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The lion statue from the 1st cent. BC/1st cent. AD Temple of Allat was discovered in 1977 by a Polish archaeological expedition directed by Prof. M. Gawlikowski.¹ It was found in pieces, reused already in Antiquity in a foundation erected in the temple courtyard. Upon discovery, it was decided to remount the fragments in front of the entrance to the site museum in Palmyra. The task was undertaken by restorer Józef Gazy, who was just finishing work on the restoration of the statue of Athena.

After 25 years, the display of the statue was found to be inadequate [*Fig. 1*]. Indeed, problems had appeared already during the remounting when the lion tilted forward dangerously, threatening to collapse. A concrete counterweight was added at the back of the statue to counter the tilt, giving the lion an unbecoming hump in effect. Recently, monitoring of the stone surface noted considerable cracking and disconnection of fragments, resulting from the statue's shaken equilibrium. The scaly cracking of the blocks under the lion's jaws seemed to be the most serious problem, suggesting that the head was pressing too heavily on the edges of the blocks.

In 2000, a project was presented for a new display of the statue. It addressed two issues, one of which was to recreate the ori-

ginal form of the lion as a relief representation. The other question was to design a supporting construction that would ensure proper statue balance, while satisfying accepted aesthetic standards of reconstruction. The statue had to be dismantled and remounted on a new foundation connected to a reinforced concrete wall backing the sculptured fragments and acting as a counterbalance for the forward tilting tendency. Stone blocks on either side of the lion were supposed to imitate the wall, against which the statue must have been displayed originally. The new restoration project also called for a reconstruction of the missing curls of the mane in order to improve the overall aesthetic effect. Two of these missing elements with carved curls had been replaced in the past with unworked blocks and the third had not been restored at all.

Work on the project started in 2005. Once the modern canopy was dismantled, the statue was propped up with wooden beams to prevent its collapsing forward once the concrete elements from the back were removed. The concrete construction had to be chiseled away by hand, piece by piece; only at the very end did it prove possible to break away a bigger piece of concrete at the bottom. Only the head of the Lion proved to be anchored in the concrete with iron

1 Cf. M. Gawlikowski, *RA* 1977, 2, 253-274; *DaM* 1 (1983), 55-67; *AAAS* 33 (1983), 179-198



*Fig. 1. Lion statue from the Allat temple now in the Museum of Palmyra, before conservation in 2005, front and lateral view
(Photo B. Markowski)*



rods. The blocks below it were interconnected with iron clamps stuck in a cement mortar. The original blocks were dismantled one by one as they appeared; a crane was used to lift them down. Upon dismantling the head, it turned out that the block under it was much more cracked than previously thought. It had to be taken apart, stuck together² and reinforced with two stainless steel rods (ϕ 12 mm).

The next step was to remove the old foundation, which proved to be bigger than it looked (over 1 m deep). It had been poured in stages and had no reinforcement, making it easier to break it up into pieces with wedges and lift with a jack. Once this task was completed, work was interrupted for a few days while permission was sought to cut down two trees, one of which stood in the way of the proposed stone wall and the other, a pine, spread its branches above the statue, dripping resin all over the ancient stone.

The felling accomplished, a new foundation was poured with appropriate reinforcement to be inserted in the concrete wall which was to bear the weight of the statue. The size of the foundation and the kinds of materials used were consulted with an engineer-constructor. Once it had set, the lowermost elements of the composition were mounted.

Preparations for the project in 2004 revealed that while soft limestone, like the one of which the statue was made, was quarried in the vicinity of Palmyra, the available block sizes were unfortunately too small for the purposes of the present restoration.

Blocks of a harder but more readily available compact limestone were ordered specially for the project already in 2004. There were 15 of them in all, each weighing between 200 and 1600 kg. Stretcher ties (O 20 mm) were inserted into holes drilled in the top of the blocks in order to facilitate their mounting one by one with the use of a crane. This avoided the inconvenience of having to remove lifting ropes. Once a block was in place the tie was removed and the hole filled with mortar. All the elements, whether new or old, were set in a mortar made of sand and white cement. In order to lessen the thrust of the Lion's head on the edge of the blocks below it and prevent fragments from breaking off, a stainless steel flat bar measuring 1×10×150 cm was placed at a distance of c. 20 cm from the edge. The elements standing above this will be supported on this bar and not on the edge of the stone.

The blocks used to reconstruct the curls of the mane required careful fitting and removal of large portions of excess stone. Twice they were tested on the statue and taken down again for further dressing. The ultimate form of the curls was achieved after mounting the entire statue. The stone was worked with an angular grinder using diamond disks (ϕ 125 and 230 mm) permitting large stone surfaces to be dressed. Lesser details were hand-carved using a chisel. The curls were sculpted with some simplification, without rendering single hairs, thus giving viewers the chance to distinguish between the old and the new. After cleaning and filling of the joints and

2 The adhesive used for the stone elements as well as for the insertion of the stainless steel rods was an epoxy resin EPIDIAN 5 with hardener Z-1 and crushed limestone filler. The surfaces to be stuck together were protected with 5% PARALOID B72 in acetone or toluene.

3 Surface losses of the original stone were filled with FUCONSIL RESTAURIERMÖRTEL mortar by Remmers (Germany); pointing the new blocks was done with a 1:3 white cement-to-sand mortar.

losses with mortar,³ the new elements were treated in terms of color to match the dark yellow patina of the original blocks.

Once all the elements of the statue had been refitted [Fig. 2], sculptural work on the front progressed simultaneously with building the bearing construction at the back. Each block was fitted with from one to three stainless steel rods (ϕ 14 mm), inserted at an angle of 45° downward, which should reduce the thrust on particular joints. Each of the 24 rods was bent in copy of the 13 pieces of ribbed steel reinforcement in the wall (ϕ 12 mm). Wood scaffolding was then put up and the reinforcement poured with concrete. The contacting surface of the

limestone blocks was first impregnated with c. 10 l of 5% PARALOID B72 in toluene. The concrete wall was 1.30 m long, 3.10 m high and had an average thickness of 0.25 m. Wooden beams shored up the statue from the front until the concrete had set. Once the concrete had dried, the scaffolding was removed and the surface floated with a sand-and-white-cement mortar.

In the effect of the work, the Lion of Allat was restored in imitation of its original appearance [Fig. 3]. It is no longer a statue in the round removed from its building context, but fulfils the design of the ancient artist who wanted it to be a relief representation jumping out from a wall. Its



Fig. 2. *Lion statue from the Allat temple during refitting of the elements*
(Photo D. Wielgosz)

appearance in past years with the huge mass of concrete at back must have been misleading to visitors and clearly had nothing to do with the original lion. The new bearing construction of the statue fits into the thickness of a wall made of new limestone blocks, forming a uniform surface at back. The concrete wall to which all the stone blocks were anchored is connected integrally with stainless steel reinforcement with the foundation, thus

guaranteeing full and permanent stability of the structure. After color merging with the patinated yellow color of original blocks, this bearing wall attracts virtually no attention. The improvised wall, erected of new blocks, and the reconstruction of the missing curls of the mane ensure viewers' capability to appreciate the integrated and harmonious composition of an ancient sculpture and leave no doubt as to which elements were original.



*Fig. 3. The Lion of Allat after conservation
(Photo B. Markowski)*