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THE AMARNA TECHNIQUE
OF COMPOSITE SCULPTURE

Sculptures from the city of Amarna are today widely regarded as masterpieces of Egyptian artisanship. A fine example is the head of Queen Nefertiti from Berlin, perhaps the most recognizable piece of Egyptian art worldwide - apart from the treasures discovered in Tutankhamun's tomb – which, in fact, are strongly influenced by the Amarna style. But setting aside the artistic qualities of artifacts discovered in Akhetaton, the technique in which they were crafted is equally interesting. In the course of the centuries major alterations were rarely introduced to Egyptian sculpture, but master sculptors working in the city of Akhenaten were able to develop an astonishing new quality in that field.

We may use a simple, yet accurate definition to describe the technique of composite sculpture as based on combining elements crafted separately and sometimes of different materials into complete statues. The technique was neither unknown in ancient Egypt prior to the Amarna period, nor was it solely employed by stoneworkers, but its full potential has not been discovered before the times of Akhenaten¹. For instance a vast majority of Egyptian wooden statuary was made of pieces carved separately and joined by dowels, mortise and tenons. In this case employing the composite technique was a solution to material deficiencies – Egyptian timber was not only expensive, but also

¹The exact dates of the rule of Akhenaten are constantly under debate, currently two options are considered possible: either the years 1340-24 or 1353-36 B.C. See Schneider T., *Lexikon der Pharaonen*, Zürich 1994, p. 66.



A drawing showing the principles of the Amarna technique of composite sculpture (by the author)

small-sized. Even the smallest pieces were worth using to separately carve small parts of statues², as long as they were still workable. A small number of composite metal statues also survived, mostly solid-casts crafted with the lost wax method, with various parts cast separately and later fixed by tangs inserted into elongated openings in the shoulders. Pieces of headgear were also made separately, sometimes of different materials, and fixed to a recessed rim on the top of the head³. Both wooden and metal statues were decorated with incrustations and a number of smaller items crafted separately, such as jewellery, head ornaments or items the statues held in hands, now generally lost.

As stated above, Amarna sculptors were clearly not pioneers in the composite technique, yet they developed it to a considerable extent and made the most of its possibilities when it came to stone statuary. As it is always the case with Amarna sculpture and art in general, a new factor has to be taken into account during this period, that is individual artists' style. It is certain that different artists – and even different work-

² For instance pieces of feet in the statuette of Senwoseret I (XII dynasty) from the Metropolitan Museum of Art. See Harvey J., *Wood Sculpture* [in:] Redford Donald (ed.), *The Oxford Encyclopedia of Ancient Egypt*, Oxford 2001, III, col. 246-250.

³ A kneeling figure of Amenemhat III (XII dynasty) from the Ortiz Collection makes a fine example. See Clayton P., *Chronicle of the Pharaohs. The Reign-by-Reign Record of the Rulers and Dynasties of Ancient Egypt*, London 1994, p. 6.

shops - manufactured fragments of one statue, for instance the findings from the workshop of Tuthmose allow us to state that it specialized in the production of heads, arms, hands and feet. Not a single torso fragment has ever been discovered in that workshop – setting aside the fact that generally very few such pieces survived from the Amarna period. We may, however, define some general rules that apply to most pieces of composite sculpture, no matter from which workshop they originate⁴:

1) The neck is fitted with a long and relatively narrow tenon that was inserted to a matching opening in the torso. The tenons were long enough to eliminate the necessity for any adhesive solutions whatsoever, even when a considerable weight of the head had to be compensated. Once combined, both pieces would usually fit very closely; nevertheless, a slit between them was always visible to some extent, depending on the artists' workmanship. It is therefore highly probable that it was later masked with plaster.

2) Yet another tenon was formed on the top of the head, which in turn was used to fix the headgear, in most cases also made of stone, but not necessarily the same type of stone as the head (in most cases gray and black diorite and granodiorite). In a number of cases, the surface of the head that was supposed to be covered with a headgear was previously painted red, most probably to make it easier for the workers to fit both elements together. It is also possible that the head was first painted and immediately the headgear was placed over wet paint. It was later removed and with all the uneven surfaces tinted red it was easy to make necessary adjustments. The process could have been repeated until the artisan achieved perfectly fitting elements⁵.

3) The hands were fixed to a torso with the same method as described above, that is with tenons that were inserted into openings made in the arms and sides of the torso – neither in this case were any adhesives necessary and the sole weight of the pieces kept them in place.

Composite sculpture featured a number of technical advantages over traditional Egyptian one-piece statuary. One of its major qualities was that it al-

⁴ For a complete, detailed definition see: Philips J., *The Composite Sculpture of Akhetaten. Some Initial Thoughts and Questions*, Amarna Letters 3, 1994, pp. 58-71.

⁵ Arnold D., *The Royal Women of Amarna*, New York 1996, p. 62.

lowed a considerable compensation of weight and therefore a reduction of the back pillar. None of the sculpture heads discovered in Akhenaten had a pillar that reached the neck, which was common in case standard Egyptian statues. The museum of Cairo houses a well-preserved composite statue of Sethy I with a back pillar reaching as low as the buttocks⁶, which certainly is unique in Egyptian art, but we may safely assume that such height was entirely sufficient when employing the composite technique. As a comparison, the limestone statuette of Nefertiti from the Thutmose workshop, currently in the Ägyptisches Museum in Berlin, was carved in the traditional one-piece method and required a back pillar that reaches as high as the top of an ear – and in terms of proportions it is not much different from composite heads lacking such support⁷.

As mentioned above, particular elements of a given sculpture were created separately by different artists and maybe even workshops. Whatever individual style each workshop might have had, the parts still had to fit together and the sculpture needed perfect proportions. This could not have been achieved instantly and needed further adjustments. Excavations in the workshop of Thutmose resulted in the discovery of over 50 pieces of sculpture, which allowed a detailed study of both technique and materials used by Amarna artisans. All the above-mentioned artifacts were made of quartzite, limestone or gypsum plaster. A question immediately arises if there was any connection between the stone and gypsum sculptures - were they individual works of art or just stages in the same creation process?

Twenty seven objects of Thutmose's workshop were modelled in gypsum plaster, with twenty three of them being portrait heads of at least faces and the rest models of an ear, mouth and two feet. Four of the heads have been almost entirely finished and only lack headgear. The rest of the gypsum sculptures are sole faces, a number of them earless. A number of theories regarding those objects have been developed – they have been regarded as “funeral masks” by Petrie⁸ or “naturalistic portraits of life models” by Borchardt⁹, or just one of

⁶ Egyptian Museum, Cairo, Inv. no. JE 36692, discovered under the debris of the cachette in the Temple of Amun in Karnak.

⁷ Ägyptisches Museum Berlin, Inv. no. 21 263.

⁸ Petrie W.M.F., *Tell El Amarna*, London 1894, p. 2.

⁹ Borchardt L., *Ausgrabungen in Tell el-Amarna 1912/13, Vorläufiger Bericht*, Mitteilungen der Deutschen Orient-Gesellschaft zu Berlin 52, 1913, p. 35.

the stadiums of creating stone sculptures (see Roeder's theory below). Seven of the gypsum faces depict male members of the royal family and two have been identified with all certainty as Queen Nefertiti, additionally, over the forehead of one of them, remains of a high, flatly topped crown are clearly visible. A number of the portraits probably depicts people that were not Akhenaten's relatives – among them some of the faces stand out as examples of the artist's mastership. One of such masterpieces is a portrait of a young woman, with an oval face surrounded by a large wig and with large, round earrings – arguably identified as the king's minor wife, Kiya, as well as a remarkably realistic portrait study of an old woman. However, the portraits of male members of the court turned out to be even more impressive. The most famous among them is a head of an elderly man, sometimes identified as Ay.

A slightly smaller number of stone sculptures survived (made of limestone and quartzite), among others the heads of Nefertiti and princesses of yellow and red quartzite, a portrait of a young woman of reddish quartzite¹⁰, fragments of a female statue with a pillar and a number of separate hands and arms¹¹. When it comes to stone sculpture, the parts were smoothed and the surfaces were subsequently polished to a shine. In this final stage, some delicate details were added, most probably by the master sculptor, who marked the spots that required reworking with black paint. In most cases some careful work was required with shaping the face, to give a desired shape to upper lids, the muscle that runs from the inner corner of the eye towards the cheekbones (in professional terms the muscle *orbicularis oculi* that surrounds the eyeball) as well as tiny skin folds beneath the eyes¹². Both eyes and eyebrows were incrustated and the hollows for inserts were made in this final phase of sculpting a portrait head. Some unfinished heads have been discovered with clearly visible black paint marks that were drawn by a sculptor in places that were supposed to be hollowed or reworked. At the same time, the outer corner of an eye was prolonged with traditional "cosmetic" lines and the same was done to prolong eyebrows in the direction of ears. Master sculptor would also use black paint

¹⁰ Settgest J., *Ägyptisches Museum Berlin*, Berlin 1985, p. 82.

¹¹ Borchardt L., Ricke H., *Die Wohnhäuser in Tell el-Amarna, Ausgrabungen der Deutschen Orient-Gesellschaft in Tell el-Amarna*, vol. V, Berlin 1980, p. 98.

¹² See the unfinished limestone head of Nefertiti with black pigment, Ägyptisches Museum Berlin, Inv. No. 21 353.

to mark spots that needed further work, such as the inside of nostrils and places where ears were pierced (it is possible that ear holes were drilled at a later stage and the head was decorated with jewelry)¹³.

According to a theory developed by Günter Roeder¹⁴, the Amarna sculpting technique was a process that consisted of several phases. In the first phase, a sculptor would form facial features in a fairly soft, easily moldable material, such as wax or clay. His work would later be treated as a kind of three-dimensional drawing that was further modified until he achieved an effect that satisfied him, which in turn served as a model for the actual stone sculpture. During various stadiums of the sculpting process, a number of wax or clay prototypes were made, most probably in order to consult the final effect with the chief sculptor. Molds were needed to produce high quality gypsum casts – two were used when a copy of the whole head was necessary and one to copy the face alone. Roeder's theory seems to have an advantage over the "funeral mask" thesis, especially that there is virtually no reliable proof for that second one. Therefore, we may assume that the realistic gypsum casts are simply early stages of creating a portrait and some idealization, necessary in Egyptian art no matter how realistic we may consider Amarna sculpture, had to be applied later. The eye would receive an almond shape, mouth would be smaller and with a sharper contour, and finally the folds of skin beneath the eyes would be diminished, if not eliminated.

Roeder's theory, however appealing, is not without flaws. A question remains why no stone sculptures based on the above-described models have ever been found. If we assume that gypsum portraits were indeed used by sculptors as models, it seems obvious that after the final stone sculpture was created they were useless and disposed of. Therefore, the models that were discovered in Amarna could not have been used according to their purpose, the stone sculptures based on those models were never created – those projects must have been abandoned when Akhenaten's artists left the desert city. Yet another counterargument is that gypsum casts of private, non-royal people were discovered, and generally, such persons would not have had stone portraits

¹³ See the head of a princess of red quartzite from the Thutmose workshop, Egyptian Museum, Cairo, Inv. no. JE 44 869.

¹⁴ Roeder G., *Lebensgrosse Tonmodelle aus einer altägyptischen Bildhauerwerkstatt*, Jahrbuch der preussischen Kultursammlungen 62, 1941, p. 146.

made. However, they may have been models for funeral sculptures traditionally placed in Egyptian tombs. In Amarna such depictions were carved in rock walls in niches chiseled in the deepest room of a tomb – and therefore were sculpted when construction process of the whole tomb was ending. Since a majority of Amarna tombs has never been finished, very few of such statues ever came into existence, and none of them survived undamaged to our times, it is not possible to prove this theory. However, some evidence remained, among others unfinished niches in the tombs of Merire I and Panehsy¹⁵, finished statues with removed heads in the tombs of Huia and Ahmose¹⁶ and finally finished statues with destroyed faces in the tombs of May and Any¹⁷.

The only gypsum cast that resembles an existing stone sculpture is the portrait of Queen Nefertiti that is quite similar to the Berlin bust¹⁸. The head was preserved almost entirely, together with the neck and ears (with some minor damage to the nose and chin) and with a crown fragment visible over the forehead. Although the crown is missing, the skull is flat in the back to accommodate it. Eyebrows are formed in arc-shaped hollows that in the final stone sculpture would have been incrustated. At first sight, similarity of both portraits is striking, yet a closer examination reveals a number of differences – for instance, the mouth of the gypsum portrait is fuller and its eyelids are smaller and more delicate. It seems clear that the artifacts are two different depictions of the same person and not two different stadiums of the same portrait. Nevertheless, the gypsum portrait still encompasses all the features characteristic of official stone portraits depicting the Queen.

The portrait heads of Amarna have been in the center of attention of both archaeologists and art historians for a number of years and it seems that they have been thoroughly examined and that every possible piece of information concerning them has already been published. Yet even now completely new and interesting – if not always reliable – conclusions are being drawn. One of

¹⁵ Davies N., *The Rock Tombs of El Amarna, Part I – the Tomb of Meryra*, London 1993, plate 2.

¹⁶ Davies N., *The Rock Tombs of El Amarna, Part III – the Tombs of Huya and Ahmes*, London 1905, plate 1, 26.

¹⁷ Davies N., *The Rock Tombs of El Amarna, Part V – Smaller Tombs and Boundary Stelae*, London, 1908, plate 1, 8.

¹⁸ Arnold, *The Royal Women...*, p. 48.



Reconstruction of a statuary group of Akhenaten and Nefertiti with the cast of Nefertiti's portrait from Berlin. Digital image by D. Laboury and C. Rossi, www.ees.ac.uk

the recent trends is a theory developed by Elke Roik, who wonders if the portrait heads, including the famous Berlin bust, were part of a mass production line¹⁹.

Meanwhile the excavations run on the site of Akhetaton by Barry Kemp of the Egypt Exploration Society may soon lead to a major breakthrough in the way Amarna sculpture is perceived. In the storage houses built on the site to contain findings from previous excavation seasons about one thousand of sculpture pieces are stored, most of them depicting Akhenaten and the closest members of his family. A majority of those pieces were first discovered by various excavation teams in the past and discarded as useless or worthless pieces. They were

later found in old dump piles, especially the ones that were left after the excavations in the ruins of the Great Palace during the thirties of the previous century. Currently the pieces are being cataloged and examined by two Amarna sculpture specialists, Kristin Thompson and Dimitri Laboury. The fruit of their meticulous work was a reconstruction of a sitting group made of black granodiorite, depicting the royal couple. There is no doubt that the sculpture – or at least certain parts of it – originate from the workshop of Thutmose. Even more surprising, it turned out that the reconstructed torso of the queen fits perfectly to the granodiorite head of Nefertiti currently housed by the Ägyptisches Museum in Berlin²⁰.

¹⁹ Roik E., *Der Kopf der Nofretete, eine Maßarbeit?*, Bulletin de la Société d'Égyptologie de Genève, nr 25 2002, pp.131-151.

²⁰ Kristin Thompson has published a number of works regarding the recent discoveries in the field of amarna statuary. See also: Thompson K., *Amarna statuary project*, Journal of Egyptian

Therefore it may be stated with all certainty that the portrait heads created in Thutmose's workshop were intended to be parts of full statues. The heads were always considered masterpieces of Egyptian sculpture, yet – as it turns out – we were regarding them as stand-alone pieces without wider context. As portraits, they truly are remarkable, but now they need to be examined as parts of a greater work. Amarna sculpture was always considered original and outstanding, so it seems somewhat surprising that the group reconstructed by the Egypt Exploration Society team is canonic to the requirements of Egyptian tradition. Numerous depictions of the royal family that we know from relief or statuettes are far from the traditional standards – for instance the royal couple playing with the children or Akhenaten kissing one of his daughters. Both figures of the reconstructed group are very static, seated on the throne in a traditional stiff pose, with hands most probably laying flat. If more such discoveries are made, we will probably have to rethink our opinions about Amarna sculpture – perhaps it was more traditional in terms of composition that we have ever thought.

Archaeology 89, 2003, pp. 17–19; ead. *Amarna statuary fragments*, Egyptian Archaeology 25, 2004, pp. 14–16; ead, *Tell el-Amarna, 2004. Appendix I: the statuary*, Journal of Egyptian Archaeology 90, 2004, pp. 21–3; ead, *Tell el-Amarna, 2005. The statuary project during the 2005 season*, Journal of Egyptian Archaeology 91, 2005, pp. 21–22.