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CONSERVATION WORK ON KOM EL-DIKKA IN ALEXANDRIA IN THE 1989 SEASON

Wojciech Kołataj

Work conducted in the 1989 season is part of a broader conservation program undertaken by the PCMA with the Egyptian Antiquities Organization and aimed at preserving and exhibiting a large section of the ancient city centre of Alexandria, presently located in the centre of the modern town. The program covers several structures of both private and public nature, which preserve the urban layout of the 4th-7th centuries AD. However, in cases where archaeological studies have uncovered valuable relics from the 1st century BC to the 4th century AD; it is planned to exhibit these as well, without disturbing in any significant way the Late Roman and Byzantine systems.

Conservation work is conducted on many sites, in conjunction with archaeological research as a rule, in order to preserve the uncovered relics of architecture left *in situ*. The specificity of Alexandria and the scope of our conservation program there¹ draws from two elements. First and foremost, there is the nature of the damages resulting from extensive salination and humidity of the environment, seismic activity which has frequently destroyed the city in the past and, finally, many centuries of ransacking in search of building material. Secondly, keeping in mind that in the future the site will be made accessible to the public, it is necessary to ensure the safety of visitors.

Basing their judgment on the principles contained in the Venice Charter and taking into account new trends in conservation reflecting the use of new substances and technologies presented in

¹ The conservation mission included: Dr. Wojciech Kołataj (director), Dr. Jan Borkowski; architect Mr. Mariusz Karst, Mr. Kazimierz Błaszczyk and archaeologist Mr. Grzegorz Majcherek.

publications and at congresses, the competent Egyptian authorities have accepted and adopted the proposed general premises, of the program.

In 1989 work concentrated in three areas.

In the Theatre the re-erection of the southern wall of the complex was completed. The wall had fallen during an earthquake in the 8th century AD and was found lying in undisturbed order. Preserving the original courses of stones and at times lifting whole sections together with the plaster preserved on its face,² it was possible to reconstruct this wall and protect it from humidity by introducing insulation layers and properly forming its top to ensure quick evaporation of rainwater. Missing blocks were replaced by new ones made to specification from the same kind of stone as the ancient ones. The place of destroyed bricks, impossible to retrieve from the debris, was filled with new ones, carefully chosen to fit into the whole as far as dimensions are concerned. No substances of any kind, either silicon- or resin-based, were used to reinforce the surface. To date, experiments with Ahydrosil Z as well as Silak and the Vacker preparation have shown that instead of attempting to protect wall surfaces endangered by salt efflorescence, it is necessary to build complete systems for protecting structures from seasonal dampness.

It was also undertaken to clear, investigate and preserve the last three sections of the theatre corridor (ambulacrum), left unexplored when the theatre was excavated. Upon clearing two of the sections, measures were taken to protect their arcades and vaulting. The fissured structure was protected by injections under gravitational pressure of a mixture of hydrated lime, fine-grained sand and white Portland cement, taken in proportions 10:20:5. Destroyed bricks were replaced with ancient bricks retrieved from debris during excavations. In places where structural needs required the an-

² The plaster was reinforced with a water solution of casein and polyvinyl acetate.

cient substance to be rebuilt, new ceramic material was used, in size and resistance properties approaching ancient bricks. Effort was made to preserve even the tiniest fragments of ancient substance *in situ*.

Work in the cisterns proceeded simultaneously. The building poses a serious safety problem. Having suffered from earthquakes and stone-robbing in medieval times – some 70% of the eastern facade and the four buttresses supporting it are gone – the structure is almost totally disintegrated. Work proceeded section by section, in trenches up to 7 m deep, with all possible precautions being taken.

The first task was to ensure the stability of the most endangered northeastern corner of the structure. Stainless steel braces (diam. 20 mm), compressed as required by exerted forces, were used and appropriate anchors made.³ Only then was it possible to start work on the three buttresses. The buttresses were rebuilt on original foundations of the same kind of stone as the ancient substance. The still existing upper parts of the buttresses, which were deformed and hanging in the air, were recorded and dismantled. Restoration was subsequently completed using mortar which both in composition (lime, sand, brick aggregate) and material corresponds to ancient mortar. Parallel to this work we proceeded with the reinforcement of the structure of the inner wall which, unlike the facade, was bonded in an ash mortar. Also the reconstructed outer face is being anchored to the mostly original inner face of the wall.

At present the wall is sufficiently protected not to disintegrate any further. However, more work in this area is planned, including a reconstruction of the fourth and last buttress.

In the Baths the reconstruction of the foundations of the southern portico continued. In the future this will enable us to

³ The compression of the monument was done by Dr. Jan Borkowski according to a method and design of his own invention.

conduct an anastylosis of the columns of this portico and to protect the extant vaults of the underground service area. As in the cisterns, work here is conducted in trenches up to 8 m deep under extremely dangerous conditions. The foundation has been investigated and preserved all along its length, that is, 26 m. The intercolumnia were determined, as well as the position and level of column bases. About 80 cubic meters of foundation wall was completed; only a small section will be visible in the underground service area, but the work was necessitated by the need to prepare a foundation for the planned anastylosis of columns.

Two column shafts were prepared. One with a section angled 60° to the base requires three pins of stainless steel (diam. 30 mm) 0.40 m long to connect it directly to the bottom part with an accuracy of 1-2 mm. The application of epoxy resins does not guarantee safety in view of the ageing process they undergo. Another three column shafts were prepared for anastylosis in the northern portico of the baths. One of these received an artificial stone addition to one-third of its height.

A 9 m high tripod was constructed of 8" steel pipes. In the future it will serve in the anastylosis of columns in both porticoes of the baths and in the theatre street portico.

Landscaping the slope surrounding the exposition continued throughout the season even though the removal of earth by mechanical means in the western part of the kom was stopped. Hopefully, this work shall start again in the coming season.