted cores and the resultant loss, the quality of the casting appears relatively good, judging from the lack of porosity. As a rule, Egyptian bronzes, whether solid or hollow, rarely have surface repairs. In theory, repairs are required more frequently on larger works, both because they are more challenging to cast and because, representing a far greater investment of time and fuel, they are less apt to be discarded as defective during manufacture. Although hammered patches are occasionally seen on Egyptian bronzes, usually on works of the second half of the first millennium,⁶² the infrequent repairs that are observed tend to be of the cast-in variety (Figure 20). By contrast, Greek and Roman bronzes, both large and small, have numerous plugs filling small voids left by core supports intentionally removed after casting, as well as patches of all sizes used to repair casting flaws. Hammered plugs were employed to improve porous surfaces on some of the rare extant examples of Egyptian solid-cast silver statuary,⁶³ silver being a softer metal that is more easily cut. The scarcity of such patches on Egyptian bronzes, at least until the mid-first millennium B.C., may reflect the difficulty of preparing a bronze surface without suitable iron tools, although it is possible that a consistently better quality of casting may have necessitated fewer surface repairs. On the other hand, Egyptian bronze founders may have been more ready to recycle faulty castings than to repair them, although such an assumption would be difficult to document. In view of the perceived resistance in Egypt to ferrous metallurgy until well after it had been widely adopted in the Near East,⁶⁴ it is worth noting that only implements

made of iron could have cut the rectangular opening recessed into the bronze wall near the buttocks (Figure 21), which previously accommodated a large patch covering the lacuna produced during casting.⁶⁵

Visual examination of Egyptian bronzes over the last several years has revealed other instances in which iron tools were employed for a similar purpose during the Third Intermediate Period, such as on the left foot of the figure of Meresamun, “Singer of the Interior of Amun,”⁶⁶ and more examples will surely follow. One of the largest extant Egyptian bronzes, a striding figure of Horus in the Louvre, also said to date to this period,⁶⁷ shows evidence for the use of iron tools in its original manufacture: the irregular recess in the advancing left leg was cut into the metal, possibly to accommodate the tab on the *shendyt* kilt.⁶⁸

Metallographic Examination and Alloy Composition

A polished section prepared from a sample removed from the back of the left leg and examined with a metallographic microscope revealed no unexpected features, and dendrites attesting to manufacture by casting and a healthy layer of intergranular cuprite confirming the archaeological origin of the figure were observed. In addition, EDS analysis carried out on the section indicates that the alloy—an unleaded bronze containing approximately 93.4 percent copper,

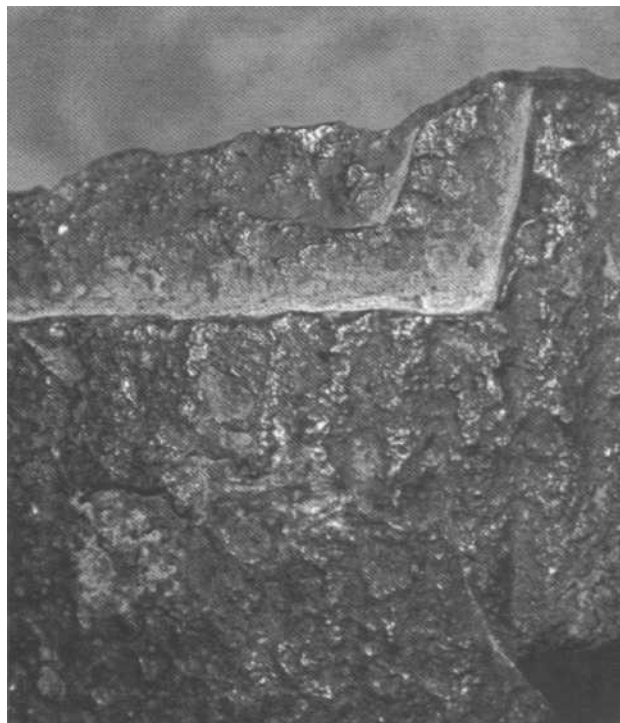


Figure 21. Pedubaste torso fragment, detail showing lower perimeter of opening prepared for hammered-in patch (photo: D. Schorsch)

3.7 percent tin, and 0.7 percent lead—is consistent with the figure’s Third Intermediate Period date. The earliest figural Egyptian bronzes, which were produced during the Middle and New Kingdoms, generally contain low to moderate amounts of tin and no lead. In the first millennium B.C. the percentage of tin is often higher, although Jack Ogden notes a decline in tin content during the Third Intermediate Period.⁶⁹

The question of when the consistent production of intentionally leaded bronzes began in Egypt is far from settled. According to Eleni Vassilika, lead is virtually absent in bronzes until Dynasty 20 (ca. 1186–1070 B.C.), while the extremely high lead contents traditionally associated with Late Period or later alloys can be attested to as early as Dynasty 22 (ca. 945–713 B.C.).⁷⁰ Vassilika bases her conclusion on the analysis published by Paul Craddock of the figure of King Pami,⁷¹ who reigned in the latter part of Dynasty 22, a period that overlaps with Dynasty 23 (ca. 818–ca. 713 B.C.), and who therefore actually postdates Pedubaste.⁷² A substantial amount of lead is present in an unusual alloy used to cast a Third Intermediate Period private male figure attributable to the time of Dynasty 22,⁷³ also in the British Museum.⁷⁴

Although all metallurgical traditions are marked on one hand by precocious innovations immediately abandoned, and on the other by conservatism in the face of new developments, one observes in ancient Egypt the systematic introduction of new alloys, paralleled elsewhere in the Old World. Unalloyed copper was supplemented, and later virtually supplanted, by arsenical copper, which was then replaced by low-tin bronze and in turn by leaded bronze alloys with a higher tin content. Despite this observed progression, the current dearth of Egyptian figural bronzes that are securely dated by inscription or archaeological context, or even attributed on the basis of credible stylistic analysis, renders premature most discussions of dating, authenticity, or trends in alloying practices based on overall composition.⁷⁵ The trace amount of arsenic (0.4 percent) detected in the alloy used to cast the figure of Pedubaste is said to be typical of bronzes postdating the New Kingdom, although pieces containing considerably more arsenic have been cited.⁷⁶ Whether such alloys resulted from the exploitation of arsenic-rich ores or the recycling of older metalwork cannot be established, although in either case, if the arsenic content is sufficiently high, the alloy may have been chosen for its distinctive color or ability to be artificially patinated.⁷⁷ The iron content (1.8 percent) in the Pedubaste torso is higher than generally reported for Egyptian bronzes of the first millennium.⁷⁸

Manufacture: Surface Treatment

The elemental composition of the bronze alloy itself provides insight into the original appearance of the figure’s surface, which at this time is quite dark. While it may once have seemed reasonable to assume on the basis of its appearance that the figure is a “black bronze,” this is now known not to be the case. So-called black bronzes are works made from copper alloys with artificially induced, luminous black patinas, which were typically decorated with inlays of precious and nonprecious metals as well as with non-metallic materials such as stone, glass, and faience.⁷⁹ The first black bronzes appear in Egypt during the late Middle Kingdom (ca. 1859–1650 B.C.),⁸⁰ and simultaneously in the Aegean and Levant, with some examples dating to the New Kingdom,⁸¹ but the alloy was used to the greatest effect during the Third Intermediate Period, when bronzes became increasingly prominent in temple practices. The basis of the patination process is the presence of a small amount of gold intentionally added to the base alloy, which produces a coherent black surface layer when the metal is chemically treated.⁸² The absence of gold in the bronze used to cast the figure of Pedubaste indicates that the statue was artificially patinated by another, as yet undiscovered, technique or that it was not patinated at all, which may be thought surprising in view of its striking polychrome surface decoration.

In fact, recent analyses and new insights suggest the latter alternative to be more common than previously thought.⁸³ The figure of the “God’s Wife of Amun,” Karomama, in the Louvre, with its gilded flesh virtually clothed in garments of inlaid metal, is arguably the finest example of Third Intermediate Period large-scale, elaborately decorated statuary.⁸⁴ Among non-figural works, this distinction belongs to the fragment of a bronze menat inscribed for Harsiese in the Ägyptisches Museum, Berlin, which displays a range of metal colors and surface treatments in its elaborate inlay.⁸⁵ Both works have black surfaces, but recently published analyses of the Karomama figure, which was cast in several sections, confirm that neither the body nor the base is an intentionally produced black bronze, at least not of a type consistent with the current understanding of ancient technological processes.⁸⁶ Upon review, it appears that many of the Third Intermediate Period works thought to be black bronzes have not been analyzed instrumentally to confirm this visual assessment, as is also the case for some of the alleged black bronzes of the second half of the first millennium B.C. Many archaeological copper and copper-alloy artifacts, both from Egypt and elsewhere, have dark brown-black surfaces that are the result of

cleaning and repatination processes and are not patinas intentionally produced in ancient times.

Traces of gold are visible on Pedubaste's kilt—for example, on the reverse below the break edge—and on the front and back of the left thigh, but the method used to apply the leaf cannot be established. Various metallurgical mechanical and adhesive gilding methods used in ancient Egypt have been described.⁸⁷ In this case, given the options available to craftsmen in Ptolemaic times, and the absence of evidence of another method, some form of oil gilding—leaf gilding using an organic adhesive medium—seems most probable.⁸⁸

The king's belt and apron are inlaid with chevrons of gold and “copper” that read visually as yellow and red, respectively. There are also gold hieroglyphs on the apron, and gold figures of deities on his abdomen.⁸⁹ The inlays were fixed mechanically by crimping and hammering (Figure 22).⁹⁰ Gold “strips” that circumscribe some of the deity figures correspond to the surviving edges of these gold sheets where they were secured beneath flanges in the bronze (Figure 23). For the strictly linear elements of the inlay, such as the cartouche borders and some of the hieroglyphs, deliberately cut narrow strips of gold were hammered into channels that had been carved into the wax model prior to casting.⁹¹

Analyses of one “copper” and two gold chevrons, as well as gold from one of the hieroglyphs, were carried out using EDS. The three gold samples are similar in composition, averaging approximately 71 percent gold, 22 percent silver, and 7 percent copper. Most Egyptian gold generally contains silver or is actually electrum, a naturally occurring alloy of gold with 20 or more percent silver, and, indeed, like gold inlays on the Pedubaste figure, most examples are ternary alloys of gold, silver, and copper. As a rule, however, Egyptian auriferous ores do not contain more than 1.5 percent of the latter;⁹² in this case, the starting material was probably an electrum containing approximately 78 percent gold, to which copper was added.

On the other hand, the composition of the so-called copper inlay, which is actually a gold-copper alloy containing approximately 56 percent gold, 43 percent copper, and 1 percent silver, is rather unusual, although the recently published analyses of inlays on the figure of Karomama, which is traditionally described as having inlays “d’or rose, d’argent, d’électrum(?), pâte noir et blanche (yeux), cuivre rouge (inscription du socle),”⁹³ have highlighted comparable examples.⁹⁴ In the New Kingdom, during the reign of Akhenaten (ca. 1352–1336 B.C.), quite occasionally red-gold alloys were produced through the addition of large amounts of copper to gold.⁹⁵ A few examples of high-

copper gold alloys dating to other periods are known, but whether or not their coloration reflects a conscious desire to produce red metal was not a question considered by the investigators, Zofia Stós-Fertner and Noel Gale.⁹⁶ In view of the typically high silver content of Egyptian gold, the small amount detected in the “copper” inlay used on the Pedubaste figure is also noteworthy.⁹⁷ The silver level found in Karomama's wing inlays is comparable, however, and the gold leaf on that figure's arms, as well as the gold inlays on the broad collar, also contain little or no silver; copper was intentionally added to the gold on the arms.⁹⁸

Black bronzes are visually striking because the inlays of precious metals, conventionally colored or patinated bronze alloys, unalloyed copper, and nonmetallic materials, along with precious metal cladding, are juxtaposed with the darkened surfaces of the bronzes they embellish. Yet this pronounced contrast did not represent the period's exclusive taste for decorative



Figure 22. Pedubaste torso fragment, detail of chevron inlays on belt (photo: D. Schorsch)

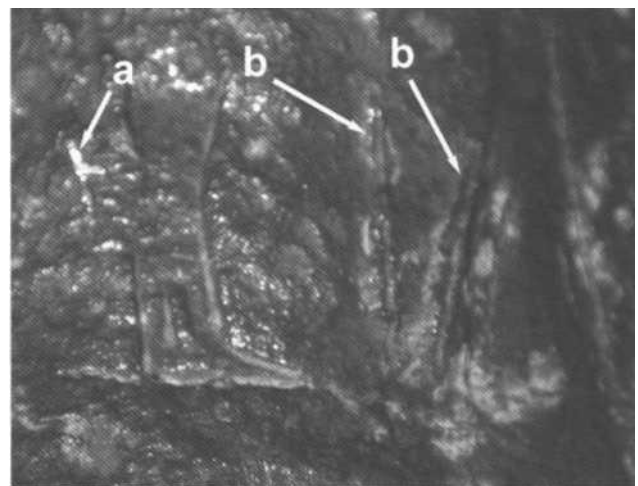


Figure 23. Pedubaste torso fragment, detail of abdomen with gold strips delineating deity figures, (a) ankh, and (b) other gold strips embedded in massive corrosion (photo: D. Schorsch)

surfaces on bronzes, as recent investigations offer increasing evidence for the development in Egypt of a second polychrome tradition, employing a different, softer palette.

The figure of Pedubaste, as far as can be ascertained in its fragmentary condition, and most certainly that of Karomama reflect this aesthetic, as do bronze figures of Montu-Ra and Khnum, both dated to the Late Period, recently studied at the British Museum in the former Department of Scientific Research.⁹⁹ In addition to the three, or possibly four, metal colors it now displays,¹⁰⁰ the statue of Pedubaste may have had details inlaid in patinated bronze alloys, including black bronze, which was used for the hieroglyphs on the base of the figure of Karomama.¹⁰¹ The separately cast figure of Karomama and its base were unpatinated, and each may well have been of a different color, owing to their varying tin contents, 3.67 and 12.6 percent, respectively. Their surfaces were decorated with inlays of gold, electrum, a “red gold” with a high copper content, and a copper alloy with a black patinated surface; the eyes were inlaid with stone,¹⁰² and the face, arms, and legs gilded.

The overall surface of the statue of Montu-Ra was also unpatinated. Gold inlay decorates the cobra hoods on the double uraeus and defines the eye sockets, while the eye stripes and nipples are inlaid with an arsenical copper alloy containing small amounts of lead and tin.¹⁰³ The color of this metal would not have been significantly different from that of the bronze substrate, but, as Susan La Niece and her colleagues suggest, the inlays may have been patinated a dark brown with a process analogous to the one used to produce black bronzes.¹⁰⁴ Although the god wears an inlaid black-bronze broad collar, itself inlaid with gold and electrum,¹⁰⁵ the overall color scheme features tones graduated from light to dark, with black as one end of the spectrum rather than a fixed point against which the other colors are contrasted. The British Museum figure of Khnum, which like the Montu-Ra is an unpatinated bronze alloy, has toenails

and fingernails inlaid with electrum and a solar disk overlaid with gold foil. The inlays in the atef crown are a high-tin bronze that is paler in color than the figure itself.¹⁰⁶ Both of these statues had inlays in their eyes that do not survive.

RECONSTRUCTION AND MEANING

Inlays on the chest

As the upper part of the torso was broken away, none of the heads of the figures inlaid with gold sheet on the king's chest are preserved. In addition, the surface is so corroded that much of the inlay is lost, although it may have been stolen at or before the time the piece was intentionally damaged in antiquity (Figures 23, 24).¹⁰⁷ Two groups of figures converge toward the center of the chest. At the center on the left, as one faces the statue, is the lower part of a mummiform figure with no visible arms or staff, followed by the lower part of a striding male whose arms cannot be traced. At the outermost edge a female figure holds an ankh in her right hand and in her left grasps a staff, certainly the papyrus scepter of a goddess, although the terminal is not visible. Advancing toward the center on the right is a striding male figure who extends the one arm that can be seen. Although it is invisible on the surface, radiographs reveal a forked form in gold inlay directly beneath the extended hand of this figure, clearly indicating that he holds a *was* scepter (Figure 16). Behind him are traces of the lower parts of two additional figures, best understood as a striding male and a female, but the gold remaining from the inlay does not permit a definite description.

The figures would seem to be fairly elongated, but this is difficult to confirm, since not one of them is complete; even their proportions are hard to gauge and compare because so many definition lines are missing. In the interstices between several of the figures, particularly in the rather wide space behind the mummiform figure, there are remains of inlay

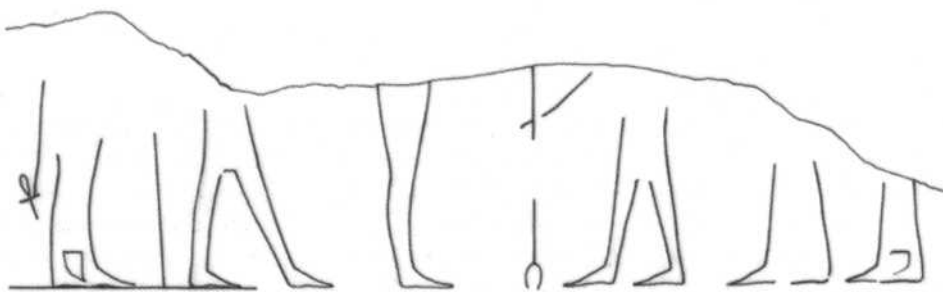


Figure 24. Pedubaste torso fragment, drawing of deities inlaid in gold on abdomen (drawing: W. Schenck)

that might represent identifying hieroglyphs or could simply be gold sheet displaced from elsewhere.

The mummiform figure is surely one of the mummiform gods, most probably Osiris, Ptah, or Min. There are other mummiform gods such as a popular form of Re-Harakhty, Ptah-Sokar-Osiris, and Khonsu and other moon gods.¹⁰⁸ The mummiform Re-Harakhty and Ptah-Sokar-Osiris are, however, more strictly funerary gods, while Khonsu and the moon gods seem unlikely since they are usually sons and would not head a family group, as is suggested here by the presence of a female goddess. Osiris can be shown either with elbows projecting on either side of his body, as his arms cross in front of his chest to hold the crook and flail, or with hands emerging from his wrappings on the front edge of his profile figure and holding either the crook and flail or a staff. Ptah generally carries a staff and is often shown inside a shrine, while Min is usually depicted with erect phallus, one arm extended to the rear to hold a scepter, and a long ribbon extending from the back of his head to the ground. Although there is space enough around the mummiform god to accommodate such elements, nothing relating to a long staff, Ptah's shrine, or Min's ribbon can be identified. Neither is there an indication of Min's erect phallus on the front of the figure, which should be preserved to a sufficient height to have shown this feature. The preserved traces best suit Osiris holding short scepters; in this case, the following figures would be Horus, possibly placing a hand on the shoulder of Osiris, and Isis. Nevertheless, since there is no guarantee that other features or attributes did not originally exist, a definite identification is not possible.

The presence of the *was*, commonly associated with male gods, suggests that the figure facing the mummiform deity is also a god, probably followed by his family. Although the scepter is occasionally carried by other figures, including kings,¹⁰⁹ the following discussion tends to confirm the divinity of the figure.

A review of other large bronzes with preserved figural decoration, along with a few other relevant pieces, was undertaken in order to help recreate and understand Pedubaste's decoration. Besides Pedubaste, only two statues with inlaid figural decoration can be unequivocally identified as royal. A statuette of Osorkon I from Tell el-Yahudiya bears on its chest a depiction of Thoth as an ibis on a standard, flanked on the right by a goddess with disk and horns and a *wadj* scepter, and on the left by a falcon-headed deity in the double crown with a *was* scepter; on the back is a vulture with spread wings and *shen* rings clasped in its talons.¹¹⁰ The previously mentioned statue of Karomama, a Theban god's wife whose name appears in

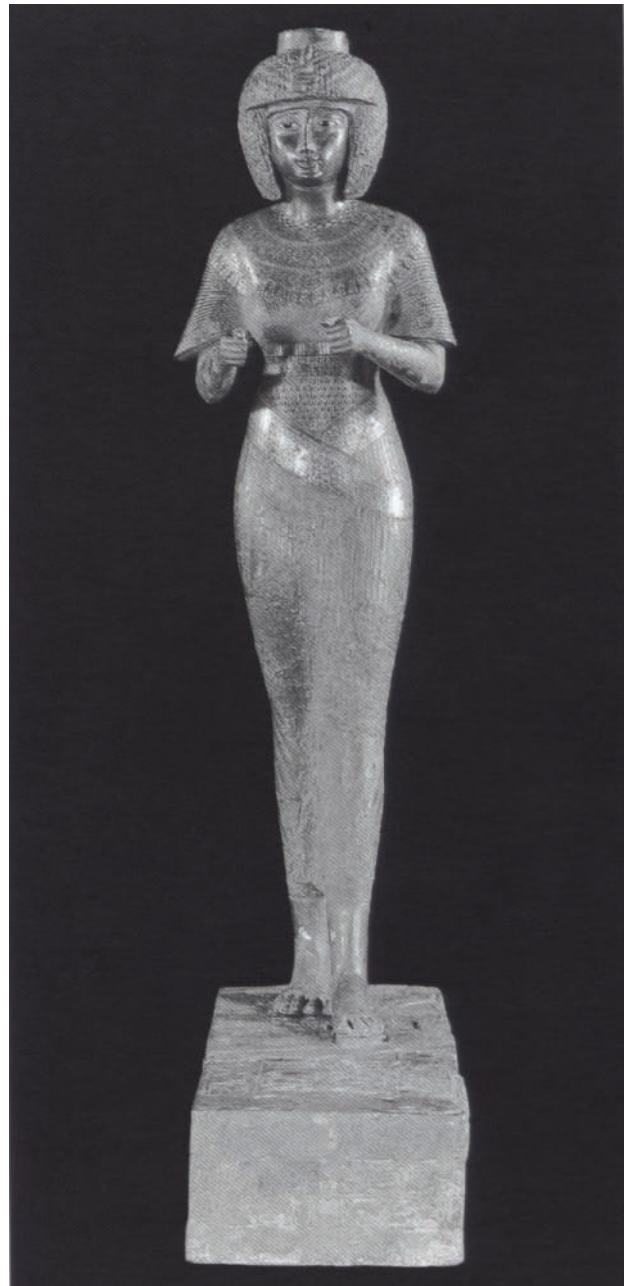


Figure 25. Statue of Karomama, Egypt, Dynasty 22, ca. 870–825 B.C., from Karnak. Bronze, with precious metal and copper inlay, h. (with base) 59.5 cm. Musée du Louvre, Paris, N 500 (photo: Service Photographique de la RMN, Georges Poncet)

cartouches on the counterweight of her collar and on her base, is encircled by large, elaborately inlaid wings symbolic of divinity (Figure 25).¹¹¹ Both are clearly examples of ritual statuary: Osorkon by the nature of the royal role in general and of that known for small bronze royal statuary,¹¹² Karomama by the nature of the role of the God's Wife, which is in many respects



Figure 26. Statue of Takushit, detail of upper body and head, Egypt, Third Intermediate Period, ca. 670 B.C., find spot unknown. Bronze, with silver inlay, h. 70.3 cm. National Archaeological Museum, Athens, 110 (photo: National Archaeological Museum)

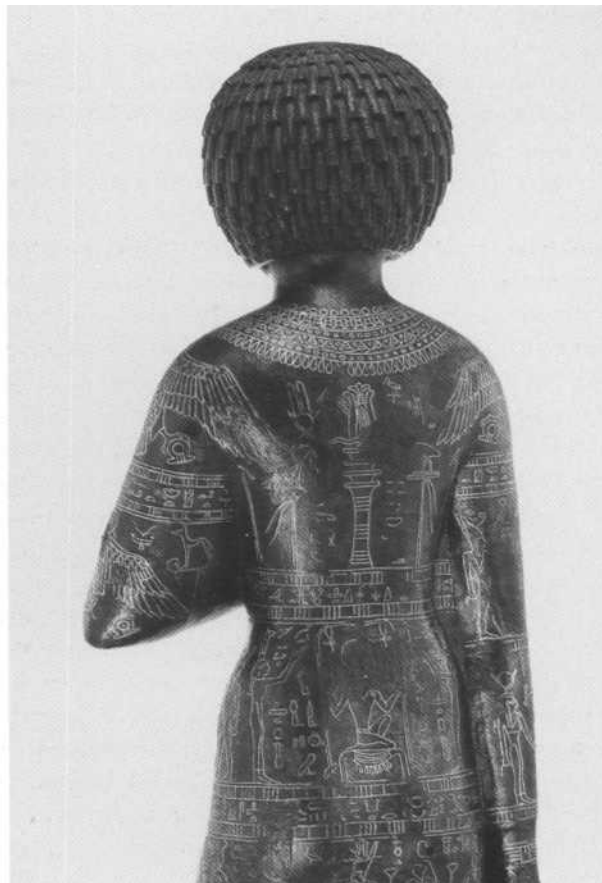


Figure 27. Statue of Takushit, reverse, detail of upper body and head (photo: National Archaeological Museum, Athens)

similar to that of the king, and by an inscription that describes the placement of her statue to appear as pilot on the bark of Amun.¹¹³

Other large decorated metal statues, all certainly to be dated to the period from Dynasty 22 through perhaps the mid-Saite period (ca. 945–589 B.C.), show a wide range of ornamentation. One group displays gods and divine emblems but no depictions of interaction between the divinities and the statue owner. Some of these include decorative elements that overlap with the types found on coffins; inscriptions clearly classify certain of these bronzes as funerary statuary, even if they also had another function within the temples where presumably all of them stood. Takushit's statue is an example of this type (Figures 26–28).¹¹⁴ While covered with precious-metal inlays illustrating a whole theology, in which the gods of Behbeit el-Hagar are privileged (probably signaling her origin), Takushit has an elaborately crowned *djed* pillar on her back (Figure 27), a popular decoration for the back walls of coffins since the *djed* is assimilated to the back-

bone of Osiris, and inscriptions on the statue clearly refer to her as “the Osiris Takushit.”¹¹⁵ An unnamed female in Berlin has a figure of Osiris on each thigh and on the right calf, the *henu* bark of Sokar on her chest, and an Abydos fetish on her back.¹¹⁶ The upper body of a man in the British Museum, discussed above with respect to its unusual alloy, has the *henu* bark of Sokar on the chest.¹¹⁷ Padimen in the Louvre, whose inscriptions do not specify his office, has a pectoral-like relief scene on his chest that depicts Amun flanked by Nefertem and Sakhmet; arranged vertically on both sides of a column of inscription on the front of his long skirt are two series of gods, one beginning with Ptah and the other with Amun.¹¹⁸

A second group of these statues has only a small figure of Osiris on the shoulder or sleeve.¹¹⁹ The previously mentioned large statue of Meresamun in Berlin has a figure of Osiris on her right front shoulder.¹²⁰ Another female, almost certainly from Karnak, retains traces of an Osiris figure drawn in the gesso surviving on her shoulder, although other decorations

may have been present that are no longer preserved.¹²¹ Pachasou, from Saqqara, has a small figure of Osiris on his right chest,¹²² and Ihat, a priest of Amun who wears a leopard skin and elaborate jewelry, has one on his right shoulder blade.¹²³

A third group includes a few statues with decoration that does depict interaction between the statue owner and the gods. Khonsumeh, a priest of Khonsu and most probably from the Theban area based on his inscriptions, has elaborate linear decoration of gods, but he also touches a three-dimensional statuette of Osiris that merges with the front of his skirt, while relief figures of relatives (?) are depicted as offerers on the sides of his kilt.¹²⁴ Governor of Upper Egypt, and associated with the town of Qus, Khonserdaisu is dressed in a priest's leopard-skin robe. He once protectively held a now-missing statue and has a scene on his kilt showing himself worshipping Osiris, as well as a small incised figure of Osiris on his upper right front shoulder.¹²⁵ A large bronze found in Samos represents an official also holding a base whose statue is missing, and the statue itself had at least one figure drawn near the hem of his skirt.¹²⁶ A priestly role could be signified for these examples since all have shaven heads, although Khonserdaisu's complete inscription does not include priestly titles.¹²⁷

Two interesting indications emerge. First, and a point that will not be pursued further here, the funerary aspect of much large bronze statuary is highlighted. This is a role that is distinct from the ritual-actor role associated with royal bronze statuary. For women active within the temple realm, the creation of the statue and the particular choice of material and type probably reflect their position in the temple and immersion in its cult practices. Similar considerations may have influenced the choice of statues by men, although the vagueness of our information on this point leaves open the possibility that the value placed on temple roles and bronze statuary during the Third Intermediate Period caused certain individuals to choose the type in order to create a temple association.¹²⁸

Second, and the significant point for understanding Pedubaste's decoration, is that the restricted indications currently available for large royal metal statuary, and for metal statuary in general, seem to indicate the decoration almost certainly showed confronted groups of gods rather than the interaction of god and king. The figures were most probably two divine family groups facing each other, one led by a mummiform god. Presumably their identities would offer geographic coordinates to further situate the bronze.

Although nothing is preserved of the corresponding area on the back of the Pedubaste fragment,

which also may have been decorated, certain suggestions can be made based on the ornamentation preserved on other bronzes. The vulture grasping *shen* rings, an emblem occasionally seen on the back of the royal crown, appears on the back of Osorkon I.¹²⁹ Takushit has on her back the *djed* pillar of Osiris, an emblem often occurring on the back of cartonnage cases or on the interior rear wall of the lower part of coffins.¹³⁰ The uninscribed Berlin female's Abydene Osiris fetish appears on the interior rear wall of the lower part of coffins but seldom in a focal position; perhaps this element on the back of the figure needs to be understood in relation to the Sokar bark on the front.¹³¹ On his upper back Khonsumeh has a depiction of a shrine in which Osiris, Horus, and Isis stand. If not decorated with a further scene of divinities, Pedubaste's back could quite possibly have borne the vulture or another emblem having a close primary association with royalty or a strong protective association, although it was probably not specifically funerary, given the divergences between royal and nonroyal statuary.



Figure 28. Statue of Takushit, left rear three-quarter view, detail of garment (photo: National Archaeological Museum, Athens)

Costume, pose, and style

The king wears a kilt that in its profile—low in back and high in front—suggests the typical royal *shendyt* (Figures 1–3). However, the usual belt and front panel have been overlaid or replaced with an inscribed, ornamented belt and apron, the latter stretching at a diagonal between the advancing left leg and the rear leg. The entire area of the garment was formerly gilded, and its ornamentation consists of relief and inlay.

The inscriptions on the belt and central column of the apron have been discussed above. The belt is patterned with three rows of inlaid chevrons, their points directed outward from the center, which are set in series of one “copper” column followed by three gold columns. Placed just below the belt, at the top of the apron, is a relief leopard head viewed as if from above; remains of gold inlay detail brow wrinkles and spots. On the apron three columns of chevrons flank either side of the inscriptional column, again set in series of one “copper” row followed by three gold rows, the points of the chevrons directed upward. These inlays are noticeably smaller on the edge of the apron that swings forward with the statue’s left leg, allowing space for two rows above and twenty-two rows below the leopard’s ear, and larger on the edge that slants back toward the right leg, allowing two rows above and only twenty rows below the leopard’s ear. This difference causes a very noticeable offset in the alignment of the rows of “copper” chevron inlays, an effect that in such a statue is surely intentional. At the bottom of the belt is a frieze of seven uraei crowned with sun disks; traces of gold inlay still remain in the hoods of the cobras.

The chevron arrangement of belt and apron forms the feather pattern, a reference to the king’s association with the divine falcon. Sometimes extended to a drape or a corselet, this patterning began to occur with some frequency in the middle of Dynasty 18, although there are antecedents.¹³² Betsy Bryan has studied three instances in which Amenhotep III, assimilated to the god Neferhotep, wears the combination seen on Pedubaste—feather apron, dependent uraei, and a panther head (the panther, leopard, and cheetah were equated in religious iconography).¹³³ She determined that in such instances, the combination alludes to the panther as sky goddess protecting the rejuvenated/reborn king, who, like Re, travels the solar course. The entire costume then emphasizes the king’s divinity and his role as son of the sun god, whose protection must be ensured, and may have associations with the renewal effected by the *heb-sed* festival.¹³⁴

The costume in this complete form continues to appear in the Ramesside Period (ca. 1295–1070 B.C.), and it occurs as well in various abbreviated examples.¹³⁵ While we are not aware of another figure

besides Pedubaste wearing this particular composite garment during the Third Intermediate Period, kings of that period certainly wore elements of the elaborate falcon costumes.¹³⁶ Among bronzes in particular, the statuette of Osorkon I and that of a kneeling king in Baltimore, probably dating to the later ninth century B.C., wear the feather-patterned belt.¹³⁷ Thus, it seems likely that the composite costume worn by Pedubaste continued to have associations such as those discussed by Bryan.

More difficult to assess are questions relating to the pose and style of the original statue. First and foremost, there are some uncertainties in determining the proper upright position since the angle of the upper torso could vary somewhat from the strictly upright, especially in a statue enacting a ritual. In the photographs published in the well-known catalogues, the fragment has been set on the break edges of the knees.¹³⁸ Since more metal is preserved on the left side of the left knee, this has resulted in the torso’s being thrown back slightly. In addition, because a partially preserved statue presents problems of orientation, photographs have tended to center on the decorated apron and, as a result, to look upward toward the chest. Upon close examination, the statue clearly shows a strongly energetic motion, with the left leg rather far forward and actually swinging in front of the right. This certainly implies a shift of weight from one foot to the other. When mounted with this in mind, so that the tops of the knees—the only element of articulation preserved on each leg—are approximately level and expressive of balanced weight, the torso displays elegant, elongated modeling and possibly a very slightly forward lean, which is difficult to determine definitely because missing portions of the back lead to an inaccurate impression of the profile view (Figures 1–3).¹³⁹

The modeling of the torso is of particular interest, because description of the statue when properly set up, along with better understanding of the development of Third Intermediate Period art, allows some refinement of Cyril Aldred’s important observations on the subject.¹⁴⁰ In the male bronzes of the period that he reviews, including the Gulbenkian Pedubaste, Aldred notes, “The belt tapers very little, if at all, and rests horizontally, well below the waist, on the broadest part of the hips, thus interposing between the thorax and lower abdomen a sculptural mass which attains a virtual independence with the navel as its isolated hub.” He remarks that this tendency is particularly well exhibited, partly because heightened by a kneeling pose, by a statue in the British Museum that he suggested also depicted Pedubaste but which is now known to represent King Pami (ca. 773–767 B.C.).¹⁴¹

He also points out the way in which the Metropolitan Museum's gold Amun (Figure 29), the focus of his article, was clearly associated with this type.¹⁴² Indeed, Pami and the gold Amun each show the compact torso with marked horizontal tripartite division, and the smooth, rounded abdominal area that constitute a clear archetype for Aldred.

In fact, the lines of Pedubaste's torso and long legs have been somewhat distorted and rigidified by the fragment's having been displayed and photographed as resting on the preserved edge of the rear leg and, thus, leaning too far backward. In that pose, the statue had indeed seemed to smoothly embody the archetype. When set up as detailed above, however, the narrowness of the upper body, the high hipbones, and the fleshiness of the long hips and thighs cinched by the belt are emphasized,¹⁴³ while the definition and separateness of the abdominal unit do not emerge so emphatically. In the late ninth century, then, there is evidence of experimentation with a fleshy, elongated type of modeling that involves new attention to the structure of the abdominal area.¹⁴⁴ Refined datings and reexaminations of metal statuary also suggest that, while Aldred's characterization holds as the description of a tendency, that tendency had not yet fully coalesced, and the compact tripartite structure was not firmly established as far as we know until the time of Pami, pointing to a date for the gold Amun likewise somewhat later than "early Dynasty 22," as Aldred had theorized.

The Pedubaste statue is unusual as it is one of only very few preserved large bronze statues of kings, and the only one of this period.¹⁴⁵ The functions of these few large royal statues are difficult to categorize. They certainly might transcend the more specific purposes and attitudes of most preserved small royal striding statuary, in which only a restricted set of offering or protecting/revitalizing gestures is attested.¹⁴⁶ Indeed, although its size is unknown, at least one other type of striding royal bronze existed. King Taharqo (ca. 690–664 B.C.) lists as a donation to Amun-Re, Lord of Gem-Aten (Kawa): "1 bronze statue of the King smiting foreign countries, and its 6 garments."¹⁴⁷ The best available model for a smiting Pedubaste is the gilded wooden statue of Tutankhamun slaying a hippopotamus, which more or less replicates the vigorous pose seen on temple pylons.¹⁴⁸ In profile view, Tutankhamun's stride is so long that his upper legs scarcely overlap. An angle drawn from the midpoint between his buttocks and abdomen down to the knee of each leg measures over fifty degrees. In contrast, Pedubaste's legs overlap to a greater extent, and a similarly constructed angle between his legs mea-

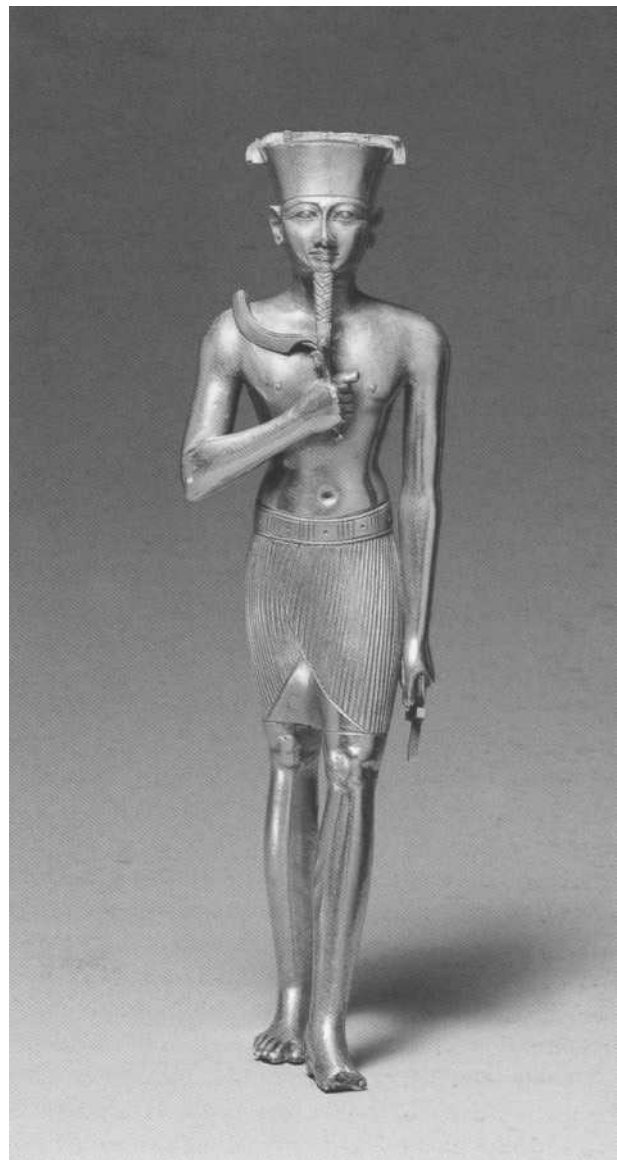


Figure 29. Statuette of Amun, Egypt, Third Intermediate Period, ca. 800–770 B.C. (?), find spot unknown. Gold, h. 17.5 cm. The Metropolitan Museum of Art, Purchase, Edward S. Harkness Gift, 1926 (26.7.1412)

sures only about thirty to thirty-two degrees, not significantly different from the measurement for the Metropolitan Museum's gold Amun.¹⁴⁹ Such measurements are hardly precise—differences in the proportions of the figures will have some effect, for example, and unless photographs are taken specifically for the purpose of such comparisons, divergence from true parallel between the plane of the camera and the statues is a major problem. Still, in this case, the variance is so large that it is clear Pedubaste's pose did not match Tutankhamun's. The sense of motion conveyed by the statue arises from

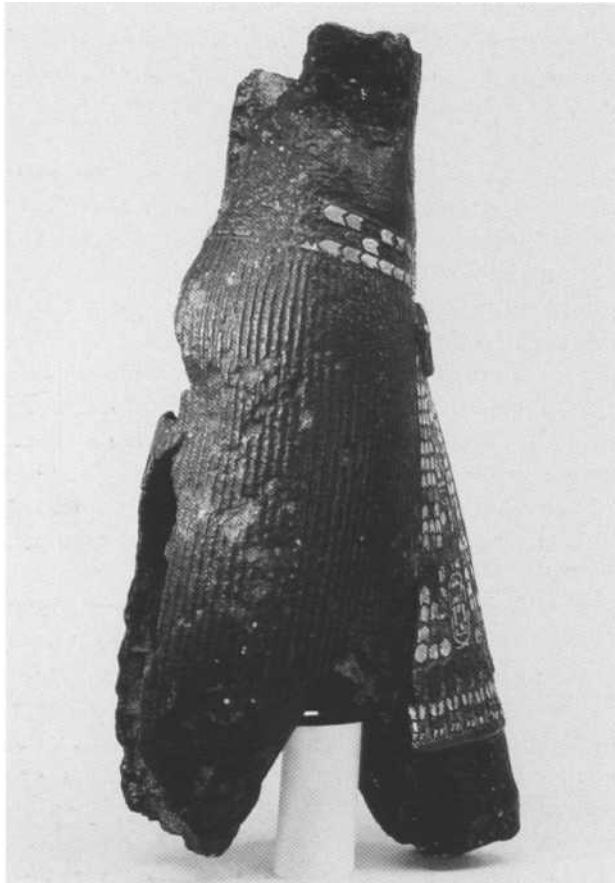


Figure 30. Pedubaste torso fragment, right profile (photo: B. Barrette)



Figure 31. Statue of Takushit (Figures 26–28), left profile (photo: National Archaeological Museum, Athens)

torsion in the figure and a shift in weight rather than from an extraordinary stride (Figure 30).

This striking rendering of movement, then, probably reflects a stylistic interest more than anything else. Some contemporary large bronzes, whose poses are otherwise not out of the ordinary, very effectively convey an impression of energy or movement. Karomama's left leg swings in front of her right so that her forward foot crosses into the alignment of the other and her left thigh crosses the inner profile of the right; her left shoulder is pulled forward, and her left breast slightly upward, by the movement (Figure 25).¹⁵⁰ The male figure in the Louvre associated with Pachasou has quite a wide stride, which is not too successfully rendered since the advancing leg is inordinately lengthened.¹⁵¹ More effectively, Takushit (Figure 31) and Pachasou (Figure 32) are constructed so that an imaginary line drawn through the head and torso as seen in profile would bisect the distance between the feet, thus conveying a sense of

natural, smooth transfer of weight in the movement from one foot to the other. Moreover, a few kneeling royal bronzes of the period incline slightly forward from the waist to extend an offering with additional urgency.¹⁵² Indication of movement—whether by positions suggesting prior or ensuing motion, by accompanying muscle tension, or as with Pedubaste by the course of actual motion—is by no means unknown in Egyptian sculpture. Although examples depicting the course of actual movement have been particularly noted in early Old Kingdom stone statuary and in wood statuary, they exist in later periods as well.¹⁵³ Third Intermediate Period large metal statuary obviously marks another point of interest in this regard. Of the many potentially contributing influences two are clear: temple ritual statuary naturally involves at least a generic affinity for movement and performance, and temple roles during the period had an increased political importance that no doubt affected the attention given to the statuary associated with them.¹⁵⁴



Figure 32. Statue of Pachasou, Egypt, Third Intermediate Period, 8th century B.C. (?), from Saqqara. Bronze, h. 47 cm. Musée du Louvre, Paris, E 7693 (photo: Service Photographique de la RMN, Maurice and Pierre Chuzeville)

Polychromy and motion

In light of the statue's striking evocation of physical movement, the patterning of Pedubaste's apron is surely intended to provide a complementary animation of surface. The difference in the size and number of chevrons on either side of the apron and the offset of the color blocks generate instability and initiate motion.

Even if the effect can be described and makes sense in connection with the overall impact of the statue, locating an artistic context for such an atypical device is difficult. Vibration is more usually achieved in Egyptian art by placing different patterns in proximity or by alternating colors within an overall balanced structure. Certainly Karomama displays a highly complex surface that is patterned and alive with detailing and color but, as far as can be judged, still contained within general symmetries. On the other hand, although the effect achieved seems even more explicit than that seen on Pedubaste, the previously mentioned menat of Harsiese offers an example of a movement constructed over reinforcing levels of shape and color (Figure 33). On the outer rim, unidirectional outward-tilted wedge-shaped forms alternate with rosettes, the wedges colored in a warm-to-cool sequence, from copper to gold to silver, in order to create a circulation that strains centripetally against the rim.¹⁵⁵

In his detailed discussion of the Harsiese menat, Friedrich Wilhelm von Bissing drew attention to possible foreign derivation (although none of the sources he located were very chronologically apposite) for some of the design elements, including the tilted wedges, seen there and on certain other pieces of



Figure 33. Menat fragment, Egypt, Third Intermediate Period (6th–8th century B.C.), find spot unknown. Bronze, with metal inlay, h. 7.4 cm, w. 9.3 cm. Staatliche Museen zu Berlin, 23733 (photo: Ägyptisches Museum, Isolde Luckert 1965)

Third Intermediate Period metal polychromy.¹⁵⁶ Two avenues of investigation more specifically keyed to developments in Egyptian art of the period may prove fruitful. First are the recent studies suggesting a second aesthetic existed at the time for polychrome works of art in metal, one that employed a different, softer palette. While studies of metal polychromy in ancient Egypt have appeared in recent years,¹⁵⁷ clearly more work in the future is welcome. Second, especially given the possible interactions on an iconographic level between coffins and bronzes of this period, examination of color and pattern used on painted wooden coffins and stelae of the Third Intermediate Period might help to provide a context for better understanding some of the effects seen in metalwork.¹⁵⁸

ABBREVIATIONS

Aucouturier, Delange, and Meyohas 2004

Marc Aucouturier, Élisabeth Delange, and Marie-Emmanuelle Meyohas. "Karonama, Divine Adoratrice d'Amon: Son histoire, sa restauration, l'étude en laboratoire." *Technè* (Centre de Recherche et de Restauration des Musées de France), no. 19 (2004), pp. 7–16. For similar content in English, see Élisabeth Delange, Marie-Emmanuelle Meyohas, and Marc Aucouturier, in "The Statue of Karonama: A Testimony of the Skill of Egyptian Metal-lurgists in Polychrome Bronze Statuary," *Journal of Cultural Heritage* 6 (2005), pp. 99–113.

Hill 2004

Marsha Hill. *Royal Bronze Statuary from Ancient Egypt, with Special Attention to the Kneeling Pose*. Leiden and Boston, 2004.

Hill and Schorsch 1997

Marsha Hill and Deborah Schorsch. "A Bronze Statuette of Thutmose III." *MMJ* 32 (1997), pp. 5–18.

La Niece et al. 2002

Susan La Niece, Fleur Shearman, John H. Taylor, and Antony Simpson. "Polychromy and Egyptian Bronze: New Evidence for Artificial Coloration." *Studies in Conservation* 47 (2002), pp. 95–108.

Schorsch 1988

Deborah Schorsch. "Technical Examination of Ancient Egyptian Theriomorphic Hollow Cast Bronzes." In *Conservation of Ancient Egyptian Materials: Preprints of a Conference Organised by the United Kingdom Institute for Conservation, Archaeology Section, Held at Bristol, December 15–16th, 1988*, ed. Sarah C. Watkins and Carol E. Brown, pp. 41–50. London, 1988.

Taylor, Craddock, and Shearman 1998

John H. Taylor, Paul T. Craddock, and Fleur Shearman. "Egyptian Hollow-Cast Bronze Statues of the Early First Millennium BC: The Development of a New Technology." *Apollo* 148 (July 1998), pp. 9–14.

NOTES

1. João Castel-Branco Pereira, Director, and Maria Rosa Figueirido, Chief Curator, of the Museu Calouste Gulbenkian, and Emilio Rui Vilar, Director of the Calouste Gulbenkian Foundation, generously gave permission to make the studies discussed here during the course of the exhibition. They also kindly allowed reexamination of the figure in Lisbon in September 2003, and Gulbenkian Museum conservator Rui Xavier gave every assistance at that time. Katharine Baetjer, Curator of European Paintings, and James Draper, Henry R. Kravis Curator of European Sculpture and Decorative Arts, at The Metropolitan Museum of Art, who organized the exhibition, made it possible for this piece to be included and gave us all possible access to it during the exhibition. Dorothea Arnold, Lila Acheson Wallace Chairman of the Department of Egyptian Art, Metropolitan Museum, made this piece a priority among her recommendations for the exhibition. Preliminary remarks based on the observations in this article have been published in Hill 2004, pp. 155–56, no. 12.
2. It was purchased by Gulbenkian from Frederik Muller & Cie, Amsterdam (sale cat., December 13–16, 1921, lot 612), through the well-known dealer Joseph Duveen, as noted in "Only the Best": *Masterpieces of the Calouste Gulbenkian Museum, Lisbon*, ed. Katharine Baetjer and James David Draper, exh. cat., The Metropolitan Museum of Art, New York (New York, 1999), p. 25, no. 7 (entry by Maria Helena Trindade Lopes). Many details of the exhibition history of the statue while in Gulbenkian's collection may be deduced from Nuno Vassallo e Silva, "A Home for Our 'Friends of a Lifetime,'" pp. 11–15, in the cited Metropolitan Museum catalogue. Maria Helena Assam, *Colecção Calouste Gulbenkian: Arte egípcia* (Lisbon, 1991), the Gulbenkian Museum's catalogue of its Egyptian collection, discusses the statue on pp. 64–65 and lists the exhibitions in which it appeared that were accompanied by published catalogues. Entries and photographs from two of these catalogues will be referred to at various points in this study: Sidney Smith and I. E. S. Edwards, *Ancient Egyptian Sculpture Lent by C. S. Gulbenkian, Esq.*, exh. cat., British Museum, London (London, 1937), pp. 10–12, 24, no. 18, pls. 32, 23, and John Walker and I. E. S. Edwards, *Egyptian Sculpture from the Gulbenkian Collection*, exh. cat., National Gallery of Art, Washington, D.C. (Washington, D.C., 1949), pp. 12–13, 24, no. 16, ill. p. 57. In addition, Gulbenkian lent the torso just after its acquisition to the Exposition Champollion, opening at the Louvre on July 12, 1922 (called the "Centenaire de Champollion," the hundredth anniversary of Champollion's "Lettre à M. Dacier," which announced the discovery of the decipherment of hieroglyphs), and closing in December 1922. For this information, we are grateful to Élisabeth Delange, Conservateur-en-Chef in the Département des Antiquités Égyptiennes, Musée du Louvre, and Bruno Martin, photograph archivist at the Service

- Photographique du Centre des Monuments Nationaux, Paris. Calculation of the original height of the statue is discussed below.
3. The entry in Warren R. Dawson and Eric P. Uphill, *Who Was Who in Egyptology*, 3rd ed., ed. Morris Bierbrier (London, 1995), mistakenly identifies the count as Grigory Alexandrovitch Stroganoff (1823–1879), another member of the family. Penelope Hunter-Stiebel, ed., *Stroganoff: The Palace and Collections of a Russian Noble Family*, exh. cat., Portland Art Museum (Portland, Oreg., and New York, 2000), gives an overview of the family and some very basic information about Grigory Sergeievich. A number of Roman art historians, antiquarians, and dealers have written informatively about their contacts with Stroganoff: Antonio Muñoz, “La collezione del conte Stroganoff,” *Rassegna contemporanea* 3 (October 1910), pp. 85–92, with six plates; Augusto Jandolo, *Bekenntnisse eines Kunsthändlers*, trans. of *Memorie di un antiquario*, by Olga Leonie Heinisch (Berlin, 1940), pp. 63–76; Ludwig Pollak, *Römische Memoiren: Künstler, Kunstliebhaber und Gelehrte, 1893–1943*, ed. Margarete Merkel Guldán (Rome, 1994), passim. We particularly thank Dr. Vardui Kalpakcian, Padua, for sharing her knowledge about the count and for providing a copy of her recent study of his Roman house, which includes useful references and a very interesting analysis of his life and collecting: “Il palazzo romano del conte G. S. Stroganoff negli acquarelli di F. P. Reyman,” *Pinakoteka* 16–17 (2003), pp. 184–95. Dr. Sergei Kuznetsov, Curator at the Stroganoff Palace, Saint Petersburg, and Dr. Brigitte Montclos, Curator at the Musée Carnavalet, Paris, were both helpful in locating scholars now working on Grigory Stroganoff’s collection.
 4. Muñoz, “La collezione del conte Stroganoff,” pp. 85–86: “e Roma era poi stata la meta continua dei viaggi di lui che aveva pellegrinato per tutto il mondo, in Oriente e in Occidente.” In the same Roman milieu were other collectors of Egyptian art such as Giovanni Barracco (1829–1914) and Michel Tyszkiewicz (1828–1897), the latter also excavating in Egypt; see Pollak, *Römische Memoiren*, esp. pp. 189–91, 195–97, 223–25. Dr. Simona Moretti of the University of Rome, who has studied Stroganoff’s Byzantine collections, also confirms that he was in touch with these two individuals (personal communication). For the relationship of these figures to Egyptology, see Dawson and Uphill, *Who Was Who in Egyptology*, pp. 31 (Barracco) and 420–21 (Tyszkiewicz).
 5. Muñoz, “La collezione del conte Stroganoff,” p. 86: “Il conte Gregorio si dette con passione, che era quasi mania, a raccogliere le cose più belle che gli venivano presentate dagli antiquarii a Roma, a Parigi, a Monaco, a Colonia.”
 6. *Sammlung ägyptischer Alterthümer des Grafen Gregor Stroganoff* (Aachen, 1880). The Museumsverein was the forerunner of today’s Suermondt-Ludwig-Museum, which still has a number of Egyptian objects from the Stroganoff collection. Since records concerning the earliest exhibitions of the Museumsverein are not entirely clear about the beginning date of the Stroganoff exhibition, part of the collection could have been exhibited there after the initiation of the exhibition program in 1878 and before the publication of the catalogue two years later. Indeed, Dr. Vardui Kalpakcian provided a copy of an interesting document in the Bibliotheca Hertziana, Rome (housed partially in Stroganoff’s former residence), a “diploma” honoring Stroganoff issued by the Museumsverein on September 2, 1880, which states: “In dankbarer Anerkennung des tätigen Wohlwollens welches Sie . . . durch Überlassungen von Kunstgegenständen für die Ausstellung des Museums-Vereins seit Jahren [authors’ emphasis] den Bestrebungen des Vereins bewiesen haben.”
 - For the Museumsverein, see O. E. Mayer, “Zur Geschichte des Aachener Museen und des Museumsvereins,” *Aachener Kunstblätter* 14 (1928), which describes Stroganoff and a second Russian, Dr. A. Swenigorodskoi, as contemporary lenders and longtime residents of Aachen (pp. 2–3, figs. 4 and 3, respectively). Swenigorodskoi was a collector of Byzantine enamels who came to Aachen for its famous baths, as Stroganoff perhaps also did (Johannes Schulz, *Die byzantinischen Zellen-Emails der Sammlung Swenigorodskoi ausgestellt im städtischen Suermondt-Museum in Aachen* [Aachen, 1884]). Dagmar Preising and Michael Reif of the Suermondt-Ludwig-Museum and Christine Brennan of the Department of Medieval Art, Metropolitan Museum, were very helpful in regard to Stroganoff’s history with the Aachen museum. Dagmar Preising also kindly provided a copy of the rare catalogue.
 7. Kalpakcian, “Il palazzo romano del conte G. S. Stroganoff,” pp. 185–86.
 8. Muñoz, “La collezione del conte Stroganoff,” p. 86.
 9. Two Nubian furniture legs were offered as lot 403 in the Christie’s New York sale catalogue for December 9, 1999 (pp. 100–101 and frontispiece), with Stroganoff given as ex-collection. These are now in the Rijksmuseum van Oudheden te Leiden as F 2000/6.1–2; see Maarten J. Raven, “Twee poten van een Nubisch grafbed,” *Bulletin van de Vereniging Rembrandt* 10 (Spring 2000), pp. 5–7. The anonymous seller from Monaco said that they were acquired in Rome from heirs of “Stroganoff” in the early 1900s. If, as seems almost certain, this is Grigory Stroganoff, he did have pharaonic-period Egyptian/Nubian objects aside from those recorded in the Aachen catalogue.
 10. Ludwig Pollak and Antonio Muñoz, *Pièces de choix de la collection du comte Grégoire Stroganoff à Rome*, pt. 1, *Les antiques*, by Ludwig Pollak (Rome, 1911), p. 32, pl. 28.
 11. Kalpakcian, “Il palazzo romano del conte G. S. Stroganoff,” p. 193, refers to the family’s return in 1922, but Pollak, *Römische Memoiren*, p. 229 n. 41, specifies that the wife of Stroganoff’s grandson reached Rome with her two daughters at the earliest in the second half of 1920 or the beginning of 1921.
 12. Preface to *Sammlung Ägyptischer Alterthümer*. For Brugsch, see Dawson and Uphill, *Who Was Who in Egyptology*, p. 66. Brugsch was in Egypt from 1870.
 13. Brugsch is known to have formed collections for private collectors, apparently sometimes at least with the approval of the Antiquities Organization, as, for instance, in the case of Anthony J. Drexel Jr.; see Gerry D. Scott, *Temple, Tomb, and Dwelling: Egyptian Antiquities from the Harer Family Trust Collection* (San Bernardino, Calif., 1992), p. ix. On the other hand, Brugsch’s reputation for complicity with antiquities dealers in Egypt has been frequently noted; see, for example, Warren Dawson, “Letters from Maspero to Amelia Edwards,” *Journal of Egyptian Archaeology* 33 (1947), p. 70 n. 1, and John Wilson, *Signs and Wonders upon Pharaoh: A History of American Egyptology* (Chicago and London, 1964), p. 215.
 14. Brugsch makes no mention of the statue of Pedubaste in the list of royal names he published with Bouriant, *Le livre des rois: Contenant la liste chronologique des rois, reines, princes, princesses et personnages importants de l’Égypte depuis Ménès jusqu’à Nectanebo II* (Cairo, 1887), preface dating to 1886. He lists Seheribse “Petusibast” as the first king of Dynasty 23 (p. 107).
 15. “Inscripfen aus der Saïtischen Periode,” *Receuil de travaux* 8 (1886), pp. 63–64. Wiedemann points out that his earlier attribution (*Ägyptische Geschichte* [Gotha, 1884], p. 561) had been

- based solely on Brugsch's catalogue, in which only the second cartouche name is given, and had therefore identified the king as a different one, Seheribre Pedubaste.
16. William Mathew Flinders Petrie, *A History of Egypt*, vol. 3 (London, 1905), p. 262: "That there were two kings named Pedubast is certain; one appears in Manetho as the founder of the XXIIIrd dynasty, about 760 B.C., the other is in the list of Ashurbanipal, nearly a century later. There are two throne names associated with the name Pedubast—SEHER.AB.RA: Naos. Paris and Bologna/USER.MAAT.RA: Bronze statue. Tanis; Figure of Hor. Cairo. We can only infer which is the earlier of these. It was the first Pedubast certainly who ruled at Thebes, as his wall and quay inscriptions are exactly like those of the close of the XXIIrd dynasty. The second Pedubast certainly reigned at Tanis, by Ashurbanipal's inscription. As the woodwork of Seherabra must have been preserved in Upper Egypt, while the figure of Usermaatra was found at Tanis [authors' emphasis], it seems fairly certain that Seherabra is the Theban Pedubast, and Usermaatra is the Tanite." Egyptologists now believe that Seheribre Pedubaste dates to Dynasty 27, the Pedubaste of the Assyrian inscriptions is a local kinglet and not a major figure, and Usermaatre Pedubaste, whose area of influence is discussed below, is the earliest of the three. And on p. 324, Petrie writes: "This king of Tanis, Pedubast, does not appear in any dynastic list, as he was contemporary with the Ethiopians and early Saïtes; but his remains are known as follows [cartouches appear here]: Tanis, bronze torso inlaid with gold, 2/3 life size. Stroganoff Coll. at Aachen: *si Bast* added to the name (Rec. viii. 63)."
 17. Gaston Maspero, *L'archéologie égyptienne* (Paris, 1887), pp. 291–92: "Un fragment qui est en la possession du comte Stroganoff, et qui a été recueilli dans les ruines de Tanis, faisait partie d'une statue votive du roi Pétoukhânou [*sic*]. Elle était exécutée aux deux tiers au moins de la grandeur naturelle, et c'est le morceau le plus considérable que nous ayons jusqu'à présent." We are grateful to Varduî Kalpakcian, who called this statement to our attention.
 18. For the history of work at Tanis, see Philippe Brissaud, Violaine Chauvet, and Isabelle Hairy, "Deux siècles de fouilles à Tanis: Analyse des divers modes d'intervention sur le site," pp. 71–99, in *Tanis: Travaux récents sur le Tell Sân el-Hagar*, ed. Philippe Brissaud and Christiane Zivie-Coche (Paris, 1998), esp. pp. 71–77, for these early years. Mariette's work was only partly published, and the compendium of unpublished material was issued after his death in 1881 by Gaston Maspero: Auguste Mariette, "Fragments et documents relatifs aux fouilles de Sân. (1860–1875)," *Recueil de travaux* 9 (1887), pp. 1–20. Maspero prefaces an appended series of brief personal reports written by Daninos to Mariette in 1869 with the following information: "Plusieurs fois, vers 1869 et vers 1875, il [Mariette] songea à en reprendre la rédaction, et envoya plusieurs employés du Musée sur les lieux, avec mission de recommencer les fouilles. Les rapports de Vassalli-Bey, d'Emile Brugsch-Bey et de plusieurs autres sont égarés. Je n'ai retrouvé pour le moment que deux lettres de Daninos-Bey. Je les publie telles quelles." (p. 16).
 19. William Mathew Flinders Petrie, *Seventy Years in Archaeology* (New York, 1932), p. 45: "An old *reis* of Mariette's turned up and, as he knew much of the place, I took him on."
 20. James P. Allen, Curator, Department of Egyptian Art, Metropolitan Museum, kindly prepared the hieroglyphs.
 21. Kenneth Kitchen, *Third Intermediate Period in Egypt* (1100–650 B.C.), 2nd ed., with preface (Warminster, 1996), pp. 123–26, secs. 98, 99; regarding the find spot of the statue, see p. 129, sec. 102. The Kushite period in Egypt (Dynasty 25, ca. 713–664 B.C.) is variously attached to the preceding Third Intermediate Period or the succeeding Late Period. In the context of this article, which focuses on metalwork, it is important to emphasize continuity with the Third Intermediate Period.
 22. Although himself a party to the discussions, John Taylor provides a brief, cogent statement of the status of the question relative to Pedubaste and Dynasty 23 in his chapter "The Third Intermediate Period," in *The Oxford History of Ancient Egypt*, ed. Ian Shaw (London and New York, 2000), p. 337; the chronology (p. 482) retains traditional terminology.
 23. These suggestions were mainly put forward by Anthony Leahy in his "Appendix: The Twenty-Third Dynasty," in *Libya and Egypt, c. 1300–750 BC*, ed. Anthony Leahy (London, 1990), pp. 177–95, but other scholars have contributed significantly to the reexamination and discussion. Kitchen's *Third Intermediate Period* includes an important preface that references, in order to discuss, most recent suggested modifications to his schema; for issues relating to Dynasty 23, see pp. xxv–xxxiv, secs. X–FF, responding mainly to Leahy. Leahy uses the terms Dynasty 23-K (the K refers to Kitchen) and Dynasty 23-M (the M refers to Manetho, and the Manethonian Pedubaste is suggested to be Sehetepibre Pedubaste, a Tanite kinglet Leahy dates only roughly between 730 and 670 B.C.). Jürgen von Beckerath pursued these revisions further in his "Beiträge zur Geschichte der Libyzeit, 1: Die neuen Rekonstruktionsvorschläge und Manethos XXII. Dynastie," *Göttinger Miszellen*, no. 144 (1995), pp. 7–13, and "Beiträge zur Geschichte der Libyzeit, 3: Die Könige namens Pedubaste," *Göttinger Miszellen*, no. 147 (1995), pp. 9–13, and codified his modifications in his *Handbuch der ägyptischen Königsnamen* (Mainz, 1999), pp. 192, 200. Insofar as his comments relate to Pedubaste, the adjustments he proposes seem problematic and have not been generally accepted. In short, he distinguished two kings named Usermaatre Pedubaste by laying great emphasis on the implication of the epithets Son-of-Isis and Son-of-Bastet. The earliest becomes Usermaatre Pedubaste/Usermaatre Pedubaste-Son-of-Isis, called Pedubaste I, and is made the late-ninth-century king ruling from Thebes during the period von Beckerath designates as Dynasty 22-A; he suggests Usermaatre Pedubaste-Son-of-Bastet is the later king, ruling in the north from the middle of the eighth century (ca. 755–730 B.C.) as part of a late Dynasty 23. Historical considerations aside, this argument is not tenable in relation to the style of the statue in question here, which belongs squarely in the late ninth century, as will be discussed below; it is also not supported by the relief depiction preserved on one of the stelae in question. In fact, on historical grounds, von Beckerath later revised his views (see note 26 below).
 24. For discussion of Pedubaste's attestations on objects with known or implied archaeological find spots, see Leahy, "Appendix," pp. 182–83, and Kitchen, *Third Intermediate Period*, pp. 129, 337–41, secs. 102, 298–301, and responding to Leahy, preface p. 30, sec. AA, Marie-Ange Bonhême, *Les noms royaux dans l'Égypte de la Troisième Période Intermédiaire* (Cairo, 1987), pp. 269–71, examines the pattern of usage of the epithets in question; p. 207 discusses Pedubaste's nomenclature.
 25. Karl Jansen-Winkel, "Historische Probleme der 3. Zwischenzeit," *Journal of Egyptian Archaeology* 81 (1995), pp. 129–149; see particularly pp. 142–45, regarding Pedubaste. A Memphite

- monument of an important official of Pedubaste is added to the existing evidence concerning geographically situated monuments that reflect the king's power base. Jansen-Winkeln suggests Hermopolis as a possible candidate for that power base.
26. Jurgen von Beckerath, "Über das Verhältnis der 23. zur 22. Dynastie," in *Es werde niedergelegt als Schriftstück: Festschrift für Hartwig Altenmüller zum 65. Geburtstag*, ed. Nicole Kloth, Karl Martin, and Eva Pardey (Hamburg, 2003), pp. 31–36, esp. pp. 33–34.
 27. SEM examinations and EDS analyses were carried out by Mark T. Wypyski, Research Scientist, Department of Scientific Research, Metropolitan Museum.
 28. Examination of thin sections of the core materials was carried out by James H. Frantz, Research Scientist, Department of Scientific Research, Metropolitan Museum, who, in his previous position as Conservator in charge of the Sherman Fairchild Center for Objects Conservation, gave his full support to the technical research, which the authors thankfully acknowledge. George Wheeler, Research Chemist in the Department of Scientific Research at the Metropolitan Museum, also contributed to the examination of these thin sections.
 29. This estimate is based on the proportions of a Third Intermediate Period bronze male figure, Pachasou (Musée du Louvre, Paris, E 7693, from Saqqara, h. 47.0 cm), with a distance between hipbone to midknee of roughly 30 percent of its total height, as measured from a profile-view image (see Figure 32, below); see also p. 184 below.
 30. This seems unlikely, as the core material in this area clearly was not exposed to an oxidizing environment during casting; see pp. 171–73 below.
 31. See p. 173 below.
 32. The following handwritten text can be recognized on the larger label: "Egyp[te] . . . 23^e dynastie / 787 – 727 av. J. Chr. / C^{io} Comte Grégoire Stroganoff/Rome / . . . lvd.(?) Müller / . . . (n^o 612) / . . . 2." The figure "8" on the second line is a correction of another number that was scratched out. The spelling of the seller's name here does not correspond to how it appears in the 1921 sale catalogue; see note 2 above.
 33. Smith and Edwards, *Ancient Egyptian Sculpture*, pls. 22, 23.
 34. See note 2 above for the Exposition Champollion. For the photograph, Centre des Monuments Nationaux, MN1357a.
 35. The alloy composition of the chevrons is discussed below; see p. 177.
 36. A number of hollow figures of late Middle Kingdom date are attributed to a unique find from the Fayum; see Élisabeth Delange, *Catalogue des statues égyptiennes du Moyen Empire, 2060–1560 avant J.-C.* (Paris, 1987), pp. 211–13, and Sylvia Schoske, "Statue eines beliebten Mannes," *Münchener Jahrbuch der bildenden Kunst*, 3rd ser., 43 (1991), pp. 177–81 (private males); George Ortiz, *In Pursuit of the Absolute—Art of the Ancient World: The George Ortiz Collection*, rev. ed. (Bern, 1996), nos. 33–36 (royal male and female, two private males). Also associated with this find, although smaller in scale, is a hollow-cast crocodile; Dietrich Wildung, "Neuerwerbungen Staatliche Sammlung Ägyptischer Kunst," *Münchener Jahrbuch der bildenden Kunst*, 3rd ser., 30 (1979), pp. 199–206.
 37. Hill and Schorsch 1997, pp. 5–18, and Hill 2004, p. 150, no. 1, pl. 2 (Thutmose III); Hill 2004, p. 151, no. 2, pl. 3 (Thutmose IV); Bernard Fishman and Stuart J. Fleming, "A Bronze Figure of Tutankhamun: Technical Studies," *Archaeometry* 22 (1980), pp. 81–86, and Hill 2004, p. 235, no. 284, pl. 5 (late Amarna or post-Amarna period king); Hill 2004, p. 151, no. 3, pl. 6 (Ramesses II); Eleni Vassilika, "Egyptian Bronze Sculpture before the Late Period," in *Chief of Seers: Egyptian Studies in Memory of Cyril Aldred*, ed. Elizabeth Goring, Nicholas Reeves, and John Ruffle (London and New York, 1997), pp. 291–302, see pp. 293, 295; and Hill 2004, p. 152, no. 4 (Ramesses V). Because of a mix-up in the radiographs examined at the British Museum by Deborah Schorsch, the information about the core and core cavity in the figure of Thutmose IV provided by Hill is inaccurate. The cavity is large and relatively conformal, and there is no evidence as to how much of the core is extant.
 38. Our understanding of ancient Egyptian bronze casting technology has improved in recent years as technical studies of different types of bronzes have appeared. Particularly useful are those that include radiographic images. See, for example, Delange, *Statues égyptiennes du Moyen Empire*, pp. 211–13 (Middle Kingdom private male); Hill and Schorsch 1997 (Thutmose III); Fishman and Fleming, "Bronze Figure of Tutankhamun" (late Amarna or post-Amarna period king); Aucouturier, Delange, and Meyohas 2004 (Karomama); Maarten J. Raven, "The Lady of Leiden: A Monumental Bronze Figure and Its Restoration," in *Aegyptus Museis Rediviva: Miscellanea in Honorem Hermann de Meulenaere*, ed. Luc Limme and J. Strybol (Brussels, 1993), pp. 129–37; Élisabeth Delange, Angélique Di Mantova, and Marie-Emmanuelle Meyohas, "Une extraordinaire statue de bronze doré conservée au Louvre," in *Conservation in Ancient Egyptian Collections*, ed. Carol E. Brown, Fiona Macalister, and Margot Wright (London, 1995), pp. 137–45; and Élisabeth Delange, Angélique Di Mantova, and John H. Taylor, "Un bronze égyptien méconnu," *La Revue du Louvre et des musées de France* 48, no. 5 (December 1998), pp. 67–75 (Third Intermediate Period females); Taylor, Craddock, and Shearman 1998, pp. 9–14 (Third Intermediate Period Osiris figures, females, male); Schorsch 1988, pp. 41–50 (animal sarcophagi); Patricia S. Griffin, "The Selective Use of Gilding on Egyptian Polychromed Bronzes," in *Gilded Metals: History, Technology and Conservation*, ed. Terry Drayman-Weisser (London, 2000), pp. 49–72 (small-format Late Period works); Deborah Schorsch, "Technical Examination of Cat. No. 242," in Hill 2004, p. 259 (forgery of a kneeling royal figure).
 39. Further considerations relating to the manufacture of hollow-cast bronzes are outlined below; see pp. 173–74.
 40. For internal metal walls across the top of the legs of a hollow-cast bronze cat sarcophagus, see Deborah Schorsch and James H. Frantz, "A Tale of Two Kitties," *MMB* 55, no. 3 (Winter 1997–98), p. 23, figs. 10, 11, and also below, Figure 20.
 41. Ancient Greek and Roman bronze foundries, for example, routinely removed casting cores from hollow works.
 42. Schorsch 1988, pp. 44–45.
 43. See however, Josef Riederer, "Die naturwissenschaftliche Untersuchung der Bronzen der staatlichen Sammlung Ägyptischer Kunst in München," *Berliner Beiträge zur Archäometrie* 7 (1982), p. 30.
 44. For Egypt, see Josef Riederer, "Die Datierung ägyptischer Bronzehohlkörper mit Hilfe der Thermolumineszenz-Analyse," *Studien zur altägyptischen Kultur* 6 (1978), pp. 163–68, and Fishman and Fleming, "Bronze Figure of Tutankhamun," p. 82.
 45. The mechanism leading to the genesis of such finely divided copper particles, from which these minute spheres of corrosion would have developed, remains unexplained.

46. See, for example, Delange, *Statues égyptiennes du Moyen Empire*, pp. 211–13, for a radiograph and description of the late Middle Kingdom private figure in the Louvre (E 27153). The use of this technique, known from ethnographic and contemporary workshop practices, is difficult to establish, as it often does not leave physical evidence.
47. While chaplets are generally made of metal, the use of thorns as core supports for hollow gold casts in the ancient Americas has been proposed on the basis of a sixteenth-century account of Aztec culture by Bernardino de Sahagún; see Dudley T. Easby Jr., “Sahagún Reviviscit in the Gold Collection of the University Museum,” *University Museum Bulletin* (University of Pennsylvania) 20, no. 3 (September 1956), pp. 4–5.
48. Alan H. Gardiner, “Tutankhamun’s Iron Dagger,” *Journal of Egyptian Archaeology* 28 (1942), p. 1.
49. A recent summary of information concerning the use of iron and steel in ancient Egypt appears in Jack Ogden, “Metals,” in *Ancient Egyptian Materials and Technology*, ed. Paul T. Nicholson and Ian Shaw (Cambridge, 2000), pp. 148–76, see pp. 166–68. The earliest evidence of iron smelting in Egypt, dating to the sixth century B.C., was found by Petrie at the Greek settlement of Naukratis (William Mathew Flinders Petrie, *Naukratis*, pt. 1, 1884–5, Third Memoir of the Egypt Exploration Fund [London, 1886], p. 39).
50. Schorsch 1988, pp. 43–44.
51. The use of iron for the core supports was confirmed with EDS analysis. The sample analyzed was found to be a mixture of burial accretions and corrosion products, with an elevated iron content.
52. Henry Lie and Carol C. Mattusch in Carol C. Mattusch, with contributions by Beryl Barr-Sharrar et al., *The Fire of Hephaistos: Large Classical Bronzes from North American Collections*, exh. cat., Arthur M. Sackler Museum, Harvard University Art Museum, Cambridge, Massachusetts, Toledo Museum of Art, Toledo, Ohio, and Tampa Museum of Art (Cambridge, Mass., 1996), nos. 39, 41, 43, 47. The earlier statement that core supports were first removed from castings in Renaissance times (Schorsch 1988, p. 43) is inaccurate.
53. It is unusual to find metallic iron core-supports on archaeological bronzes, as they generally corrode in situ, leaving holes in the bronze walls filled with corrosion products. In addition to iron’s inherent vulnerability to corrosive environments, iron core supports deteriorate far more quickly than the bronze walls around them because of their small size and large surface area—in later works, even relatively large ones, the supports usually measure in section less than a millimeter—and because of the galvanic effect of the copper on the adjacent ferrous metal; Schorsch 1988, p. 44.
54. Taylor, Craddock, and Shearman 1998, p. 11.
55. Raven, “Lady of Leiden,” pp. 130–31.
56. Ulf Jantzen, *Ägyptische und orientalische Bronzen aus dem Heraion von Samos* (Bonn, 1972); Helmut Kyrieleis, “Samos and Some Aspects of Archaic Greek Bronze Casting,” in *Small Bronze Sculpture from the Ancient World: Papers Delivered at a Symposium Organized by the Departments of Antiquities and Antiquities Conservation and Held at the J. Paul Getty Museum, March 16–19, 1989*, ed. Marion True and Jerry Podany (Malibu, 1990), pp. 61–84.
57. Archaeological Museum of Samos, Vathy: torso, B 1312 (Jantzen, *Ägyptische und orientalische Bronzen*, pls. 1, 2); right leg fragments, B 1525 (pl. 4), B 879 (pl. 7); dress fragment, B 204 (pl. 6); torso, B 1364 (pl. 4). Deborah Schorsch had the opportunity to examine these works in the Vathy museum, thanks to the kind efforts of Dr.-Ing. Hermann Kienast, Deutsches Archäologisches Institut, Athens, and Günter Kopcke, Avalon Foundation Professor of the Humanities, Institute of Fine Arts, New York University.
58. Taylor, Craddock, and Shearman 1998, p. 12.
59. Current whereabouts unknown, Late Period or later; examined and radiographed in the Metropolitan Museum’s former Department of Objects Conservation in 1990.
60. A second core support is visible in a radiograph taken from an oblique angle.
61. George Ortiz Collection, Geneva, h. 14.1 cm (without tenon); Madeleine Page-Gasser and André B. Weise, *Égypte, moments d’éternité: Art égyptien dans les collections privées, Suisse* (Mainz, 1997), pp. 129–31, no. 78, as dating to the time of Amenhotep III. The figure was examined and radiographed in the Metropolitan Museum’s former Department of Objects Conservation in 1989–90.
62. A number of hammered patches are present, for example, on the left knee of the Saite Period bronze figure of a woman in the Gulbenkian Collection (400, h. 66 cm); Assam, *Collecção Calouste Gulbenkian*, pp. 78–79, no. 23.
63. Lawrence Becker, Lisa Pilosi, and Deborah Schorsch, “An Egyptian Silver Statuette of the Saite Period—A Technical Study,” *MMJ* 29 (1994), p. 48, figs. 23, 24.
64. See note 49 above.
65. Richard E. Stone, Senior Museum Conservator in the Sherman Fairchild Center for Objects Conservation, helpfully pointed out the significance of this feature.
66. Ägyptisches Museum, Berlin, 32321, find spot unknown, h. 69.5 cm; Biri Fay, *Egyptian Museum, Berlin*, 4th ed. (Berlin, 1990), pp. 113–14, no. 58, and for photographs of the entire statue from the front, back, and left side, *Burlington Magazine* 113 (June 1971), suppl., pls. II–IV.
67. E 7703, h. 95.5 cm; said to have been found with three other large bronze figures at Saqqara: Pachasou (see note 122 below and p. 185 with Figure 32); the so-called “Frère,” also in the Louvre (E 7692, h. 65.7 cm; see note 122 below); and a figure of Seth, reworked as Khnum(?), in the Ny Carlsberg Glyptotek, Copenhagen (AEIN 614, h. 70 cm), Mogens Jørgensen, *Catalogue, Egypt II (1550–1080 B.C.): Ny Carlsberg Glyptotek* (Copenhagen, 1998), pp. 340–41, no. 144, and also note 149 below.
68. The cutout might also have been intended to accommodate a hammered-in patch repair, but what is surely a cast-in repair is evident above his right hip. This is visible in an illustration on pp. 120–21 in *Encyclopédie photographique de l’art*, vol. 1, Louvre (Paris, 1935).
69. Ogden, “Metals,” p. 154.
70. Vassilika, “Egyptian Bronze Sculpture,” pp. 294–96.
71. Paul T. Craddock, “Three Thousand Years of Copper Alloys: From the Bronze Age to the Industrial Revolution,” in *Application of Science in Examination of Works of Art: Proceedings of the Seminar, September 7–9, 1983*, ed. Pamela A. England and Lambertus van Zelst (Boston, 1985), pp. 59–67, table 1, J 1.
72. British Museum, London, EA 32747, find spot unknown, h. 42 cm; Edna R. Russmann, *Eternal Egypt: Masterworks of Ancient Art from the British Museum*, exh. cat., Toledo Museum of Art, Toledo, Ohio, and other institutions (London and New York, 2001), pp. 215–17, no. 114; and Hill 2004, p. 156, no. 13; see also p. 182 below.
73. EA 22784/71459, said to be from Giza, h. 42 cm; Russmann, *Eternal Egypt*, pp. 219–21, no. 117. The dates ca. 945–915 B.C.

- that appear at the beginning of the catalogue entry are typographical error and should read ca. 945–715 B.C.
74. See Taylor, Craddock, and Shearman 1998, pp. 12–13, for the analytical results for this figure, which contains only traces of tin and approximately 3.5 percent arsenic as well as 25 percent lead. High lead contents are also cited for two Third Intermediate Period Osiris figures (British Museum, London, EA 60718, h. 97 cm; EA 60719, h. 81 cm, both probably from the temple of Karnak); unfortunately, these bronzes have not been dated more precisely within the period.
 75. As Vassilika (“Egyptian Bronze Sculpture,” n. 56) points out, numerous bronze figures in various German museum collections have been analyzed by Josef Riederer at the Rathgen-Forschungslabor, Staatliche Museen zu Berlin, but published in a tabular form without reference to date or origin. In fact, the majority of these works, in common with most ancient Egyptian bronzes, do not derive from controlled contexts and have not been dated on stylistic or textual grounds.
 76. Ogden, “Metals,” p. 153, and note 74 above.
 77. See p. 178 below.
 78. Ogden, “Metals,” p. 152. See also Riederer, “Die naturwissenschaftliche Untersuchung der Bronzen,” pp. 11–12, for a list of bronzes in the former Charlottenburg collection of the Ägyptisches Museum that contain more than 1 percent iron.
 79. John D. Cooney, “On the Meaning of $\text{𓆎} \text{𓆏}$,” *Zeitschrift für ägyptische Sprache und Altertumskunde* 93 (1966), pp. 43–49, and “Siren and Ba: Birds of a Feather,” *Bulletin of the Cleveland Museum of Art* 55 (1968), pp. 262–71. Cooney was the first to connect the term $\text{𓆎} \text{𓆏}$, which occurs in ancient texts, with artificially patinated bronzes and to recognize the aesthetic impact of the contrast between the black surface and the variously colored metal inlays and overlays. From the technical point of view, black bronzes have been published extensively with comprehensive bibliographies by Alessandra Giumlia-Mair and Paul T. Craddock; see especially, “*Corinthium aes*: Das schwarze Gold der Alchimisten,” special issue, *Antike Welt* 24 (1993), pp. 2–62, and “Hsmn-Km, Corinthian Bronze, *Shakudo*: Black Patinated Bronze in the Ancient World,” in *Metal Plating and Patination: Cultural, Technical, and Historical Developments*, ed. Susan La Niece and Paul T. Craddock (Oxford, 1993), pp. 101–27. Although the term “black bronze” is materially appropriate, it has been shown that the more accurate reading of $\text{𓆎} \text{𓆏}$ is *hmti km*, which translates as “black copper”; Alessandra Giumlia-Mair and Stephen Quirke, “Black Copper in Bronze Age Egypt,” *Revue d'égyptologie* 48 (1997), pp. 95–108, esp. p. 102.
 80. These include one of the Middle Kingdom hollow-cast figures said to be from the Fayum, a crocodile, mentioned above, note 36, and a solid-cast figure of a kneeling royal figure in the George Ortiz Collection; see Ortiz, *In Pursuit of the Absolute*, no. 37; see also Alessandra Giumlia-Mair, “Das Krokodil und Amenemhat III. aus el-Faiyum: *hmti km*-Exemplare aus dem Mittleren Reich,” *Antike Welt* 27 (1996), pp. 313–21. Compare Hill and Schorsch 1997, nn. 47, 49–50.
 81. Confirmed examples include the figure of Thutmose III in the Metropolitan Museum (Hill and Schorsch 1997) and the late Amarna or post-Amarna period king in the University of Pennsylvania Museum (Hill and Schorsch 1997, n. 39; Hill 2004, p. 235, no. 284, pl. 5).
 82. A process similar to that employed in Japan to make the traditional artificially patinated alloy *shakudo*, was probably used to produce ancient black bronzes in Egypt and elsewhere in the Mediterranean world. For an explanation of the technique and color photographs of nonarchaeological black bronzes, see Ryū Murakami, “Japanese Traditional Alloys,” in *Metal Plating and Patination*, ed. La Niece and Craddock, pp. 85–94, pls. 1.3, 7.1.
 83. Examples of inlaid bronzes in the Metropolitan Museum that are not black bronzes include a kneeling figure of Amasis (MMA 35.9.3, h. 11 cm; Hill 2004, p. 166, no. 31, pl. 60) and seated and striding figures of Amun (MMA 56.17, h. 15.8 cm; 07.228.179, h. 31.2 cm; Deborah Schorsch, “The Manufacture of Metal Statuary in the First Millennium B.C.,” in *Gifts for the Gods*, ed. Marsha Hill [forthcoming]).
 84. Musée du Louvre, Paris, N500, from Karnak, h. (with base) 59.5 cm. See Aucouturier, Delange, and Meyohas 2004 and below, p. 179 and Figure 25.
 85. Ägyptisches Museum, Berlin, 23733, find spot unknown, h. 7.4 cm, w. 9.3 cm; Fay, *Egyptian Museum, Berlin*, pp. 116–17, no. 60, and below, p. 185 and Figure 33. We are very grateful to Dietrich Wildung, Director of the Ägyptisches Museum, for allowing Deborah Schorsch to examine this piece.
 86. The use of black bronze as an inlay material on the figure of Karomama is discussed below, p. 178. In 1978, when the menat fragment was examined with atomic absorption spectrometry by Josef Riederer (“Die naturwissenschaftliche Untersuchung der Bronzen,” p. 29, no. 105, s.v. “Platte”), gold was not among the elements routinely checked for in ancient copper-alloy works of art.
 87. W. Andrew Oddy, “Gilding of Metals in the Old World,” in *Metal Plating and Patination*, ed. La Niece and Craddock, pp. 171–81. For a recent study of gilding on Egyptian bronzes with a review of previous works, see Griffin, “Gilding on Egyptian Polychromed Bronzes.”
 88. A similar conclusion was reached for the kneeling bronze figure of a Kushite king in the Metropolitan Museum (2002.8); see Schorsch, “Manufacture of Metal Statuary.”
 89. The identity of these figures is discussed below; see p. 178.
 90. For an illustration of this technique, see Ulrike Bunte, “Ziertechniken auf Bronzeoberflächen,” in *Archäologische Bronzen, antike Kunst, moderne Technik*, ed. Hermann Born (Berlin, 1985), p. 63, fig. 11. The channels just inside the outlines of the chevrons, hieroglyphs, and deity figures are not usually seen on Egyptian metalwork. Compare the recessed fields for inlay on a bronze fragment illustrated in Élisabeth Delange, “Couleur vraie,” in *La couleur dans la peinture et l'émaillage de l'Égypte ancienne: Actes de la Table Ronde, Ravello, 20–22 mars 1997*, ed. Sylvie Colinart and Michel Menu (Bari, 1998), pp. 17–30, pl. 2b, and similar channels on a black-bronze Roman plaque inlaid with gold in Giumlia-Mair and Craddock, “*Corinthium aes*,” pp. 23–26, fig. 11.
 91. This technique is illustrated in Bunte, “Ziertechniken auf Bronzeoberflächen,” p. 63, fig. 10.
 92. Zofia A. Stós-Fertner and Noel H. Gale, “Chemical and Lead Isotope Analysis of Ancient Egyptian Gold, Silver and Lead,” in *Proceedings of the Eighteenth International Symposium on Archaeometry and Archaeological Prospection*, ed. I. Scollar (Cologne, 1979), p. 306; Noel H. Gale and Zofia A. Stós-Gale, “Ancient Egyptian Silver,” *Journal of Egyptian Archaeology* 67 (1981), p. 107.
 93. Christiane Ziegler in *Tanis: L'or des pharaons*, exh. cat., Galeries Nationales du Grand Palais, Paris, and Centre de la Vieille Charité, Marseilles (Paris, 1987), pp. 177–80, no. 48.
 94. Aucouturier, Delange, and Meyohas 2004, pp. 13–14, table 3, “incrustation rémige.”

95. Only a few of these Amarna Period red-gold objects have been analyzed; see Jack M. Ogden, "Gold in Antiquity," *Interdisciplinary Science Reviews* 17 (1992), pp. 262–63, for a ring bearing the name of Akhenaten that contains about 20 percent copper. See also Deborah Schorsch, "Precious Metal Polychromy in Egypt in the Time of Tutankhamun," *Journal of Egyptian Archaeology* 87 (2001), pp. 109–36, esp. pp. 67–69. Red-gold alloys are relatively rare, and the red coloration observed on ancient Egyptian gold is almost always unintentional in origin; James H. Frantz and Deborah Schorsch, "Egyptian Red Gold," *Archaeomaterials* 4 (1990), pp. 133–52.
96. Stós-Fertner and Gale, "Chemical and Lead Isotope Analysis," pp. 306–7 and fig. 5, for analyses of several copper-rich silver-gold alloys dating to the New Kingdom and earlier, but without information about the type of objects from which the samples were removed.
97. *Ibid.*, p. 308.
98. Aucouturier, Delange, and Meyohas 2004, pp. 13–14.
99. La Niece et al. 2002, pp. 95–108.
100. As the surviving gold leaf on the kilt was not analyzed, it is not possible to gauge its color with respect to the gold inlays.
101. Aucouturier, Delange, and Meyohas 2004, pp. 13–14.
102. *Ibid.*, p. 13.
103. British Museum, London, EA 60339, h. 29.2 cm; La Niece et al. 2002, pp. 101–2, fig. 5, left and right. The latter image is a virtual color reconstruction of the bronze's original appearance.
104. *Ibid.*, p. 102. This suggestion is supported by the fact that facial markings on painted falcon representations are often indicated in a dark color.
105. What might be the earliest surviving use in Egypt of black-bronze inlays is seen on the small kneeling figure of the Dynasty 18 king Thutmose IV in the British Museum, where they were employed to outline the rims of the eyes and indicate cosmetic lines; La Niece et al. 2002, pp. 99–106 and fig. 1.
106. EA 65432, h. 22.7 cm; *ibid.*, pp. 98–99 and fig. 6. Juxtaposition of similarly colored precious metals and its animating effect are discussed, in an entirely different cultural context, in Deborah Schorsch, "Composite Gold-and-Silver Artifacts from Loma Negra," *MMJ* 33 (1998), pp. 115–17.
107. Our rough sketch was redrawn and inked by Will Schenck.
108. Günther Roeder, "Die Arme der Osiris-Mumie," in *Ägyptologische Studien: [Hermann Grapow zum 70. Geburtstag gewidmet]*, ed. Otto Firkow (Berlin, 1955), usefully summarizes the best possibilities for the appearance of mummiform gods rendered in relief forms; see especially sec. 6 (pp. 257–62), sec. 5 (pp. 264–65), sec. 4 (p. 266), and p. 267.
109. The *was* is normally thought of as a divine scepter, but see Henry G. Fischer, "Notes on Sticks and Staves in Ancient Egypt," *MMJ* 13 (1979), pp. 21–23, and for the Third Intermediate Period, see, for example, Richard A. Fazzini, *Egypt Dynasty XXII–XXV* (Leiden, 1988), pl. 16, a relief scene in the Khonsu Temple at Karnak showing Osorkon III and the High Priest Takelot III both holding the scepter.
110. The Brooklyn Museum, 57.92. Examination of the statue in its vitrine at the museum suggests that the goddess figure is human-headed but that the precious-metal inlay defining the upper edge of her wig has been lost. This condition gave rise to Lanzone's original, and often repeated, description of the figure as cat-headed (R. V. Lanzone, "Descrizione di un statuetta di Uasarkan I," *Atti della R. Accademia di Torino* 11 [December 1875], pp. 467–70). See also Hill 2004, p. 154, no. 10, with references to text discussion, pl. 11. A planned entry by Richard Fazzini in *Gifts for the Gods*, ed. Hill, promises more specific description and understanding of the statue.
111. Betsy M. Bryan, "Striding Glazed Steatite Figures of Amenhotep III: An Example of the Purposes of Minor Arts," in *Chief of Seers*, ed. Goring, Reeves, and Ruffle, p. 67, interprets these as the vulture wings of Amun's divine wife, Mut. Aucouturier, Delange, and Mehoyas 2004, pp. 7–8, points out that the wings are composed of both vulture and falcon feathers and identifies the remains of a falcon head at the nexus of the wings in the center of the goddess's back; compare the preserved inlaid falcon head on the back of the goddess Neith in Jantzen, *Ägyptische und orientalische Bronzen*, pls. 27, 28, and similar decoration on other divine statues.
112. For a discussion of the role of royal bronze statuary, see Hill 2004, pp. 121–42.
113. For the role of "God's Wife," see Michel Gitton and Jean Leclant, "Gottesgemahlin," in *Lexikon der Ägyptologie*, vol. 2, ed. Wolfgang Helck and Wolfhart Westendorf (Wiesbaden, 1977), cols. 792–812. The inscriptions are discussed by Helen Jacquet-Gordon, "A Statuette of Ma'et and the Identity of the Divine Adoratrix Karomama," *Zeitschrift für ägyptische Sprache und Altertumskunde* 94 (1967), pp. 86–93.
114. National Archaeological Museum, Athens, 110, find spot said to be near Xoio, h. 69 cm. Although named only as a priestess, Takushit was a female of considerable rank: she was a daughter of Akanosh, the Chief of the Ma in Sebennytos. Most recently, and with updated bibliography, Olivier Perdu, "La chefferie de Sébennytos de Piankhi à Psammétique 1^{er}," *Revue d'égyptologie* 55 (2004), pp. 95–111, dates the statue to 670 B.C.
115. Gaston Maspero, "Lettre à M. François Lenormant," *Bibliothèque égyptologique* 8 (1900), pp. 263, 265; also visible in Figure 27.
116. Ägyptisches Museum, Berlin, 2309, purchased by Heinrich Minutoli in Egypt before 1824 but find spot unknown, h. 57.5 cm; see discussion and illustrations in Günther Roeder, *Ägyptische Bronzefiguren*, Staatliche Museen zu Berlin, Mitteilungen aus der ägyptischen Sammlung 6 (Berlin, 1956), pp. 315–17, sec. 399a–c, and illustrations. Beginning with Dynasty 22, the presence of the *henu* bark of Sokar is hardly an indication of geographical origin, because the image gained new prominence on Theban coffins at this time; see, for particulars, John H. Taylor, "Theban Coffins from the Twenty-Second to the Twenty-Sixth Dynasty: Dating and Synthesis of Development," in *The Theban Necropolis: Past, Present and Future*, ed. Nigel Strudwick and John H. Taylor (London, 2003), pp. 105 and 111 n. 156.
117. See note 73 above.
118. Musée du Louvre, Paris, E10598, find spot unknown, h. 58 cm. The inscription on the front panel of the skirt mentions "Osiris in Rosetau." This nomenclature does not always signal the Memphite area (Christiane M. Zivie, "Ro-setau," in *Lexikon der Ägyptologie*, vol. 5, ed. Wolfgang Helck and Wolfhart Westendorf [Wiesbaden, 1984], cols. 303–9), but with the prominence of Memphite-area gods elsewhere on the statue, a Memphis or Saqqara origin is a possibility.
119. The meaning of this figure is unclear. None of these statues cites a clear cultic association with Osiris. The small figure may be meant to mark the statue as "the Osiris," but while some statues with the figures have inscriptions referring to the owner as "the Osiris" and/or "justified" (Meresamun, Khon-

- serdaisu), others offer no such designation (Pachasou and Ihat). One small probable Divine Consort has a figure of Osiris on her chest between the breast straps (British Museum, London, EA 54388; see Russmann, *Eternal Egypt*, pp. 217–18, no. 115). Taylor, “Theban Coffins,” p. 105, notes that the image of the goddess Maat occurs at the throat of some Third Intermediate Period coffins as a token of the Egyptian phrase *maa-heru* (true of voice), indicating a justified deceased person. This occurrence is also, of course, facilitated by the affinities of Egyptian writing for substitutions by the rebus principle.
120. See note 66 above. Find spot unknown, but inscribed for a Singer of the Interior of Amun, from the college of priestesses associated with Amun at Thebes; see Jean Yoyotte, “Les vierges consacrées d’Amon thébain,” *Comptes rendus de l’Académie des Inscriptions et Belles-Lettres, Paris*, 1961, pp. 43–51.
 121. Musée du Louvre, Paris, N3390, probably from Karnak, h. 82 cm; Delange, Di Mantova, and Taylor, “Un bronze égyptien méconnu,” fig. 17 (height given as 84 cm), p. 73, and *passim*; Taylor, Craddock, and Shearman 1998, p. 14.
 122. Christiane Ziegler, “Jalons pour une histoire de l’art égyptien: La statuaire de métal au Musée du Louvre,” *Revue du Louvre et musées de France* 46, no. 1 (February 1996), pp. 34–35, fig. 12. “Le dénommé Mosou,” *Bulletin de l’Institut Français d’Archéologie Orientale* 57 (1958), pp. 81–89, is the basic publication for identification and date; see also p. 184 and Figure 32. Somewhat atypically, the statue’s right arm is raised, although the left leg strides forward; for comments on such occurrences, see Hill 2004, p. 72 n. 54. Not visible in published photographs are Pachasou’s other ornaments: a broad collar and at least on the right arm an armlet. The armlet, an encircling band decorated with an oval element between floral caps, is similar to scarab and seal bracelets of Sheshonq II (ca. 890 B.C.) and a bracelet of Wendjebanebdjed (a contemporary of Psusennes I, ca. 1040–992 B.C.) that incorporated an agate bead (Alix Wilkinson, *Ancient Egyptian Jewellery* [London, 1971], pp. 171–72; two of Sheshonq’s bracelets are illustrated in color in *Tanis: L’or des pharaons*, pp. 263, no. 96, 265, no. 98). Corrosion conceals much detail on the surface of the associated statue (Musée du Louvre, Paris, E7692, from the same Saqqara find, h. 65.5 cm; Ziegler, “Jalons pour une histoire de l’art égyptien,” fig. 11). However, examination reveals the traces of a broad collar and a leopard-skin garment whose paw is still visible on the flat front area of the kilt; no traces of a divine figure are discernible. Both statues are usually dated to the later Third Intermediate Period; see, for example, Christiane Ziegler, “Les arts du métal à la Troisième Période Intermédiaire,” in *Tanis: L’or des pharaons*, pp. 85–101, esp. p. 92.
 123. Ephesus Museum, Selçuk, 1965, h. 38 cm; see Erich Winter, “Eine ägyptische Bronze aus Ephesos,” *Zeitschrift für ägyptische Sprache und Altertumskunde* 97 (1971), pp. 146–55.
 124. Ägyptisches Museum, Berlin, 23732, find spot unknown, h. 32 cm; Fay, *Egyptian Museum, Berlin*, pp. 114–15, no. 59. For detailed photographs and discussion, see Friedrich Wilhelm von Bissing, “Eine Priesterfigur aus der Bubastiden-Zeit,” *Pantheon* 2 (1928), pp. 590–94; Roeder, *Bronzefiguren*, pp. 302–3, sec. 370a, figs. 385, 386, pls. 45, 46b, f, g.
 125. British Museum, London, EA14466, find spot unknown, h. 35.8 cm; see H. R. Hall, “The Bronze Statuette of Khonserdaisu in the British Museum,” *Journal of Egyptian Archaeology* 16 (1930), pp. 1–2, with two plates; Russmann, *Eternal Egypt*, pp. 238–39, no. 130.
 126. Archaeological Museum of Samos, B 2611, h. ca. 40 cm, features visible on the statue as displayed; the figure is briefly described but not illustrated in Kyrieleis, “Samos and Some Aspects of Archaic Greek Bronze Casting,” p. 24.
 127. It may be better to think of these statues rather on the pattern of theophoric stone statuary, in which the depicted relationship to the gods is best interpreted as a wishful undertaking of the king’s role in the afterlife. Jacobus van Dijk, “A Ramesside Naophorous Statue from the Teti Pyramid Cemetery,” *Oudheidkundige Mededelingen (Rijksmuseum van Oudheden te Leiden)* 64 (1984), pp. 49–60.
 128. Priestly accoutrements and conventions do not align consistently enough with inscriptional evidence in the material discussed here to elucidate the question. A forthcoming dissertation by Barbara Mendoza at the University of California, Berkeley, on priestly bronzes will be useful in this regard. For the importance of temple roles and of bronze statuary, the large corpus of royal ritual statuary and female officiants can be cited as one kind of evidence. For the interconnectedness of religious and political power in the period more generally, see, for example, the remarks of Karl Jansen-Winkel, “Gab es in der altägyptischen Geschichte eine feudalistische Epoche?” *Die Welt des Orients* 30 (1999), pp. 17–18.
 129. For the association with the crowns, where the vulture and the falcon seem to function similarly as royal protective gods, see Emma Brunner-Traut, “Geier,” in *Lexikon der Ägyptologie*, vol. 2, cols. 513–15. The vulture holding *shen* rings also appears on the area of the shoulder and upper arm of Takushit. On coffins, the same motif is seen, for example, on the breast of the silver coffin of Psusennes I (Pierre Montet, *La nécropole royale de Tanis*, vol. 2, *Les constructions et le tombeau de Psusennès à Tanis* [Paris, 1951], pl. 101), and a winged headdress (without the vulture’s head) occurs frequently on the heads of female coffins during this period as a derivative of the royal female vulture headdress; see John H. Taylor, *Egyptian Coffins* (Aylesbury, 1989), p. 51.
 130. Taylor, “Theban Coffins,” pp. 107, 110, pls. 50, 59.
 131. For the Abydos fetish as a secondary element in coffins, see, for example, George Daressy, *Cercueils des cachettes royales*, Catalogue général des antiquités égyptiennes du Musée du Caire (Cairo, 1909), pls. 25, 48, 57.
 132. Adela Oppenheim, “Appendix: Relief Decoration of the King’s Temples and Queens’ Chapels,” in Dieter Arnold, *The Pyramid Complex of Senwosret III at Dahshur: Architectural Studies* (New York, 2002), pp. 144–45, esp. n. 106, which includes additions to the study by Tomasz Giza-Podgórski, “Royal Plume Dress of XVIII Dynasty,” *Mitteilungen des Deutschen Archäologischen Instituts, Abteilung Kairo* 40 (1984), pp. 103–21. Certain kings, including Thutmose III, Ramesses II, and Nectanebo II, particularly emphasized their identification with the falcon. For a recent discussion of the king as falcon, focusing on Thutmose III but referring to many other significant studies, see Hourig Sourouzian, “Thoutmosis III—Falcon,” in *Egyptian Museum Collections around the World: Studies for the Centennial of the Egyptian Museum, Cairo*, ed. Mamdouh Eldamaty and Mai Trad (Cairo, 2002), vol. 2, pp. 1123–32.
 133. Bryan, “Striding Glazed Steatite Figures of Amenhotep III,” pp. 60–82. None of these examples includes the chevron-patterned belt, which seems replaceable by a belt with a rounded-feather pattern, the common zigzag pattern, and perhaps other variants. The examples in the full costume are

- numbers 2, 4/5, and 7. See Wolfhart Westendorf, "Panther," in *Lexikon der Ägyptologie*, vol. 4, ed. Wolfgang Helck and Wolfhart Westendorf (Wiesbaden, 1982), col. 664, regarding the religious assimilation of these felines.
134. Bryan, "Striding Glazed Steatite Figures of Amenhotep III," p. 65.
 135. For the complete feather-and-panther costume, see, for example, the statue of Ramesses III, Egyptian Museum, Cairo, CG 42150; Georges Legrain, *Statues et statuettes des rois et des particuliers*, vol. 2, Catalogue général des antiquités égyptiennes du Musée du Caire (Cairo, 1909); another of the same king at Medinet Habu: Harold Nelson, *Medinet Habu*, vol. 4, *The Festival Procession* (Chicago, 1940), pl. 137; the tomb of Ramesses VI: *The Tomb of Ramesses VI*, trans. Alexandre Piankoff (New York, 1954), for example, pls. 34 and 62, where he offers to Osiris. In somewhat abbreviated form, elements of this costume appear fairly often in the royal tomb paintings of the Ramesside period at Thebes, for example, KV 57 (Horemhab) and QV 55 (Amenherkhepeshef, son of Ramesses III); see Bertha Porter and Rosalind L. B. Moss, *Topographical Bibliography of Ancient Egyptian Hieroglyphic Texts, Reliefs, and Paintings*, vol. 1, *The Theban Necropolis*, pt. 2, 2nd ed. (Oxford, 1964), p. 568 (3) 4 and (4) 2, and p. 759 (8) 6, respectively.
 136. A smiting scene from el-Hiba shows Sheshonq I in the falcon corselet; Erika Feucht, *Vom Nil zum Neckar: Kunstschatze Ägyptens aus pharaonischer und koptischer Zeit an der Universität Heidelberg* (Berlin and Heidelberg, 1986), no. 223, ill. p. 97.
 137. Walters Art Museum, Baltimore, 54.2093, h. 17.7 cm; Hill 2004, p. 171, no. 44 (with references to text discussion), pl. 17. A kneeling king wearing a similarly patterned belt that is somewhat more sketchily rendered appeared recently at Sotheby's, New York, pp. 26–27, lot 28, catalogue of the sale of December 7, 2001. For Osorkon I, see p. 179 and note 110 above.
 138. See Pollak and Muñoz, *Collection du comte Grégoire Stroganoff*, pt. 1, by Pollak, pl. 28; Smith and Edwards, *Ancient Egyptian Sculpture*, pls. 22, 23, and Walker and Edwards, *Egyptian Sculpture*, p. 57. Plate 23 of Smith and Edwards is a side view that shows how far backward the bronze leaned when mounted in this way. John Walker of the National Gallery was apparently the only writer, viewing the work under these circumstances, to note its quality of movement: "This piece is remarkable not only for its fine modelling and its expression of movement. . . ." Walker and Edwards, *Egyptian Sculpture*, p. 13. Interestingly, in the Exposition Champollion, the statue was more appropriately displayed on a rod mount that allowed the torso to sit in a more upright position. See note 34 above for reference to a photograph.
 139. Overall photographs of the Pedubaste torso were taken while the statue was fixed on its mount and were manipulated digitally to approximate as closely as possible its original stance.
 140. Cyril Aldred, "The Carnarvon Statuette of Amün," *Journal of Egyptian Archaeology* 42 (1956), pp. 3–7, with the discussions referenced here on p. 7. Refinement of Aldred's analysis is discussed in detail and with additional examples in Hill 2004, pp. 33–34.
 141. See note 72 above.
 142. MMA 26.7.1412, find spot unknown, h. 17.5 cm; illustrated by Aldred, "Carnarvon Statuette of Amün," pls. I,1 and II,2 and very frequently elsewhere; for color, see most recently Wilfried Seipel, *Gold der Pharaonen* (Milan, 2001), p. 139.
 143. All these features recall those found on the feminized male figures of late Dynasty 18, including the king from the late Amarna or post-Amarna period, cited above in note 37, and also stone statuary such as the colossus of Tutankhamun and the statue of Ptah from his reign; Edna Russmann, *Egyptian Sculpture: Cairo and Luxor* (Austin, 1989), pp. 128 and 130, respectively.
 144. Another example is Walters Art Museum, Baltimore, 54.2093; see note 137 above.
 145. Known examples are Pepi I and the accompanying figure, which are in fact made of hammered copper, in the Egyptian Museum, Cairo; a Middle Kingdom king in the George Ortiz collection; another, smaller king from the same period in the Sammlung Ägyptischer Kunst, Munich; and a large bust, perhaps originally part of a statue, in the Roemer- und Pelizaeus-Museum, Hildesheim; see Hill 2004, p. 121.
 146. *Ibid.*, pp. 124–30.
 147. M. F. Laming Macadam, *The Temples of Kawa: Oxford Excavations in Nubia*, vol. 1, *The Inscriptions* (London, 1949), p. 8, inscription III (15).
 148. There are two of these statues: Egyptian Museum, Cairo, JE 60709 and 60710. The first is illustrated and discussed by I. E. S. Edwards in *Treasures of Tutankhamun*, exh. cat., National Gallery of Art, Washington, D.C., and other institutions (New York, 1976), pp. 146–47, colorpl. 21; Edwards also considers the relation of such statues to the battle between Horus and the Sethian hippopotamus depicted at Edfu.
 149. Stride angles of figures vary considerably, and the Amun is itself a boldly striding figure. Another work that might seem relevant to the consideration of other kinds of activities, the Ny Carlsberg Glyptotek Seth/Khnum (see note 67 above), is, unlike Pedubaste, strongly twisted through the waist and upper torso, as it leans backward in lifting its spear. This posture and an offset of its feet convey the vehemence of its activity. The stride, which cannot be meaningfully measured when the hips are twisted in this way, does not itself seem remarkable.
 150. For remarks on differences in anatomical modeling as expressive of activity, particularly with regard to the forward pull of the left shoulder, see Dietrich Wildung, "Bilanz eines Defizits: Problemstellungen und Methoden in der ägyptologischen Kunstwissenschaft," in *Studien zu ägyptischen Kunstgeschichte*, ed. Marianne Eaton-Krauss and Erhart Graefe (Hildesheim, 1990), pp. 57–80, esp. pp. 72ff.; and Marianne Eaton-Krauss and Christian E. Loeben, "Some Remarks on the Louvre Statues of Sepa (A 36 and 37) and Nesames (A 38)," in *Chief of Seers*, ed. Goring, Reeves, and Ruffle, esp. p. 84 and n. 18.
The relatively higher position of Karomama's left breast is particularly evident in *Tanis: L'or des pharaons*, colorplates on pp. 177 and 179.
 151. See note 122 above.
 152. For a discussion of this phenomenon in kneeling kings and several factors that may lie behind it, see Hill 2004, p. 125.
 153. Eaton-Krauss and Loeben, in "Louvre Statues of Sepa (A 36 and 37) and Nesames (A 38)," refer to examples of movement in statuary dating to the Old Kingdom. While it is generally stated that Egyptian striding stone statues rest their weight on the right rear foot, the statement is made mainly on the basis of Old Kingdom statues, and explanations for such a convention are given in terms of developments during that period, as Eaton-Krauss and Loeben do.

The evolution of post-Old Kingdom habits of representation in this respect needs further study. For example, a New Kingdom red granite striding statue of Thutmose III (MMA 14.7.15, h. 128 cm) shows the right rear heel far behind the center point of the body and nearing the rear edge of the back pillar, so that the king seems to be moving between his right and left foot (visible even in the indirect view in William C. Hayes, *The Scepter of Egypt*, rev. ed. [New York, 1990], vol. 2, p. 120, fig. 62). Dietrich Wildung, in furtherance of a project, first elaborated in "Bilanz eines Defizits," to reevaluate problematic conceptions about Egyptian art that deeply imprint scholarly discourse and observation, has for many years in lectures also pointed to instances in which the right heels of striding stone statues are placed near the rear edge of the back pillar, increasing the realistic impression of the stride.

154. Hill 2004, p. 49. Also see Jansen-Winkeln, "Gab es in der altägyptischen Geschichte eine feudalistische Epoche?" pp. 17–18.

For royal bronze statuary as ritual statuary, see Hill 2004, pp. 2–3 and *passim*. In addition, temple relief environments have been observed to interact with bronze production in certain respects (see Hill 2004, pp. 111, 145), so it is possible that the realistic depiction of movement in temple relief might have had an influence. For this and the increased importance of temples as art production centers in the first millennium in relation to other types of elite centers, see also Marsha Hill, "A Bronze Aegis of King Amasis in the Egyptian Museum: Bronzes, Unconventionality and Unexpected Connections," in *Egyptian Museum Collections around the World*, ed. Eldamaty and Trad, vol. 1, pp. 545–56.

Archaism, given the interest in Old Kingdom art during the later Third Intermediate Period in particular, could also be a factor in certain statues such as that of Pachasou, which does show the influence of Old Kingdom wood statuary, where realistic depiction of actual movement is known.

155. The menat fragment is ascribed by the Berlin Museum to the Harsiese who was priest and king at Thebes (Fay, *Egyptian Museum, Berlin*, pp. 116–17, no. 60); for differentiation of Harsiese A (king and priest) from Harsiese B (high priest), see Jansen-Winkeln, "Historische Probleme der 3. Zwischenzeit," pp. 129–39. As noted by Jean Leclant, it is not at all clear that

the royal (or divine?) figure represented on the menat should be identified with this King Harsiese: first, the name faces the opposite direction from the figure; second, the individual's titles (priest, but also overseer of the city and vizier) do not seem to fit that particular person, while there are numerous Harsieses dating closer to the time of Dynasty 25, one with the same titles as those on the menat fragment ("Sur un contrepoids de menat au nom de Taharqa: Allaitement et 'apparition' royale," in *Mélanges Mariette*, Institut Français d'Archéologie Orientale du Caire, Bibliothèque d'études 32 [Cairo 1961], pp. 251–84 and plates, esp. pp. 271–72 and notes). In this regard, see most recently Frédéric Payraudeau, "Harsiésis: Un vizir oublié de l'époque libyenne," *Journal of Egyptian Archaeology* 89 (2003), p. 205.

156. Friedrich Wilhelm von Bissing, "Unterteil eines Menits des Stadtvorstehers und Vezirs Harsiesis: Ein Beitrag zur Geschichte der Metallpolychromie," *Nachrichten aus der Altertumswissenschaft* (Gesellschaft der Wissenschaften zu Göttingen, Philosophisch-Historische Klasse, Fachgruppe 1), n.s., 3 (1938–39), pp. 89–115.
157. In addition to La Niece et al. 2002, see Fleur Shearman, "An Original Decorated Surface on an Egyptian Bronze Statuette," in *Conservation of Ancient Egyptian Materials: Preprints of a Conference Organised by the United Kingdom Institute for Conservation, Archaeology Section, Held at Bristol, December 15–16th, 1988*, ed. Sarah C. Watkins and Carol E. Brown (London, 1988), pp. 29–34; Delange, "Couleur vraie"; Griffin, "Selective Use of Gilding on Egyptian Polychromed Bronzes"; Schorsch, "Precious Metal Polychromy."
158. John H. Taylor, "Patterns of Colouring on Ancient Egyptian Coffins from the New Kingdom to the Twenty-Sixth Dynasty: An Overview," in *Colour and Painting in Ancient Egypt*, ed. Vivian Davies (London, 2001), pp. 164–81, has carefully examined basic aspects of the development of coffin painting during the period in question and would be a basic resource; see particularly his pp. 171–73 regarding the Dynasty 22 coffins. There are many unusual painted wooden stelae, such as Louvre E 52 belonging to the Lady of the House Taperet, that employ somewhat unusual effects and distinctive color palettes; for Taperet, see Guillaumette Andreu, Marie-Hélène Rutschowskaya, and Christiane Ziegler, *L'Égypte ancienne au Louvre* (Paris, 1997), pp. 171–74.

