

# The Nemrud Dağ Project

University of Amsterdam  
in collaboration with the University of Nijmegen

International Nemrud Foundation



Proposal for the 2005 campaign

Application for work permit : Campaign 1 June – 10 August 2005

Amsterdam, November 2004

His Excellency The Ambassador of Turkey  
Mr. Tacan Ildem  
The Embassy of Turkey  
Jan Evertstraat 15  
2514 BS Den Haag

*Nieuwe Prinsengracht 130  
1018 VZ Amsterdam  
The Netherlands*

Amsterdam, 9 December 2004  
Your reference:  
Our reference:  
Enclosure(s):  
Regarding: Work permit Nemrud Dağ 2005

AAC  
Contact: Prof.dr. H.A.G. Brijder  
Tel.: +31 (0)20-525 2558/5830  
Fax: + 31 (0)20-525 5831  
E-mail: [H.A.G.Brijder@uva.nl](mailto:H.A.G.Brijder@uva.nl)

Your Excellency,

Herewith we have the honour to present you the application for the work permit that will allow us to carry out the fifth campaign of the *Nemrud Dağ Project*, that is from the 1st of June to the 10th of August 2005, in accordance with:

The decision of the Minister's Council no. 2001/2898 / Prime Ministry of the Turkish Republic as stated in the letter of the General Directorate for Laws and Decisions no. B 02.0.K. KG / 153-9 / 4074.

In Chapter I you find a recapitulation of the activities so far executed by our team on the Nemrud Dağ and in the Museum of Adiyman.

We would like to draw your attention to Chapter II. Here we describe the proposals for the activities during the 2005 campaign on the Nemrud Dağ. And in Chapter III, you find proposals for future activities.

There are two appendices with technical information and the third appendix provides the team list of the 2005 campaign.

The figures and plates illustrating the text are found in two separate volumes.

During the 2005 campaign, Prof. Dr. Herman Brijder will be project manager and will be present on the Nemrud Dağ from the 1st of June to the 6<sup>th</sup> of July, and Prof. Dr. Eric Moormann will be the project manager from the 6<sup>th</sup> of July to the 10<sup>th</sup> of August.

We hope you find this information satisfactory. In case you might have any questions or remarks, please contact us.

Yours sincerely,

Prof. Dr. Herman A.G. Brijder,  
Project manager Nemrud Dağ Project  
Chair of Classical Archaeology,  
University of Amsterdam

Prof. Dr. Eric M. Moormann,  
Project manager Nemrud Dağ Project  
Chair of Classical Archaeology,  
Radboud University Nijmegen

Contents:

**PART I:**

Chapter I: *Recapitulation of the Activities so far executed on the Nemrud Dağ and in the Museum of Adiyaman*

Chapter II: *Proposals for Activities during the Campaign, 1 June – 10 August 2005*

Chapter III: *Proposals for Future Activities*

Appendix I: *Formulas concerning Repair Mortar for Sandstone and for Fissures in Limestone (Dr. E. Wendler)*

Appendix II: *Structural Analysis and Seismic Stability of Herakles Statue (G) on East Terrace (Prof. Dr. P. Grailovic)*

Appendix III: *Team List of Campaign 2005*

**PART II:**

*List of Figures*

Figures

**PART III:**

*List of Separate Plates*

Plates

***Introduction:***

The Nemrud Dağ Project consists of the following sub-projects and programmes:

1. *Documentation and Archaeological Research.*
2. *Limestone Statues Project.*
3. *Sandstone Stelae and Sculpture Project.*
4. *Site Management*
5. *Site Museum on Nemrud Dağ.*
6. *Opening of Antiochos' Burial Chamber.*
7. *Conservation and Restoration of Tumulus.*

## CHAPTER I

### **Recapitulation of the Activities so far executed on the Nemrud Dağ and in the Museum of Adiyaman:**

#### **1. DOCUMENTATION AND ARCHAEOLOGICAL RESEARCH**

- a. In 2001 the CONTOUR MAP] of the top of Nemrud Dağ was made indicating the different levels (see Fig. 1; Pl. 1). It appeared that the height of Nemrud Dağ is 2206 meters instead of 2150, as is usually stated.
- b. In 2001 the SITE INFORMATION SYSTEM (SIS) was started indicating the actual situation of the location and position of all elements, both of lime- and sandstone, on the East and West Terraces. All blocks were provided with numbers. Drawings and digital photographs of the blocks of the colossal limestone statues dispersed on the East Terrace were made (see 1.c). Besides, also digital photographs and slides were made of all other elements, both lime- and sandstone, on Nemrud Dağ. The actual situation at the end of the three campaigns, that is in 2001, 2002 and 2003, is shown in Figs. 3a-c, Pls. 2-4 (East Terrace) and 4a-b, Pls. 5-6 (West Terrace). The situation on both Terraces did not alter in 2004 since no authorized work permit was given.
- c. DIGITAL DRAWINGS of the four sides of the nine colossal limestone statues on the East Terrace, that is of the five (semi)gods, Antiochos (C), Kommagene (D), Zeus (E), Apollo (F), and Herakles (G), and reconstruction drawings of the left- and right-hand pairs of lion and eagle (A-B and H-I) were completed in 2004 (see Fig. 5, Pl. 7). The missing parts are indicated by dark cross-hatching and the surface damages by light diagonal hatching. The heads of the gods are drawn separately above the bodies. For imaginary and idealized reconstruction, see Fig. 6 and Pl. 8a-b.
- d. SURVEYS have been carried out in 2002 and 2003 in order to find artefacts that could indicate traces of human activities on the Nemrud Dağ in ancient times. The results of the surveys were not very positive.
- e. PHOTOGRAPHICAL DOCUMENTION of the inscriptions still present on the Nemrud Dağ, with a few exceptions. Special attention was paid to the ‘palimpsest’ inscriptions at the backs of the stelae on the West Terrace; these inscriptions have been chiselled over already in antiquity. Paper squeezes of the inscriptions (Fig. 7) were taken and scans were made using a Minolta High Definition non-contact 3D scanner.

## **2. LIMESTONE STATUES PROJECT, EAST TERRACE**

- a. In 2002 the heads of the five enthroned (semi)gods (C-G) and those of the four guarding animals (A-B and H-I) were placed in front of the statues themselves (see Fig. 8). The Antiochos and Kommagene heads (C-D) were moved from the path at the backside of the statues to the terrace in front of them (Fig. 9). Moreover the shoulder block of the Apollo statue (F) lying in an awkwardly insecure position on the terrace steps in front of the statue was also moved to the terrace. The same was done with the broken fragments of Kommagene's breast and shoulder parts littering her lap (Fig. 10).
- b. In 2003 -- given the most awkward position of the blocks of the Antiochos statue C (see Figs. 11a and 12a-b, Pl. 11) -- the blocks of the three upper courses of the body, that is from shoulders to lap, were temporarily moved to the terrace. The still standing blocks of courses 1-3 were put into their proper position by means of slight replacing by pushing with a crick in 2003. The bedrock under the statue was cleaned and cavities were consolidated with pieces of local limestone fixed with cement mortar; some cracks in the blocks were filled in with lime mortar. Thereafter the statue was rebuilt, putting the blocks into their original positions (compare Figs. 11a-b and 12a-b, Pls. 11 and 12). The statue's stability is firm and secure now. Antiochos' head has not been replaced and is still standing in front of the statue itself on the Terrace.
- c. In 2003 the plinth of the northern pair of guardian eagle and lion (H-I) on the East Terrace was reconstructed and consolidated. Therefore, the five blocks of the three lower courses of the eagle statue still standing (L 119-120, L117-118 and L 116) were moved to the terrace. The crumbled interior of the northern section of the plinth (section where the lion statue, I, stood) was cleaned and filled with local limestone pieces and grout in order get a proper stabilization (grout is a fine sort of mortar; Grout-Harci, YKS EMACO S55 was used). After placing back the original limestone blocks of the plinth's four sides, the interior was filled in with pieces of local limestone. The three lower courses of the eagle statue (H) were built up again on the stabilized plinth (Figs. 13a-b, 14; see also Pl. 18).
- d. In 2003, Dr. E. Wendler devised the (lime bound) formula for the repair mortar for fissures in limestone (see Attachment I).

## **3. SANDSTONE STELAE AND SCULPTURE PROJECT**

- a. Due to the pressure force of the mass of snow sliding down during the winter period of 2001-2002, two sandstone stelae of the row of five in the north-eastern section of the West Terrace have fallen forward down: the Antiochos-Kommage dexiosis stele and that of Antiochos-Zeus dexiosis. The other two dexiosis stelae -- of Antiochos-Apollo and Antiochos-Herakles -- and the lion horoscope relief remained standing upright. The latter three reliefs were treated provisionally and have been consolidated with tapes of so-called Japanese rice paper (Fig. 15). A snow barrage was constructed in order to prevent the three standing stelae from falling down during the following winter period (Fig. 16). In June 2003, first the snow barrage was disassembled. It has prevented the three still standing sandstone stelae from falling down.

- b. The temporary conservation and restoration laboratory, built in June and July 2003 (Fig. 17). It is situated in the north-western part of the mountain (see Fig. 1).
- c. The pathway between the West Terrace and the temporary conservation and restoration laboratory was raised with gravel consisting of small pieces of local limestone, reinforced and levelled. This was necessary because of the transport of the five stelae by crane from their plinth in the north-eastern section of the West Terrace to the laboratory. The results are shown in Fig. 18. This extended pathway facilitates the visit of tourists and the work of the restorers and researchers in future.
- d. All five sandstone stelae in the north-eastern section of the West Terrace were reinforced with so-called Japanese rice paper and prepared for transportation to the newly built conservation and restoration laboratory. Each stele was framed by steel beams so that they could be transported by the crane in July and August 2003 (Fig. 19). The five sandstone stelae were placed erectly in the laboratory along the sides of the walls in a proper way, so that they can be treated and restored (Fig. 20a). For details, see Chapter II, 3, Sandstone Stelae and Sculpture Project.
- e. A complete documentation of the fragments of the sandstone stelae and sculpture kept in wooden boxes in the storeroom of the Adyaman Museum was started in June 2003 and finished in August 2004. Digital photographs and measurements were taken and all data were registered on forms. The documentation was completed in August 2004.
- f. In 2003, Dr. E. Wendler devised the (ethylsilicate bound) formula for the repair mortar for sandstone, tuffite (see Attachment I).

#### 4. *SITE MANAGEMENT*

- a. Site management activities started in June 2002. Because of the damage that is caused by visitors by climbing and stepping on the limestone and sandstone elements of the monument on the Nemrud Dağ, a fence system was installed. This consists of cast-iron poles connected by chains meant to be a barrier in order to protect the monument. Also a routing for visitors is installed meant as the track to be used from the East to the North Terraces (see Fig. 20b).

Paragraphs 5, 6, and 7, '*Site Museum on the Nemrud Dağ*', '*Opening of Antiochos' Burial Chamber*', '*Conservation and Restoration of Tumulus and Terraces*', see Chapter III (Proposals for Future Activities).

## CHAPTER II

### **Proposals for Activities during the Campaign, 1 June – 10 August 2005**

#### **1. DOCUMENTATION AND ARCHAEOLOGICAL RESEARCH**

##### **a. SITE INFORMATION SYSTEM (SIS)**

The SIS has to be adapted and completed (for earlier stages, compare Figs. 3-4 and Pls. 2-6). This means that digital photographs and technical drawings should be made of limestone blocks and sandstone stelae and sculpture that are lacking in the SIS so far. Technical drawings of the individual blocks and heads of the limestone statues of the enthroned (semi)gods (C-G) and the four guarding animals (A-B and H-I) on the West Terrace should be made. They will be used for the reconstruction drawings of the four sides of each statue, in the same way as those of the limestone statues on the East Terrace (see Pls. 11-20).

In order to make photographs and technical drawings of the blocks of the statues that have fallen down due to earthquakes and are now lying disorderly on top of one another, they should be sorted out and several of them should be moved by crane to a free section on the West Terrace. Only then, they can be documented.

Digital photographs and drawings should be made of the sandstone stelae and sculpture - fragmentarily or completely preserved - scattered on the East, North, and West Terraces. All new photographs and drawings will be inserted in the SIS and will be used for possible proposals for conservation or reconstruction.

**Thus, a work permit is applied for making digital photographs and drawings and permission to move several block of the statues by crane on the West Terrace in 2005.**

##### **b. EPIGRAPHIC RESEARCH**

Since not all inscriptions in the limestone and sandstone elements of the monument have been photographically documented or scanned, this work should be completed. The scanner that will be used is: a Minolta High Definition non-contact 3D scanner.

**Therefore, a work permit is applied for making photographs and scans of the inscriptions during two weeks in 2005.**

##### **c. SEARCH FOR LION HEAD**

As the head of the limestone lion (A) on the East Terrace is lacking (see Fig. 9), a survey search for the head must be organized. Departing from the idea that the lion's head has originally been made and set onto the statue's body, it must have rolled down from the mountain and should be -- perhaps fragmentarily -- somewhere in the surroundings.

**Therefore, a permit is applied for searching the limestone lion head in the surroundings of the mountain in 2005.**

## 2. LIMESTONE STATUES PROJECT, EAST TERRACE

The work in the Limestone Statues Project for which a permit is applied in 2005, may be briefly enumerated as follows (all on East Terrace):

- a. finishing the plinth of guardian eagle and lion (H-I)*
- b. rebuilding the eagle statue (H)*
- c. rebuilding the lion statue (I)*
- d. structural consolidation and stabilisation of the Herakles statue (G)*
- e. sorting out of blocks of plinth, lion and eagle (A-B) and placing them properly on the terrace for further research.*

### a. FINISHING THE PLINTH OF GUARDIAN EAGLE AND LION (H-I)

One part of the block (L 138), the most northern at the backside of the plinth of the guardian eagle and lion (H-I) is still missing and should be filled in by a newly cut piece of local limestone, before reconstructing the lion (I); see Fig. 13b and Pl. 20. The piece of limestone has already been cut into rough shape in August 2003 and kept in the conservation and restoration laboratory; it only needs to be placed in 2005. Thereafter the plinth will be finished.

**So, a permit is applied for completing and finishing the plinth.**

### b. REBUILDING THE EAGLE STATUE (H)

As mentioned above, the two lower courses of the eagle statue, consisting of blocks L 119-120 and L 117-118, and the back-side block of course three, L 116, have been placed properly in their original location in 2003. They are standing firmly and securely now (see Figs. 13-14, Pl. 18). The surfaces of all blocks will be treated according to the formula devised by Dr. E. Wendler in 2003 (see Attachment I). For the structural analysis and seismic stability of the eagle statue H on the East Terrace, see Appendix II (Prof. Dr. P. Grailovic).

The sequence of the activities will be executed according to the following items:

1. The two loose, broken off pieces of the left and right claws of the eagle, L 49 and L 51 (see Fig. 21a-b, Pl. 19) will be placed properly in their original location and fixed with epoxy to block L 199. Optionally both blocks will be connected through one dowel pin to the joining claw sections of large block L 119. The dowel pins are made of stainless steel (*SS steel Remanit 4541*); the length is 200 mm and the diameter 12 mm. The two pairs of holes, with a length of 10 cm, will be drilled by using an advanced, vibration-free diamond drill.
2. Block L 29, that is the front-side block of course four – forming the eagle's belly (Fig. 22) -- will be moved by crane to its original location on top of course three (L 117-118). It will be lined up. This block L 29 will be struted temporary by three wooden beams and a nylon band (width: 15-20 cm) will be tightened around the circumference of course three, consisting of two blocks (L 116, L 29), as indicated in Fig. 23. This support and tie up is needed for security. The centre of gravity of block L 29 is in the forepart. Therefore these security measures will be taken in order to prevent the block from falling down. The measures are temporary, probably for one or two days. After placing the blocks of course four, L 30-31, on top of course three, the strutting beam and tightened band can be removed (see below). Blocks L 30 and L 31 of course five - forming the eagle shoulders -- are now standing on the East Terrace, in front of the



eagle statue itself (Fig. 24). The two blocks will be lined up and placed in a right angle in relation to one another on the terrace.

3. An accurate drawing of the plane of the circle on top of the two shoulder blocks L 30-31 will be made on transparent paper. The locations of the six spots, where the holes should be drilled for containing the six dowel pins, are shown in Fig. 25. The holes will be drilled in a circle at a distance of 10 cm from the outer edge. The dowel pins are made of stainless steel (*SS steel Remanit 4541*); the length is 200 mm and the diameter 12 mm.
4. The eagle's head, block L 35, that is now standing on the East Terrace as well in front of the eagle statue itself (Fig. 26), will first be placed on its side by the crane in order to make free the underside. The drawing of the plane of the circle on top of the shoulders (see 3.) will be used as a template for the locations of the six spots where the holes should be drilled for containing the six dowel pins in the underside of the eagle's head (see Fig. 27).
5. The six holes, with a length of 10 cm, will be drilled in the plane of the circle on top of the shoulder blocks (L 30-31), and also those in the underside of the head (L 35), by the use of an advanced, vibration-free diamond drill.
6. First, lead will be poured in the six holes in the plane of the circle on the of the shoulders; then the dowel pins will be placed into them.
7. The two shoulder blocks L 30-31 will be placed on top of course four, consisting of blocks L 116 and L 29; they are still tightened up and strutted at that moment (see Fig. 23).
8. After placing blocks L 30-31, the nylon band tightening the circumference of course four and the three strutting beams can be removed.
9. The six holes in the underside of the head L 35 will be filled with epoxy.
10. After a trial in order to be sure the holes and dowel pins fit exactly (Fig. 28), the head will finally be placed on the shoulder blocks (see Pl. 19).

#### **A permit is applied for the activities enumerated in 1-10.**

#### **c. REBUILDING THE LION STATUE (I)**

As mentioned above, no block belonging to the lion statue I are standing on their original location, being the plinth. The blocks are located on the East Terrace itself and the section to the north, not far from the original plinth of the pair of eagle and lion H-I (see Figs. 29-30, Pl. 4). It is obvious that parts of three blocks are lacking: L 39, L 34, L 73. The surfaces of all blocks will be treated according to the formula devised by Dr. E. Wendler in 2003 (see Attachment I).

The sequence of the activities will be executed according to the following items:

1. First the two back-side blocks of course two (L 38 and L 40) -- forming the hindquarters and hind-paws of the lion -- will be moved by the crane from the terrace to the plinth and placed onto their original location (Figs. 29-30; compare also Pl. 20).
2. A wooden mould of block L 39 in the rough shape the lion's forepaws will be made, about 2,0 cm thicker than the final, intended shape.
3. It will be filled in with a mixture of small grains of local limestone and white mortar. This has to dry and harden during ca. three weeks.

4. After removing the wooden mould, the dried and hardened rough cast will be touched up with a chisel so that the general shape of the original block with the lion's two forepaws will come into being. It will be finished in the future, that is, next year, if time is lacking to do so.
5. The cast's section where the still existing piece of the lion's right forepaw originally was located, will be chiselled out accurately. The original piece (L 39; Fig. 33) will be fit in and placed onto its original location (see Pl. 20).
6. The same sort of wooden moulds will be made for the partly missing blocks L 34 (course three) and L 73 (course five). The same procedures as described above for block L 39 will be followed.
7. After hardening of blocks L 39 and L 34 (also after touching up and fitting in the original piece), the blocks of course three -- that is L 33-34, 78, 37 and 38 -- will be placed by crane on top of course two (compare Pl. 20).
8. The rather well-preserved blocks L 32 and L 43 (Figs. 35-36), forming course four, will be placed by crane onto the blocks of course three.
9. After the hardening of the rough cast of block L 73, the touching up with a chisel and fitting in of the two still existing original piece of limestone L 36 and L73, this block - forming the lion's neck -- will be placed next to block L 42 (chest with mane) on the terrace (Fig. 37). The blocks will then be lined up and placed in a right angle in relation to one another.
10. The shoulder and neck blocks L 42 and L 73 will be placed on top of course four, consisting of blocks L 32 and L 43. A thin lead coating will be applied on the surface of the plane of the circle on top of the shoulder and neck blocks L 42 and L 73 offering protection to the rainwater intruding the gap in the lower left section of the lion head L 44 (see Fig. 38, Pl. 20). A drainage will be made into the lead layer, so that superfluous rain water can disappear through the gap in the left side of the lion's head.
11. The head of the lion will stay on its actual location on the East Terrace (Fig. 38).

**A permit is applied for the activities enumerated in 1-11.**

#### **d. STRUCTURAL CONSOLIDATION AND STABILIZATION OF THE HERAKLES STATUE (G) ON THE EAST TERRACE**

The statue is largely intact and standing upright apart from the head, which stands on the terrace (see Figs. 39 and 40, Pl. 16). Three types of damages to the statue have been observed:

1. displacement of blocks from their original position, especially in courses five and six, blocks L0224 (front) and L0225 (back); 2. breaks and cracks in, and erosion of the blocks, particularly in the front blocks of course four, block L0220; and 3. deterioration of bedrock standing surface under the statue, particularly in the front section (see Fig. 39, Pl. 16).

It is urgently necessary to intervene, since the stability of the bedrock under the statue has suffered from considerable deterioration and erosion. The cavity in the front side (Fig. 39, Pl. 16) may cause fracture of the blocks leading to progressive failure of the entire structure of the statue.

The surfaces of all blocks will be treated according to the formula devised by Dr. E. Wendler in 2003 (see Attachment I).

The sequence of the activities will be executed according to the following items:

1. All blocks will be removed by crane from courses six to one (see Pl. 16) and placed properly and temporary to a location on the terrace in front of the statue itself. This is necessary in order to consolidate the bedrock standing surface under the statue.

2. The surfaces of all blocks will be treated according to the formula devised by Dr. E. Wendler in 2003 (see Attachment I).
3. Consolidation of the bedrock standing surface that is lying open now (see Fig. 39, Pl. 16). Removal of unstable stones and cleaning down to sound bedrock.
4. After the cleaning by the use of a strong water and air jet, the bedrock will be injected by 'grouting' (grout is a fine sort of mortar; Grout-Harcı, YKS EMACO S55 will be used) and the empty spaces will be filled in with pieces of local limestone and mixed with lime mortar.
5. The uppermost layer of masonry in the empty space under the statue is to be constructed by pouring of a thin layer of cement in order to get a waterproof surface. The cement to be used is: Cimku Cimento ISO 9002.
6. After hardening of the bedrock substructure, the six blocks of course one, L0201-0206, will be placed back by the crane onto their original location, that is, on the consolidated bedrock foundation.
7. Then, the seven blocks of course two, L0207-013, will be placed by back the crane onto their original location, that is, on top of the already put down blocks of course one.
8. Subsequently, the five blocks of course three, L0214-0218 will be placed back by the crane onto their original location, that is, on top of the already put down blocks of course two.
9. The two broken parts of block L0220 of course four – forming Herakles' lap – will be repaired and connected to one another.
10. After the reparation of the two parts of block L0220, this block and the other three blocks of course four, L0219, L0221-0222, will be placed back by the crane onto their original location, that is, on top of the already put down blocks of course three.
11. A wooden mould of the left side of block L0224 (front side of course five) will be made in the rough shape, about 2,0 cm thicker than the final, intended shape.
12. It will be filled in with a mixture of small grains of local limestone and white mortar. This has to dry and harden during ca. three weeks.
13. After removing the wooden mould, the dried and hardened rough cast will be touched up with a chisel so that the shape of the original block will come into being (see Pl. 17).
14. The cast's section will be chiselled out accurately according to the left side of the still existing, original block L0223, if time lacks, in future, that is during next campaign.
15. The cast section and the original piece L0224 will be connected.
16. Then, the two blocks of course five, L0223-0224, will be placed back by crane onto their original location, that is, on top of the already put down blocks of course four.
17. Subsequently, block L0200 of course six – forming Herakles' shoulders – will be placed back by crane onto its original location, that is on top of the already put down blocks of course five.
18. The head of Herakles will stay on its actual location on the East Terrace (Fig. 41).

**A permit is applied for the activities enumerated in 1-18.**

e. SORTING OUT OF THE BLOCKS BELONGING TO THE SOUTH-EASTERN PLINTH AND TO LION (A) AND EAGLE (B)

The blocks are lying dispersed on the slope in the surroundings of the plinth on which the pair of guardian lion and eagle (A-B) originally stood (see Fig. 42, Pls. 7-10). Sorting out the blocks and moving them properly by crane on the terrace is needed because of the research of the block and making plans for consolidating and rebuilding them in 2006, comparable to the work described the relation to the other pair of guardian lion a and eagle (H-I) in the northern section of the East Terrace (see b. and c. above).

**A permit is applied for moving the blocks belonging to lion A and eagle B to the terrace in front of the south-eastern plinth on which the statues A and B originally stood.**

### **3. *SANDSTONE STELAE AND SCULPTURE PROJECT***

Since all fragments of the sandstone stelae and other sculpture, that are kept in boxes in the storeroom of the Museum of Adiyaman, have been documented on forms now:

**a permit is applied for moving the fragments that belong to the four dexiosis stelae and the horoscope from the museum's storeroom to the restoration and conservation house on Nemrud Dağ.**

#### 4. *SITE MANAGEMENT*

##### a. PLACING THE CAST COPY OF THE LION HOROSCOPE ON THE ORIGINAL LOCATION, WEST TERRACE

The *Gipsformerei* in Berlin has made a cast copy of the Lion Horoscope. The material used is a sort of hardened plaster, so-called acrystal. The cast copy will be transported to the Nemrud Dağ and placed on its original location, that is the plinth in the south-eastern section of the West Terrace.

The cast copy is vulnerable and has to be protected by a supporting frame from the tons of snow and ice sliding down from the tumulus at the end of the winter. Therefore, a sheet pile wall of prefabricated concrete slabs is foreseen. It has to absorb the pressure and is prefabricated in two pieces (see Fig. 43).

The sequence of the activities will be executed according to the following items:

1. The vertical slab will be erected first on a layer of lead or construction felt.
2. Then, the horizontal slab will be placed with a shear key to be cut in the bedrock.
3. Next, the connection between vertical and horizontal slab will be poured with concrete.
4. Finally the cast copy is fixed to the vertical concrete slab. The concrete slabs are to be painted in matching colours.

Note that the horizontal slab will not touch the pedestal of the lion horoscope. If this solution will prove to be durable, the same can be applied for cast copies of the four dexiosis stelae to be made in the future (see Chapter III: Proposals for Future Activities).

b. As to the surveillance of the monument on the Nemrud Dağ we ask for the assistance and help of the gendarme that has a post not far from the mountain top. A penalty should be imposed on the offence of climbing on the statues and all other sculptures of the monument.

## CHAPTER III

**Proposals for future activities, from 2006 till 2012****1. DOCUMENTATION AND ARCHAEOLOGICAL RESEARCH****SITE INFORMATION SYSTEM**

- All transfers of all blocks and pieces of sculpture, both of lime- and sandstone, will be registered during future campaign. Digital photographs and slides of all future activities should be taken.
- Digital drawings of all elements that so far have not been registered in the SIS on the East, North and West Terraces should be made.
- Digital drawings of the blocks belonging to the statues of the guarding animals (A-B and H-I) and enthroned gods (C-G) on the West Terrace should be used for making reconstruction drawings of the nine statue.

**PUBLICATIONS**

- Yearly 'Interim Report' of the activities, executed during future campaigns, should be written and published in *Bulletin Antieke Beschaving (BABesch)*. See 'Interim Reports' I, II, III, in *BABesch* 77 (2002), 78 (2003) and 80 (2005).
- *Books*:
- 1. A study will be written on Nemrud Dağ and Kommagene in wider relation to the Late-Hellenistic Mediterranean by Dr. M.J. Versluijs
- 2. A comprehensive Final Report should be written on all activities executed by the members of the Nemrud Dağ Project, especially concerning the *Limestone Statues Project* and the *Epigraphic Research*. All results, findings and conclusions should be published with abundant illustrations and photographs, plus CD-Rom, by Prof. Dr. E.M. Moormann, Prof. Dr. O. van Nijf and Drs. M. Schipperheijn.
- 3. A comprehensive study should be written on all activities executed by members of the Nemrud Dağ Project concerning the *Sandstone Stelae and Sculpture Project*. All results, findings and conclusions should be published with abundant illustrations and photographs, plus CD-Rom, by Dr. S. Sener, Drs. E. Thiermann and Drs. T.D. Stek.
- 4. A publication of *Antiochos' Burial Room*. All results, findings and conclusions should be published with abundant illustrations and photographs, plus CD-Rom, by Prof. Dr. H.A.G. Brijder.
- 5. A PhD research on the *inscriptions* of the Nemrud Dağ Monument and related inscriptions.
- 6. A general *Guide for visitors* to the Nemrud Dağ.

**2. LIMESTONE STATUES PROJECT***East Terrace:*

It is the intension to finish the conservation, restoration and rebuilding of the colossal limestone statues -- as far as possible -- in 2007.

- In 2005, as intended, the right-hand pair of the guardian eagle and lion statues H-I and the Herakles statue G will be conserved, restored and rebuilt, except for the heads of the lion and Herakles (the Antiochos Statue C has been conserved, restored and partly rebuilt in 2003).

- In 2006, the left-hand pair of guardian eagle and lion statues A-B -- and their plinth -- should be conserved, restored and rebuilt.
- In 2006, the statue of Apollo should be conserved, restored and rebuilt (except of the head).
- In 2007, the statues of Kommagene and Zeus should be conserved, restored and rebuilt (except for the heads).
- The surfaces of all blocks should be treated and conserved according to Dr. Wendler's formula's (see Appendix I).

*West Terrace:*

- After making digital, reconstruction drawings of the blocks belonging to the statues of the guarding animals (A-B and H-I) and enthroned (semi)gods (C-G), and -- as intended in 2005 -- after sorting out and moving several blocks by crane, it will be researched which of the nine statues or which part(s) of them could be restored or rebuilt. If necessary, the heads will be placed in a row in front of the statues themselves, in the same way as has been done on the East Terrace in 2002.
- In 2008, if possible, the left-hand pair of guardian lion and eagle statues A-B and the Antiochos statue C should be conserved, restored and rebuilt.
- In 2009, if possible, the statues of Kommagene and Zeus (D, E) should be conserved, restored and rebuilt.
- In 2010-2011, if possible, the statues of Apollo (F), Herakles (G), and the right-hand pair of eagle and lion (H-I) should be conserved, restored and rebuilt.
- The surfaces of all blocks should be treated and conserved according to Dr. Wendler's formula's (see Appendix I).

### **3. Sandstone Stelae and Sculpture Project**

- In 2005 should be started with the conservation and restoration of the four dexiosis stelae (Antiochos and Kommagene, Zeus, Apollo, and Herakles) and the lion horoscope in the temporary restoration and conservation laboratory on Nemrud Dağ (see Chapter II.4 by Dr. S. Sener)
- The fragments that belong to individual stelae and are kept now in the storeroom of the Adiyaman Museum should be brought to the temporary restoration and conservation laboratory on the Nemrud Dağ where they will be attached on the original location on the stelae.
- When the restoration and conservation of the four dexiosis stelae and the lion horoscope have been finished, they will be stored in the temporary restoration and conservation house on the Nemrud Dağ.
- Cast copies will be made of the restored and conserved dexiosis stelae and placed in their original location on the West Terrace (the cast of the horoscope in 2005).
- Thereafter, the original dexiosis stelae and the lion horoscope should be placed in the site museum that is to be built in 2007 and 2008 (see Ch. III.5, below).
- All stelae with ancestor relief that are now lying and standing on the West and East Terraces should be transported to the temporary restoration and conservation laboratory on the Nemrud Dağ in order to be conserved and restored, as far as possible with the belonging fragments now in the storeroom of the Adiyaman Museum. These fragments should be transported from the Adiyaman Museum to the restoration and conservation laboratory on the Nemrud Dağ.
- Cast copies will be made of the restored and conserved ancestor stelae and placed in their original location on the West and East Terraces.

- Thereafter, the original ancestor stelae should be placed in the site museum that is to be built in 2007 and 2008 (see Ch. III.5, below).
- All pieces of freestanding, sandstone sculpture should be transported in order to be conserved and restored in the temporary restoration and conservation laboratory on the Nemrud Dağ.
- The surfaces of all stelae and pieces of sculpture should be treated and conserved according to Dr. Wendler's formula's (see Appendix I).

#### **4. *Site Management on the Nemrud Dağ***

- Maintenance and adjustment of fence system and routing for visitors.
- Placing of information signs with explanation to visitors on the East, North and West Terraces. These should be oblique panels with information texts and illustrations fixed on a pedestal, comparable to those placed recently on the site of Troje.

#### **5. *Site Museum on the Nemrud Dağ***

- The site museum should be built in 2007 and 2008.
- The options for the location of the site museum could be:
  1. the rather horizontal field where Theresa Goell used to have her residence, that is, east of the keeper, Oman's Muse, near the road to Malatya, or
  2. the plain field near the 'cafeteria' near the parking or the entrance pathway to the top of Nemrud Dağ.
- The originals of the four dexiosis reliefs, the lion horoscope, the restored ancestor reliefs, and the free-standing animal statues should be exhibited in the site museum.
- The site museum should be an educational centre for visitors with explaining texts, photographs, drawings, documentary films etc.

#### **6. *Opening of Antiochos' Burial Chamber***

The excavation of the burial Chamber has no priority and will be one of the final items to be executed. It is an important and complicated issue. Assuming that the location of the burial tomb is likely to be identical to that of the smaller tomb of Sesönk, a tunnel cut into the solid rock will lead to the burial chamber. It is to be expected that the entrance will be severely protected, thus indicating that the tumulus itself will protect the entrance by tons of gravel.

King Antiochos has written in the inscription at the back of the statues that "the place is guarded by a god who people can not hide for nor withstand". This has to be taken serious and special precautions have to be taken to avoid accidents, i.e. an avalanche of gravel. A sound engineering approach is required to avoid accidents.

After the entrance is cleared, the next issue will be how to enter the tunnel. For instance a lack of oxygen may occur as suffered by Professor Friedrich Dörner when excavating the 150 metres long tunnel at Arsameia.

Attention has to be paid to avoid pressure differences between the inside and the outside of the burial chamber to avoid damage to the contents of the tomb. As generally known many well preserved bodies turned into dust, when opening the burial chambers.

Due to all these considerations a scientific attempt to open the tomb is not foreseen earlier than 2008.



## **7. Conservation and Restoration of Tumulus**

After 2000 years the tumulus is in natural shape. The height is 50 metres and the average slope is 35° thus indicating that the tumulus is in stabile position. At six places the tumulus has gaps and holes, besides of different footpaths. Substantial amounts of gravel have rolled down from the tumulus and is deposited all around the mountain. Significant quantities of gravel have fallen at the northeast side. The conservation and restoration of the tumulus will be executed in two phases in 2011 and 2012.

**PHASE I** will deal with the restoration of the existing shape of the tumulus:

1. *Collecting of gravel deposits.*

A transport belt is only of use if major amounts of gravel can be transported. Therefore the gravel deposited all around the mountain has to be collected by hand. Next, the gravel will be deposited at central places from where a transport-belt can lift it to the different gaps and holes.

2. *Closing gaps and holes in the tumulus (see 1).*

3. *Removal of footpaths.*

The removal of footpaths will hamper to climb on the tumulus in the future. The footpaths can be removed by simple tools i.e. metal rakes.

4. *Try-out of a technique to stabilize the tumulus when increased.*

In case the support platforms are not sufficient, technical solutions will be developed for additional stabilization: as proposed by Mr. K. Kuzugüdenlioglu, short sticks will be placed in diamond-shape in the c.o.c. 30 cm and covering 50 m<sup>2</sup> and crosswise wire connected. Next the gravel will be put at a steep slope of 40°. After one year the result will be analysed. And, as proposed by Mr. J. Groot, cement injection will be put into the gravel in order to construct support walls.

5. *Checking of the stability of the stone platforms carrying the gravel.*

Before any attempt can be made to start phase II, the stability of the stone platforms carrying the weight of the gravel must be checked.

**PHASE II** will deal with the restoration of the original shape of the tumulus. Increasing the height from 55 to 58 metres will make the layer of gravel instable. Therefore a technique has to be developed to stabilise the gravel.

## APPENDIX I

Dr. E. Wendler

### A: Repair Mortar for Tuffite (Ethylsilicate bound)

Site: Turkey, Nemrud Dağ  
Material: Tuffite  
Date: 18.11.03

	0306-NEM.T-MLT-6[8].1	0306-NEM.T-MLT-6[8].2	VO-0306-NEM.T-MLT-6[8].1	VO-0306-NEM.T-MLT-6[8].2	VO-0306-NEM.T-MLT-2[6].1	VO-0306-NEM.T-MLT-2[6].2
	Laboratory	Laboratory	In situ	In situ	In situ	In situ
Compare with			0306-NEM.T-MLT-6[8].1	0306-NEM.T-MLT-6[8].2		
Aggregates [g]						
F36	44,89		63		63	
Quartz sand Nr. 58630	21,38	32,94	30	56	30	56
Tuffite 125-250 $\mu$		43,43		70		70
Tuffite 250-500 $\mu$	69,48	63,63	97,5	105	97,5	105
Aggregate A	6,06	4,55	8,5	7,5	8,5	7,5
Aggregate B	8,19	5,46	11,5	9	11,5	9
Umbra Nr. 40720	0,50	0,50	1,00	1,00	1,00	1,00
Binder [ml]						
Ethylsilicate 333-STE	35,00	35,00	37,00	41,00		
Ethylsilicate 500-STE					35,00	35,00

#### Mixtures of repair mortar

#### Valuation of repair mortar

	0306-NEM.T-MLT-6[8].1	0306-NEM.T-MLT-6[8].2
Workability	+/-	+
grain structure	+	+
Cohesion	+/-	+
Adhesion	+/-	+

+ very good    +/- middle    - bad

#### Refilling grout [RG] for Tuffite Scales (Ethylsilicate bound)

Site: Turkey, Nemrud Dağ  
Material: Tuffite  
Date: 18.11.03

	not pigmented	dark grey	grey-yellow	grey-green
	0312.RG.NEM.2.1	0312.RG.NEM.2.1a	0312.RG.NEM.2.1b	0312.RG.NEM.2.1c

<b>Aggregates [g]</b>	<b>130</b>	<b>132</b>	<b>136,5</b>	<b>136,5</b>
Aggregate A	64	64	64	64
Aggregate B	40	40	40	40
Glass Powder <50µ	26	26	26	26
<b>Pigment [g]</b>				
Kremer Nr. 48440 (black)		2,0	2,0	2,0
Kremer Nr. 40280 (yellow)			4,5	
Kremer Nr. 40630 (green)				4,5
<b>Binder [ml]</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
Ethylsilicate 500 STE	75	75	75	75
Ethanol	25	25	25	25

Pre-wetting with ethanol is necessary. It is possible to mix the different colour types to match the colour. Addition of pigments is not essential for functioning, but recommended in case of unexpected run out of the grout.

#### **B: Repair Mortar for Fissures in Limestone (Lime bound)**

Site: Turkey Nemrud Dağ

Material: Limestone

	<b>0306-NEM.HFM.3</b>	<b>0306-NEM.HFM.4</b>	<b>VO-0306-NEM.HFM.3</b>	<b>VO-0306-NEM.HFM.4</b>
	Laboratory	Laboratory	In situ	In situ
Compare with			0306-NEM.HFM.3	0306-NEM.HFM.4
Mixture [ml]				
Sand "Ulmer Weiß"		192,00		230,00
Quartz Sand Nr. 58630	80,00	48,00	100,00	60,00
Mable 125-250µ	77,00		115,00	
Marble 250-500µ	13,50	17,00	20,00	25,00
Aggregate A	6,7		5,00	
Binder [ml]				
Lime „HL 5“	100,00	100,00	100,00	100,00
Binder [ml]				
Aqua dest. + 5 % Primal	110,00	120,00	110,00	120,00

#### **Valuation of Repair Mortar for Limestone**

	<b>0306-NEM.HFM.3</b>	<b>0306-NEM.HFM.4</b>
workability	+/-	+
grain structure	+	+
Cohesion	+/-	+
Adhesion	+/-	+

+ very good    +/- middle    - bad

## APPENDIX II : STATIC AND DYNAMIC ANALYSIS OF EAGLE STRUCTURE

**Prof. Dr. P. Gavrilovic**

Gravity load:

- The structural system can be considered as a rigid system composed of blocks and horizontal joints.
- Five layers of stone blocks should be taken into account considering the rigid body.
- On the basis of the geometrical characteristics of the statue and the blocks as well as the properties of the limestone, the weight of the blocks is:

Block 6	$W_6 = 2.70 \text{ t}$
Block 5	$W_5 = 7.50 \text{ t}$
Block 4	$W_4 = 7.80 \text{ t}$
Block 3	$W_3 = 9.90 \text{ t}$
Block 2	$W_2 = 13.0 \text{ t}$
Block 1	$W_1 = 17.5 \text{ t}$

---

Total weight  $\Sigma = 58.5 \text{ t}$

### ANALYSIS OF STRUCTURE FOR SEISMIC ACTION

The seismic action is defined by the Turkish Seismic Code of 1996. The structure is located in the highest zone I, with ground acceleration of  $A_0 = 0.40 \text{ g}$  (for a return period of 500 years).

According to seismic criteria, two levels of behaviour will be controlled: (i) For  $A_0 = 0.40 \text{ g}$  - the behaviour of the structure should be in the elastic range without damage (ductility factor - factor of structural behaviour  $q = 1.0$ ); (ii) For the maximum possible expected acceleration of  $A_0 = 0.60 \text{ g}$ , some damage and disturbance of the structure will be accepted but the global stability should be preserved without collapse, overturning or heavier damage.

Analysis will be performed using equivalent seismic forces for a lump mass system of a rigid body.

### ANALYSIS OF STRUCTURE FOR THE FIRST LEVEL OF SEISMIC ACTION $A_0 = 0.40 \text{ g}$

- Seismic forces in the base of the structure

$$\Sigma F = \frac{A_0 \cdot I_0 \cdot W}{q}$$

$$\Sigma F = \frac{0.40 \cdot 1.10 \cdot W}{1.0}$$

$$A_0 = 0.40 \text{ g}$$

$I_0 = \text{importance factor}$   
 $q = \text{behaviour factor}$

$$A = 0.40 - \text{acceleration}$$

$I = 1.1 - \text{importance factor}$   
 $q = 1.0 - \text{elastic behaviour}$

$$\Sigma F = 0.40 \cdot 1.1 \cdot 58.5 = 26 \text{ t}$$

- Distribution of seismic forces over the height of the structure:

$$F_i = \Sigma F_i \cdot \frac{W_i \cdot h_i}{\Sigma W_i \cdot h_i}$$

$$W_i = \text{weight of the block}$$

$h_i = \text{height}$   
 $F_i = \text{seismic force at } i\text{-th level}$   
 $\Sigma W_{\text{all}} = 32.4$

$$F_6 = 3.3 \text{ t}$$

$$F_5 = 3.50 \text{ t}$$

$$F_4 = 6.50 \text{ t}$$

$$F_3 = 5.50 \text{ t}$$

$$F_2 = 5.0 \text{ t}$$

$$F_1 = 2.20 \text{ t}$$

---


$$\Sigma F = 26 \text{ t}$$

$$\begin{aligned}
 M_6 &= 1.40 \text{ tm} \\
 M_5 &= 6.30 \text{ tm} \\
 M_4 &= 10.60 \text{ tm} \\
 M_3 &= 16.42 \text{ tm} \\
 M_2 &= 18.3 \text{ tm} \\
 M_1 &= 31.80 \text{ tm}
 \end{aligned}$$

Control of stresses and overturning in corresponding layers

#### Course 5

$$\begin{aligned}
 \sigma_o &= 0.35 \text{ kg/cm}^2 \\
 \sigma_s &= 0.20 \text{ kg/cm}^2
 \end{aligned}$$

$$\sigma_o = \frac{N}{F} = 0.55 \text{ kg/cm}^2 < \sigma_{AW}$$

$$\sigma_s = \frac{M}{W} = 0.24 \text{ kg/cm}^2$$

$$\begin{aligned}
 \sigma_1 &= 0.55 \text{ kg/cm}^2 - \text{compression} \\
 \sigma_2 &= 0.96 \text{ kg/cm}^2 - \text{compression}
 \end{aligned}$$

$$\text{Overturning: } n = \frac{M_s}{M_G} = \frac{6.30}{6.6} < 1.0$$

#### Course 3

$$\begin{aligned}
 M &= 16.92 \text{ tm} \\
 N &= 28 \text{ tm}
 \end{aligned}$$

$$\begin{aligned}
 \sigma_o &= 0.40 & \sigma_{\max} &= 1.40 \text{ kg/cm}^2 \text{ compression} \\
 \sigma_s &= 0.60 & \sigma_t &= 0.20 \text{ kg/cm}^2 \text{ tension}
 \end{aligned}$$

$$\text{Overturning: } n = \frac{16.9}{28.5 \cdot 1.30} = 0.45 < 1$$

#### Course 1

$$\begin{aligned}
 M &= 31.8 \text{ tm} \\
 N &= 58.5 \text{ tm}
 \end{aligned}$$

$$\begin{aligned}
 \sigma_o &= 0.45 & \sigma_{\max} &= 1.55 \text{ kg/cm}^2 \text{ compression} \\
 \sigma_s &= 0.6 & \sigma_t &= 0.35 \text{ kg/cm}^2 \text{ compression}
 \end{aligned}$$

$$\text{Overturning: } n = \frac{31.3}{58.5 \cdot 1.3} = 0.47 < 1$$

The stresses are low, while the overturning is satisfied.

It can be concluded that the structure satisfies the seismic stability criteria

**ANALYSIS OF STRUCTURE FOR THE SECOND LEVEL OF SEISMIC ACTION**  
 **$A_0 = 0.60 \text{ g}$**

This level corresponds to the maximum expected acceleration with a return period of over a thousand of years. This level should be used for controlling the structure against failure. The main criterion for this type of structures is overturning.

The equivalent seismic force can be defined as follows:

$$\Sigma F_i = \frac{A_0 \cdot I \cdot W}{q}$$

$$\begin{aligned} A_0 &= 0.60 \text{ g} \\ I &= 1.1 \\ q &= 1.50 \\ W &= \text{weight of the structure} \end{aligned}$$

$$\Sigma F_i = \frac{0.60 \cdot 1.1 \cdot 58.5}{1.20} = 31.2$$

$$k_i = \frac{31.2}{26} = 1.20$$

Control of overturning per connections:

Course 5:  $n = 0.96 < 1.0$

Course 3:  $n = 0.54 < 1$

Course 1:  $n = 0.56 < 1.0$

The global stability is satisfied.

### APPENDIX III TEAM LIST OF CAMPAIGN 2005

**Prof. Dr. Herman A.G. BRIJDER** : project manager

*Born:* on 21-1-1945 in Amsterdam.

*Study:* Master's degree (*cum laude*) in Classical Archaeology and History of Ancient Art, University of Amsterdam, on 3-9-1973.

PhD Classical Archaeology (*cum laude*): *Siana Cups I and Komast Cups*, University of Amsterdam, 14-12-1982.

**Professor of Classical Archaeology and History of Ancient Art, since 1-9-1986.**

- Head of the Department of Classical Archaeology and History of Ancient Art, University of Amsterdam, since 1-9-1986.

- Director of the Allard Pierson Museum, The Archaeological Museum of the University of Amsterdam, from 1986 to 2001. Scholarly director since 2003.

- Editor-in-chief / publisher of the *Allard Pierson Series*, since 1979.

### APPENDIX III TEAM LIST CAMPAIGN 2005

- Korrespondierendes Mitglied des Deutschen Archäologischen Instituts since 1992.

*Main publications:*

- *Siana Cups I and Komast Cups*, Amsterdam 1983.

- *Siana Cups II: The Heidelberg Painter*, Amsterdam 1991.

- *Corpus Vasorum Antiquorum, Allard Pierson Museum, Amsterdam*, fasc. 2, Amsterdam 1996.

- *Siana Cups III: The Red-black Painter and Griffin-bird Painter and Siana Cups resembling Lip-cups*, Amsterdam 2000.

*Fieldwork:*

- Excavations of the Casa del Protiro in Ostia, Italy: campaigns in 1973, 1974, 1975.

- Director of the excavations at Satricum, Italy: since 1990.

- Director of the international Nemrud Dağ project: since 2001

*Further:*

- President of the Organizing Committee of the *Symposion on Ancient Greek and Related Pottery, Amsterdam, 11-15 April, 1984*; editor of the proceedings.
- President of the *International Congress of Classical Archaeology, Amsterdam, 12-17 July, 1998*.
- Korrespondierendes Mitglied des Deutschen Archäologischen Instituts, since 1992.
- Secretary of the Allard Pierson Stichting
- Member of the Senaat of the Universiteit van Amsterdam, 1999-2002
- Head of the Committee of Classical Antiquity of the Dutch Institute at Rome.
- Member of the CVA Committee of Royal Dutch Academy of Sciences.
- Scientific senior advisor Allard Pierson Museum, since 2001
- Member of the board Stichting Nederlands Studiecentrum voor Latium
- Member of the board Vereniging van Vrienden van het Allard Pierson Museum
- Editor *Satricum-Serie*
- Editor *Mededelingenblad Vereniging van Vrienden Allard Pierson Museum*

**Prof. Dr. Eric M. MOORMANN** : project manager

*Born*: 9 January 1955 in Boxmeer, The Netherlands

*Study*: MA Classics, Classical Archaeology and Italian Literature, Nijmegen University, 21-5-1980

PhD Classical Archaeology, Nijmegen University, 26-9-1986

- University Docent Classical Archaeology, University of Amsterdam, since 1-5-1987
- Archaeologist and interim director Dutch Institute in Rome: 1-9-1992 – 1-2-1997
- Visiting Professor University of Bologna, Italy: 1-1-1997 – 1-7-1997
- Interim Director Dutch Institute in Athens: 15-4-2000 – 15-10-2001

**Professor of Classical Archaeology at the University of Nijmegen, since 1-3-2002**

Since 1997 Korrespondierendes Mitglied des Deutschen Archäologischen Instituts

*Excavation and fieldwork*: Excavations at Agrigento (Sicily) 1978; Dutch excavations at Nijmegen, Alphen, Zwammerdam 1974-1978; Fieldwork in Pompeii, Herculaneum and Rome from 1979 onwards in various projects.

*Main fields of research*: Greek and Roman sculpture; urbanistics of Pompeii and Rome, Roman wall painting; Fortune of Antiquity in western European culture.

**Ir. Maurice L.A. CRIJNS** : Project Coordinator

1966-1972	HBS/Gymnasium
1972-1977	Technical University of Eindhoven / architecture
1977-1987	Senior Architect ZON
1987-1990	Comm. Director Rolscreen Company Inc.
1990-1996	Research & Development Director Alumax Inc.
from 1996 onwards	Managing Director Ems-NL BV

**Christoph KRONEWIRTH** : Conservator/Restorer

Christoph Kronewirth (Trier) was trained as restorer and stone expert on many sites around the Mediterranean. He worked for 20 years with the German Archaeological Institute in sites like Pergamon on the reconstruction of the temple of Trajan. In Didyma he works as a collaborator to Prof. Dr. O. Bingöl.

**Drs. Marlies SCHIPPERHEIJN** : Epigraphist

1990-1996	Highschool, G.S.G.D. Doetinchem
1996-1997	Propaedeutics Dutch language and Literature, RUG Groningen
1997-2001	Greek and Latin, RUG Groningen, Major Ancient History.
2003 --	PhD researcher, University of Groningen

**Prof. Dr. Onno M. Van Nijf** : Epigraphist

June 2000 --	Professor of Ancient History University of Groningen
July 1998-June 2000	Royal Dutch Academy Postdoctoral Research Fellow. Research project: The festive culture of the Greek City in the Hellenistic Roman Periods. University of Amsterdam/Faculty

of Classics Cambridge.

Sept.1997-July 1998	Leverhulme Research Fellow in Greek epigraphy Faculty of Classics, Cambridge.
Oct.1995 – Sept.1997	Teaching fellow in Ancient History. Dept. of Classics and Ancient History, University of Bristol.
1991-1995	Junior Research Fellow in Ancient History. Faculty of Arts, University of Amsterdam.
March 1996	PhD. (with distinction). Dissertation: The Civic World of Professional Associations in the Greek Cities of the Roman Empire. Univ. of Amsterdam
1987-1990 Cambridge	Postgraduate study Ancient History Faculty of Classics,
1980-1988	Study Classics University of Leiden

*Books published:*

- Trade, Transport and Society in the Ancient World. A sourcebook. (with F.Meijer) London, 1992.
- The civic world of private associations in the Greek East. Amsterdam, 1997.

**Drs. Jitte WAAGEN** : archaeologist.

**Antoine ROELOFFS**: archaeologist.

**Sander TIEBACK**: operator High Resolution Scanner

**Erwin BOLHUIS**: operator High Resolution Scanner

<b>Anne TEN BRINK</b> :	Pre-Historian
1980-1988	Highschool docent
1982-1986	Pre-history Assen
1988-1993	Interim-Management
as of 1993	Director COA

**Drs. Jan M.F. DIEDEREN** : Cineast

1989	MA History
from 1990	Research, production, and direction of many documentaries for Dutch television, thereby mainly focussing on science and scientific projects.

**Peter A. DE KOCK** : Cineast

1986 - 1990	Hogeschool Sittard: Photography (graduation 1990; <i>cum laude</i> )
1990 - 1994	Filmacademy Amsterdam (NFTVA) Direction: Camera (graduation 1994)
from 1995	Preparation, direction and shooting of many documentary camera- and directing projects.

**Seger Han ERKEN** : Cineast.



## LIST OF FIGURES IN PART II

Fig. 1. Contour map of the top of the Nemrud Dag indicating the different levels, with East, West and North Terraces, also showing the temporary restoration laboratory, built at the north-western side in 2003 (see also enlarged map, PL 1).

Fig. 2. 3D impression of the Nemrud Dag.

Fig. 3a. Site Information System of situation of East Terrace in 2001 (see also PL 2). Fig. 3b.

Site Information System of situation of East Terrace since August 2002 (see also PL 3)

Fig. 3c. Site Information System of situation of East Terrace since August 2003 (see also PL 4)

Fig. 4a. Site Information System of situation of West Terrace in 2001 and 2002 (see also PL 5)

Fig. 4b. Site Information System of situation of West Terrace in August 2003. The four sandstone dexiosis reliefs and the lion horoscope were moved to the temporary restoration laboratory in 2003 (see also Pl. 6).

Fig. 4c. Overview of the blocks belonging to the different statues disorderly lying on top of one another on the West Terrace.

Fig. 5. Digital drawings of the four sides of the nine colossal limestone statues (A-I) on the East Terrace, situation in August 2003 (see also Pis. 7).

Fig. 6. Digital drawing of the imaginary and idealized reconstruction drawings of the four sides of the nine colossal limestone statues (A-I) on the East Terrace (see also Pl. 8).

Fig. 7. Paper squeeze of inscription, made in 2002.

Fig. 8. Overview of the heads of the gods (C-G) and animals (A-B and H-I) standing in a row in front of the statues themselves on the East Terrace. Situation in August 2002 and after. Fig. 9. Heads of Antiochos and Kommagene standing on the path at the back of the colossal statues on the East Terrace. Situation before August 2002.

Fig. 10. Overview of the colossal statues C-G of the East Terrace, showing the shoulder block of the Apollo statue (F) lying on the terrace steps and the broken fragments of Kommagene's breast and shoulder parts littering her lap. Situation before August 2002.

Fig. 11a. South side of the statue of Antiochos (C) on the East Terrace, showing the awkward position of the blocks, temporarily supported by wooden poles. Situation in August 2002.

Fig. 11b. Drawing of the south side of Antiochos (C) on the East Terrace, showing the awkward position of the blocks. Situation in August 2002.

Fig. 12a. South side of the statue of Antiochos (C) on the East Terrace after the consolidation in August 2003.

Fig. 12b. Drawings of the four sides of the Antiochos statue (C) after the consolidation in August 2003.

Fig. 13 a. North side of northern plinth of guardian eagle and lion (H-I) on East Terrace, after cleaning the bedrock below it. The five block belonging to the three lower courses of the eagle statue (H) were temporarily removed. Situation in July 2003.

Fig. 13b. Northern plinth of guardian eagle and lion (H-I) on East Terrace, seen from northwest. Limestone blocks, forming the four sides of the plinth, placed in their original position; part of one block (L 138) is missing. Filled up with local limestone pieces and grout (see Ch. 1,2c). The five blocks belonging to the three lower courses of the eagle statue (H) are replaced in there original position. Situation in August 2003.

Fig. 14. Drawing of the situation of consolidated northern plinth (of guardian eagle and lion H-I) on East Terrace with the rebuilt four sides of the three lower courses of the eagle (H), firmly and securely stabilized in August 2003.

Fig. 15. Two sandstone dexiosis stelae (first and third ones on the left of the row of five) in the north-eastern section of the West Terrace have fallen forward down during the winter of 2001-2002: those of Antiochos-Kommagene and Antiochos-Zeus (Fig. 15). Supports of stone blocks were made. The stelae of Antiochos-Apollo, Antiochos-Herakles and the lion horoscope were treated provisionally and reinforced. Situation in August 2002.

Fig. 16. The snow barrage at the back of the row of sandstone stelae in the north-eastern section of the West Terrace. It was constructed in July/August 2002 in order to prevent the three standing stelae from falling down during the next winter.

Fig. 17. The temporary conservation and restoration laboratory, ready for the treatment of the sandstone stelae and sculptures. Situation in August 2003.

Fig. 18. The pathway between the West Terrace and the temporary conservation and restoration laboratory. It was raised, reinforced and levelled in July 2003.

Fig. 19. Transportation by crane of the sandstone stelae from their plinth in the north-eastern section of the West Terrace to the conservation and restoration laboratory.

Fig. 20a. The sandstone dexiosis stelae and lion horoscope from the West Terrace placed in the temporary conservation and restoration laboratory.

Fig. 20b. Routing for visitors; the track to be used from the East to the North Terraces.

Fig. 21a-b. The two loose, broken off pieces of the left and right claws of the eagle (H), L 49 (left) and L 51 (right).

Fig. 22. Block L 29, the belly of eagle H, standing on the East Terrace.

Fig. 23. Drawing of the temporary strutting by three wooden beams and a nylon band tightened around the circumference of course three of the eagle H (blocks LI 16, L 29).

Fig. 24. Blocks L 30 and L 31, forming the shoulders of eagle H, standing on the East Terrace.

Fig. 25. Drawing of the plane of the circle on top of the two shoulder of the eagle H, blocks L30-31 (see Fig. 24) with the locations of the six holes for the dowel pins.

Fig. 26. The head of Eagle H standing on the East Terrace.

Fig. 27. Drawing of the plane of the circle on the underside of the head of the eagle (H), L 35, with the locations of the six holes for the dowel pins.

Fig. 28. Drawing of the fixing of the head of the eagle (H), block L 35, on the shoulders blocks L 30-31.

Fig. 29. Overview of the blocks belong to lion I, scattered over the East Terrace.

Fig. 30. Overview of the blocks belong to lion I, scattered over the East Terrace.

Fig. 31. Block L 40, forming the hindquarters of lion I, standing on the East Terrace.

Fig. 32. Block L 38, forming the paws of lion I, standing on the East Terrace.

Fig. 33. Block L 39, part of the lion's right forepaw, standing on the East Terrace.

Fig. 34. Drawing of block L 39, forming the lion's I forepaws: the dark part is cast and the white indicates the original section of the right forepaw inserted in the block.

Fig. 35. Block L 32, forming the chest of the lion I, standing on the East Terrace.

Fig. 36. Block L 43, forming the back part of the lion I, standing on the East Terrace.

Fig. 37. Block L 42, forming the chest with mane of lion I, standing on East Terrace.

Fig. 38. Head of lion (I) standing on East Terrace.

Fig. 39. Front of Herakles statue G, East Terrace. Situation in August 2003.

Fig. 40. Back side of Herakles statue G, East Terrace. Situation in August 2003.

Fig. 41. Herakles' head (G), block L 0200, standing on the East Terrace.

Fig. 42. Overview of the blocks belonging to the pair of guardian lion and eagle (A-B) standing dispersed on the slope in the surroundings of the plinth on originally stood (south-eastern section of East Terrace).

Fig. 43. Drawing of supporting frame for stability of cast copy of lion horoscope, to be installed on the original location on the north-eastern plinth on the West Terrace.

### **LIST OF PLATES IN PART III**

Plate 1. Contour map of Nemrud Dag.

Plate 2. Site Information System, East Terrace. Situation in August 2001.

Plate 3. Site Information System, East Terrace. Situation in August 2002.

Plate 4. Site Information System, East Terrace. Situation in August 2003.

Plate 5. Site Information System, West Terrace. Situation in August 2001-2002.

Plate 6. Site Information System, West Terrace. Situation in August 2003.

Plate 7a. Drawings of the front of the nine colossal statues A-I, East Terrace. Situation in August 2003.

Plate 7b. Drawings of the backsides of the nine colossal statues A-I, East Terrace.

Plate 8a. Imaginary and idealized drawings of the front of the nine colossal statues A-I, East Terrace.

Plate 8b. Imaginary and idealized drawings of the backsides of the nine colossal statues A-I, East Terrace.

Plate 9. Provisional reconstruction drawing of lion statue A on East Terrace.

Plate 10. Provisional reconstruction drawing of eagle statue B on East Terrace.

Plate 11. Drawing of four sides of Antiochos statue C, before consolidation in 2003.

Plate 12. Drawing of four sides of Antiochos statue C, after consolidation in August 2003.

Plate 13. Drawing of four sides of Kommagene statue D, situation in August 2003.

Plate 14. Drawing of four sides of Zeus statue E, situation in August 2003.

Plate 15. Drawing of four sides of Apollo statue F, situation in August 2003.

Plate 16. Drawing of four sides of Herakles statue G, situation in August 2003.

Plate 17. Drawing of four sides of Herakles statue G, after the proposed consolidation and rebuilding to be executed in 2005.

Plate 18. Reconstruction drawing of four sides of Eagle statue H, situation in August 2003.

Plate 19. Reconstruction drawing of four sides of Eagle statue H, situation after the proposed consolidation and rebuilding to be executed in 2005.

Plate 20. Reconstruction drawing of four sides of Lion statue I, situation after the proposed consolidation and rebuilding to be executed in 2005.

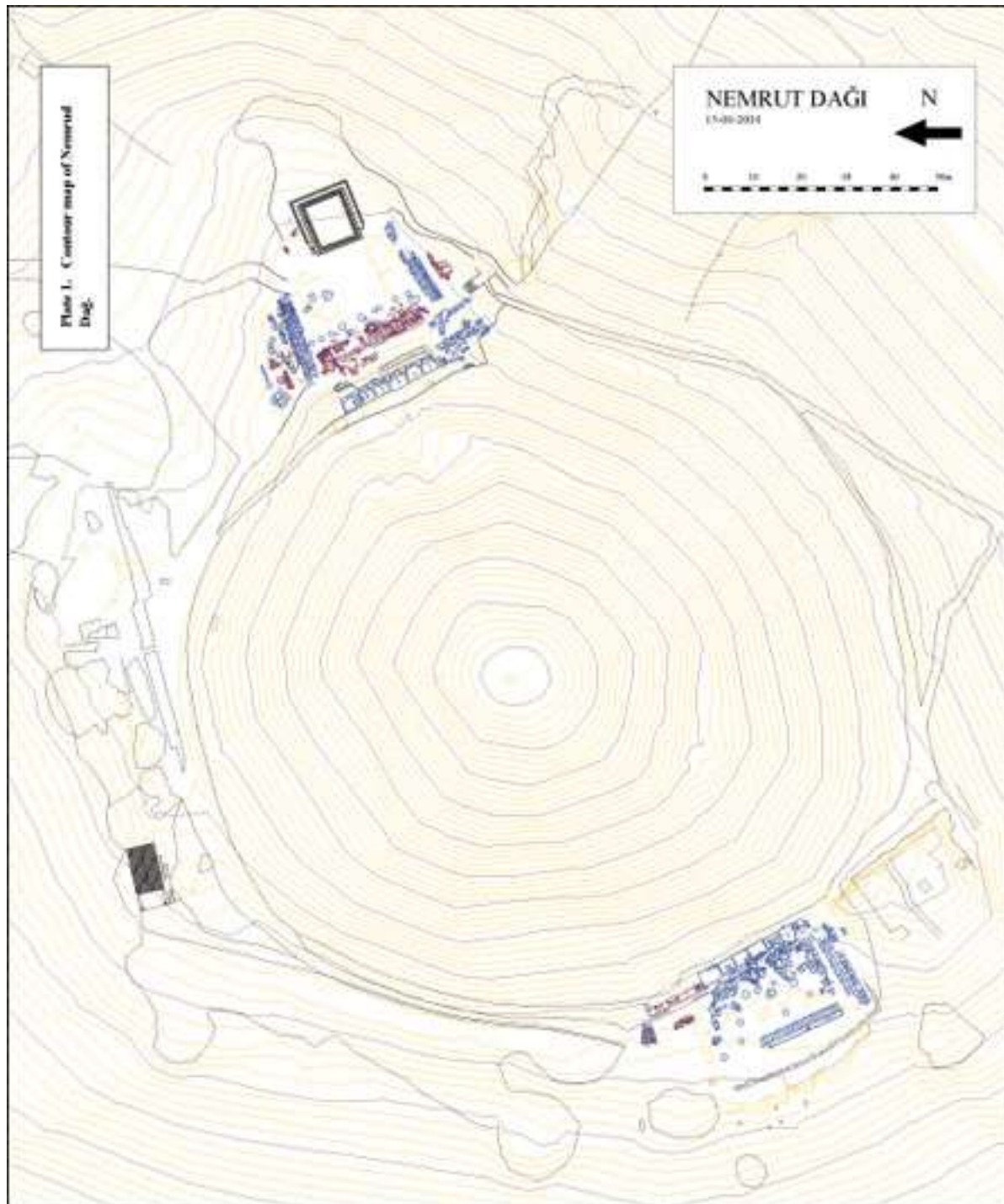


Fig. 1. Contour map of the top of the Nemrud Dağ indicating the different levels, with East, West and North Terraces, also showing the temporary restoration laboratory, built at the north-western side in 2003 (see also enlarged map, Pl. 1).



Fig. 2. 3D impression of the Nemrud Dağ.

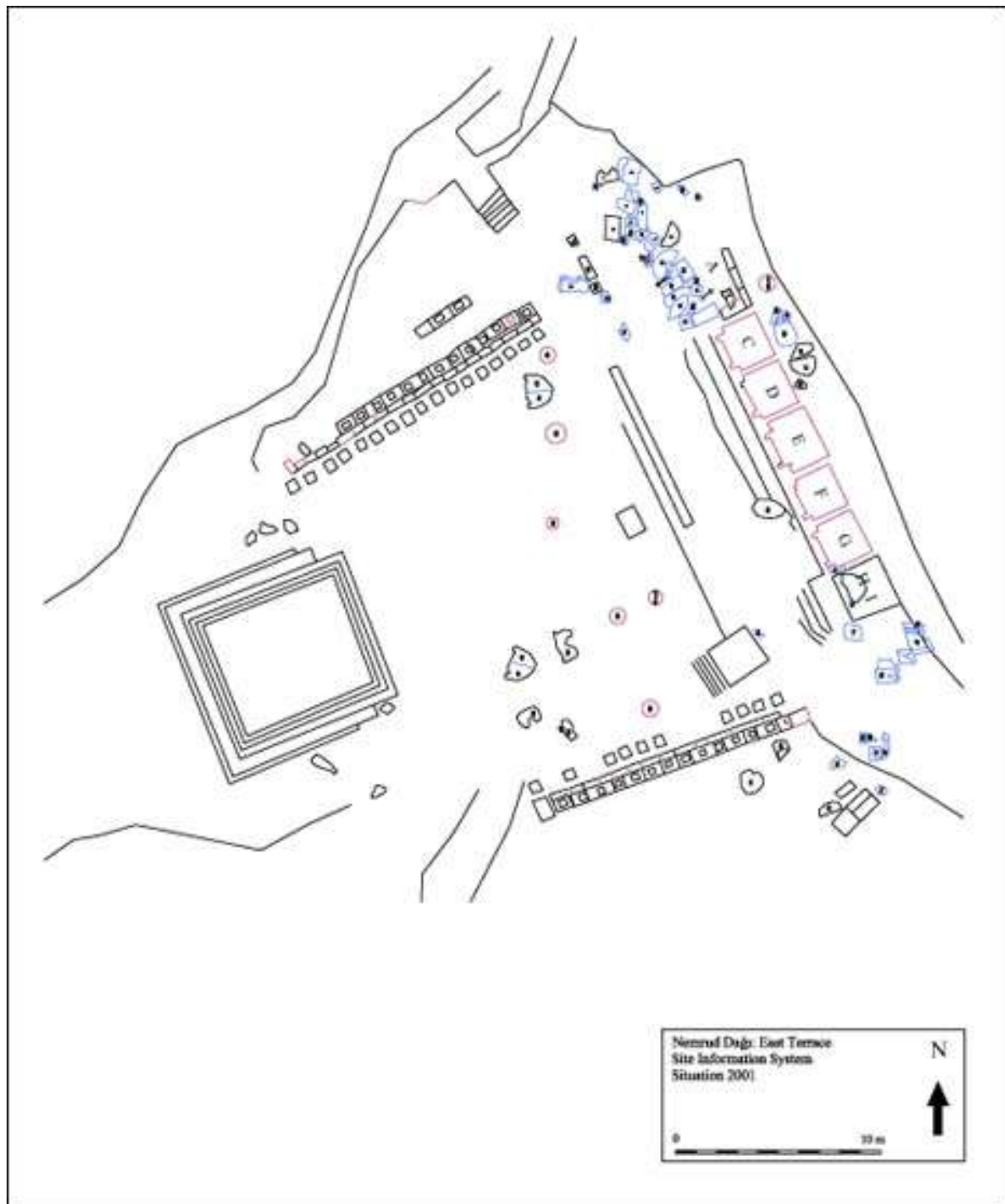


Fig. 3a. Site Information System of situation of East Terrace in 2001 (see also Pl. 2).



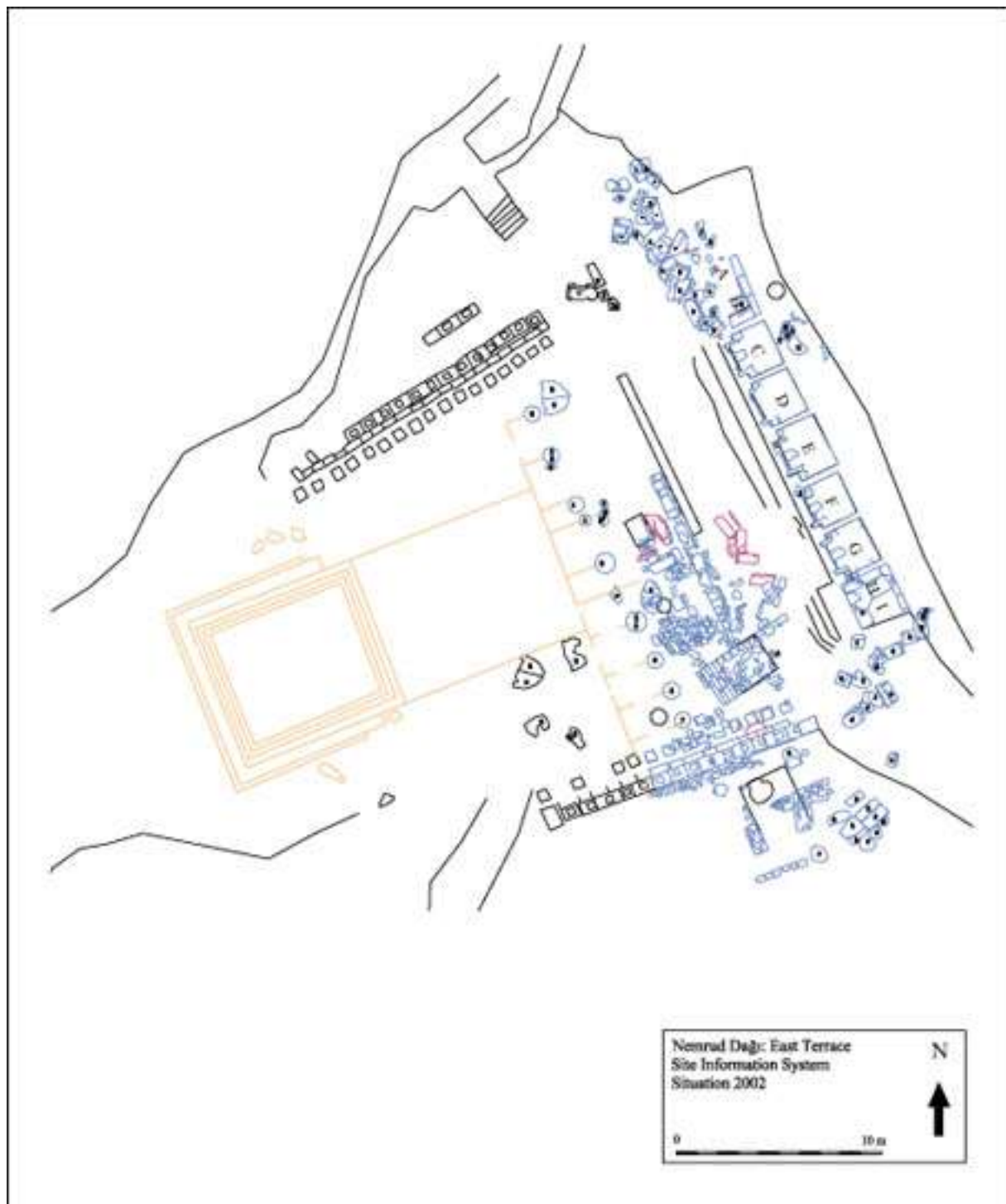


Fig. 3b. Site Information System of situation of East Terrace since August 2002 (see also Pl. 3).

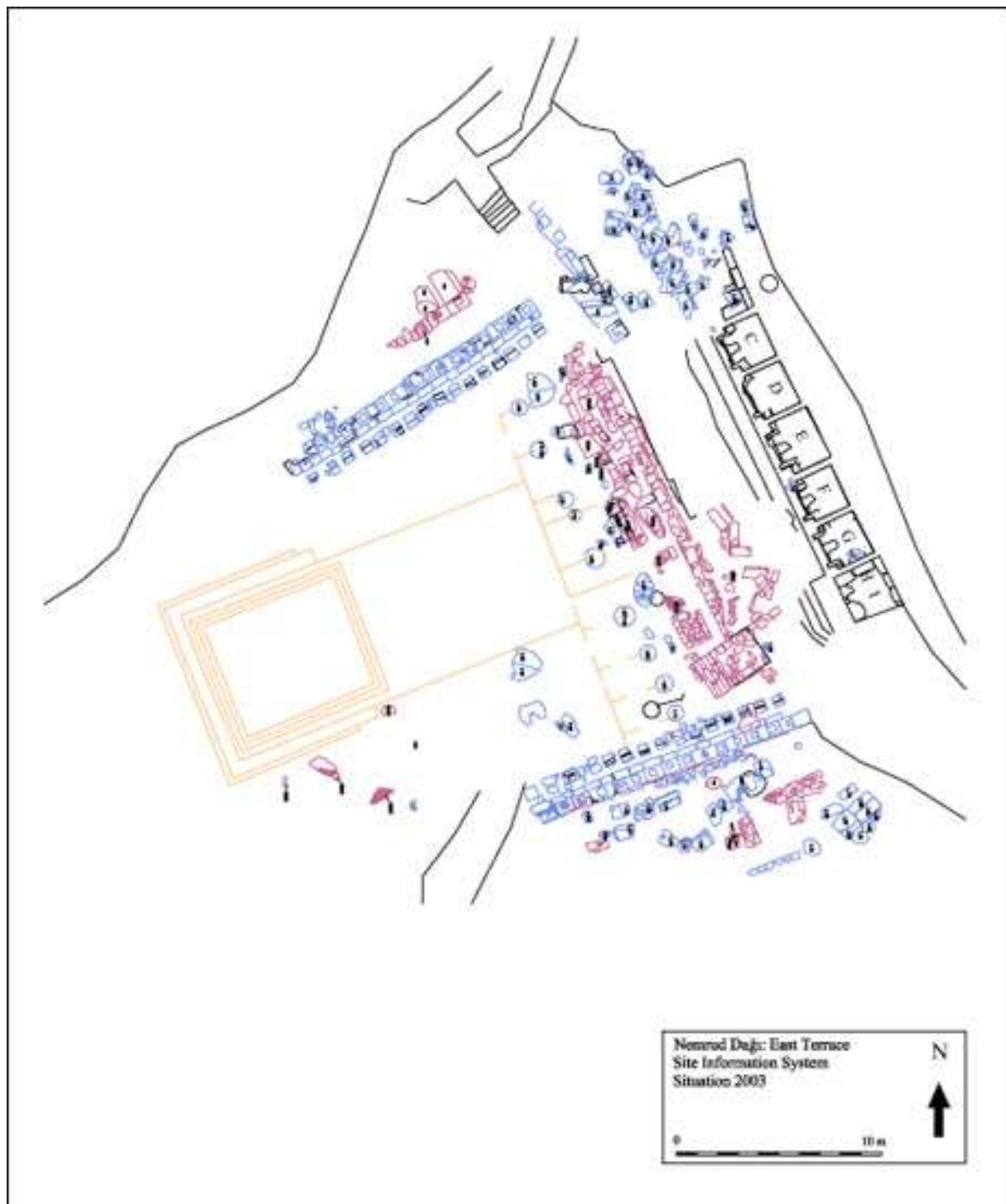


Fig. 3c. Site Information System of situation of East Terrace since August 2003 (see also Pl. 4).

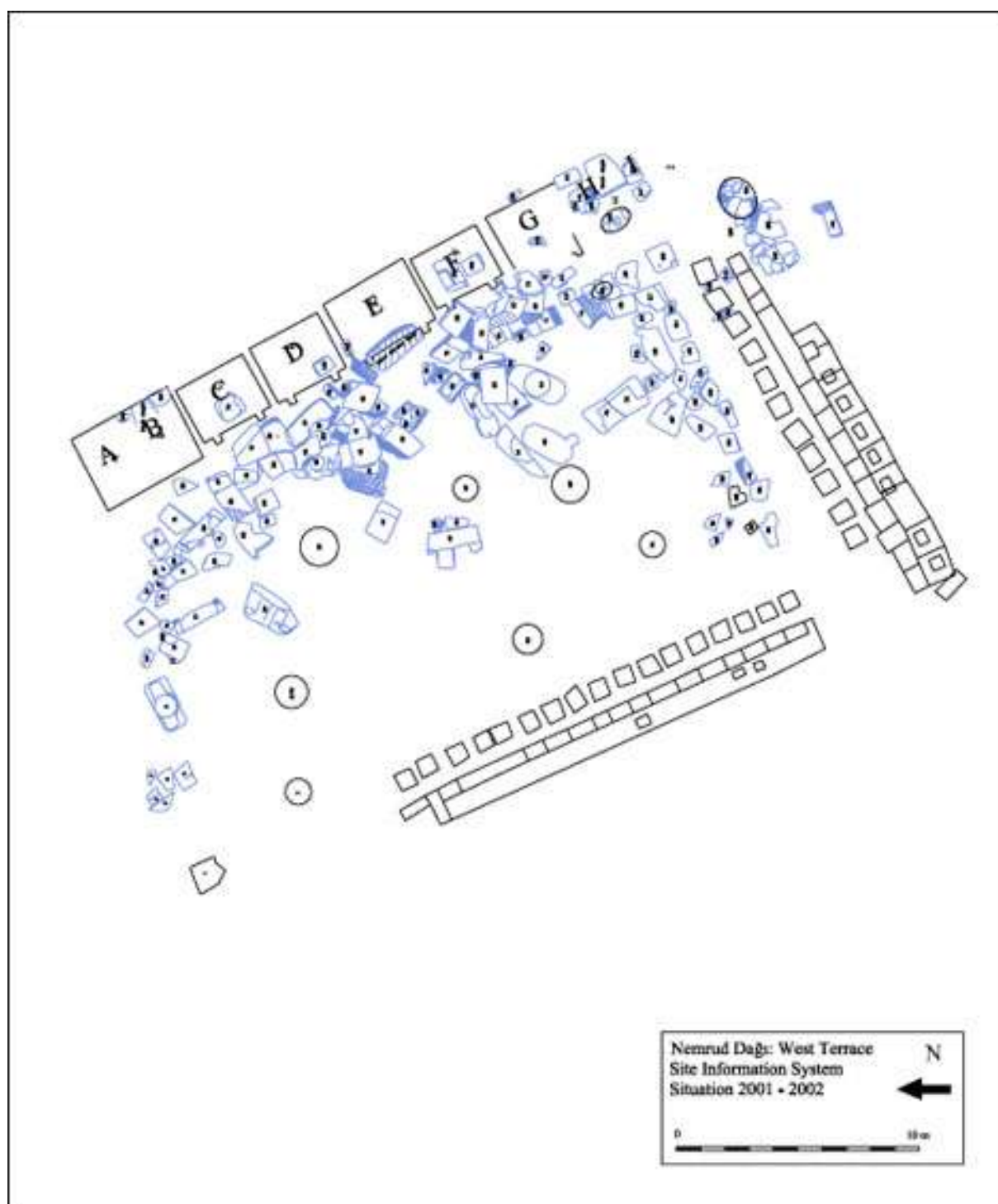


Fig. 4a. Site Information System of situation of West Terrace in 2001 and 2002 (see also Pl. 5).

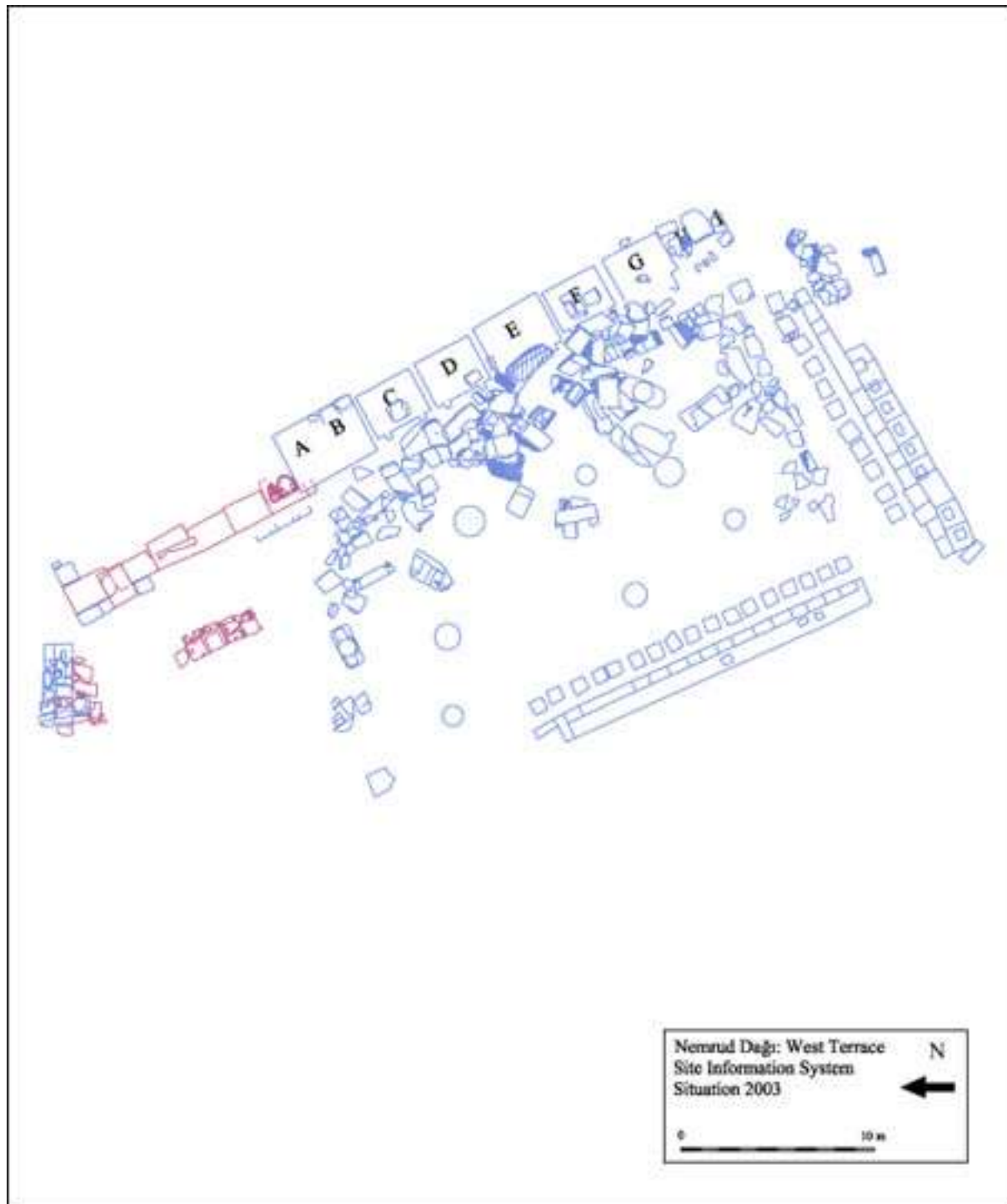


Fig. 4b. Site Information System of situation of West Terrace in August 2003. The four sandstone dexiosis reliefs and the lion horoscope were moved to the temporary restoration laboratory in 2003 (see also Pl. 6).





Fig. 4c. Overview of the blocks belonging to the different statues disorderly lying on top of one another on the West Terrace.

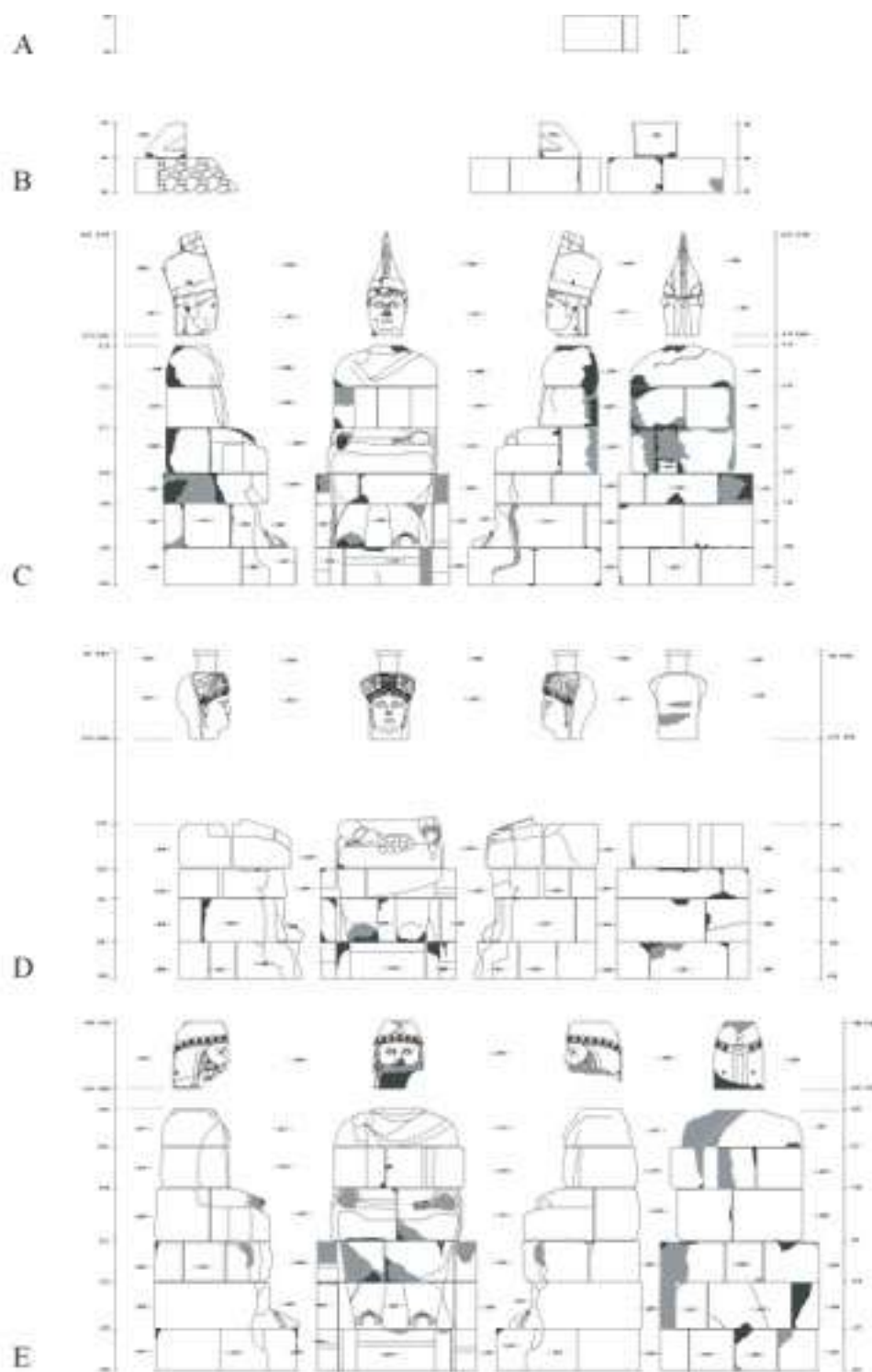
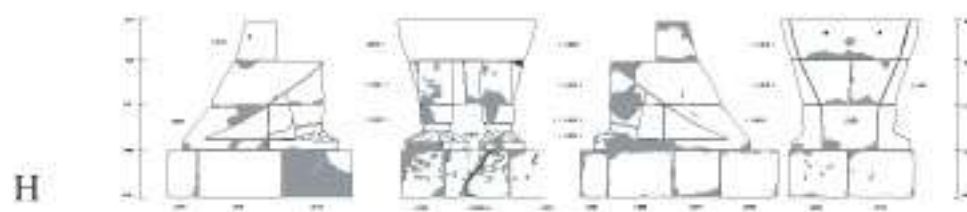
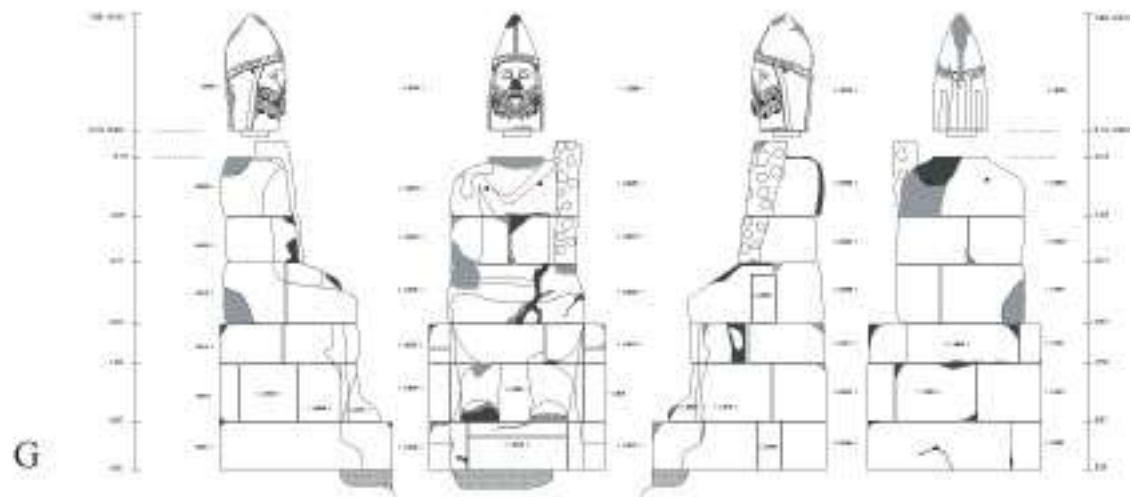
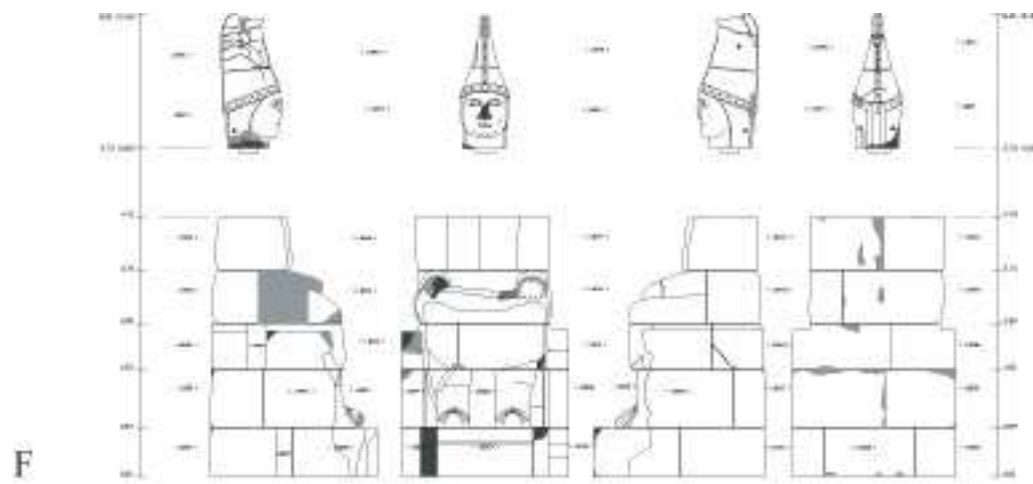


Fig. 5: Digital drawings of the four sides of the nine colossal limestone statues (A-I) on the East Terrace, situation in August 2003 (see also Pls. 7).



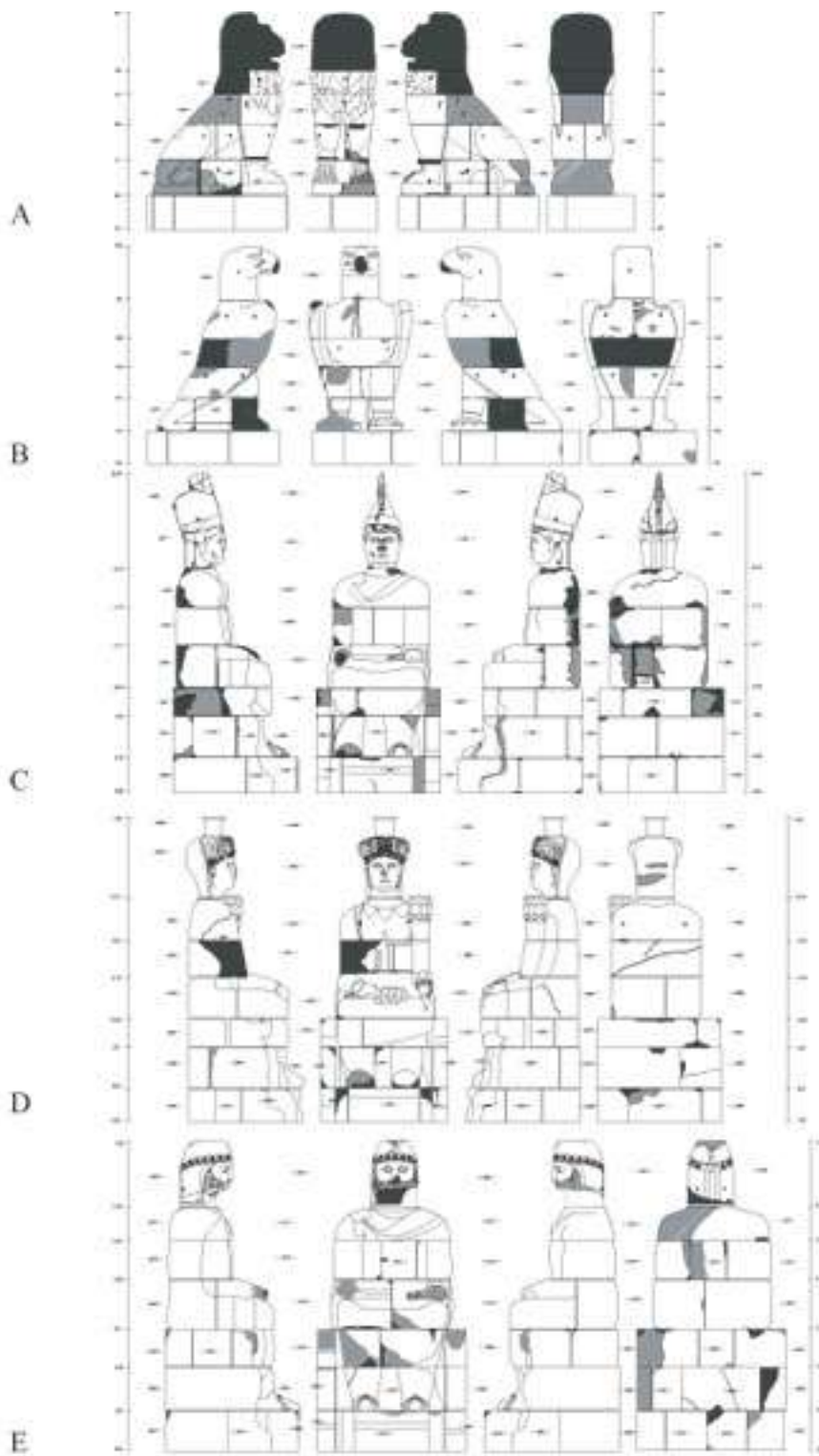
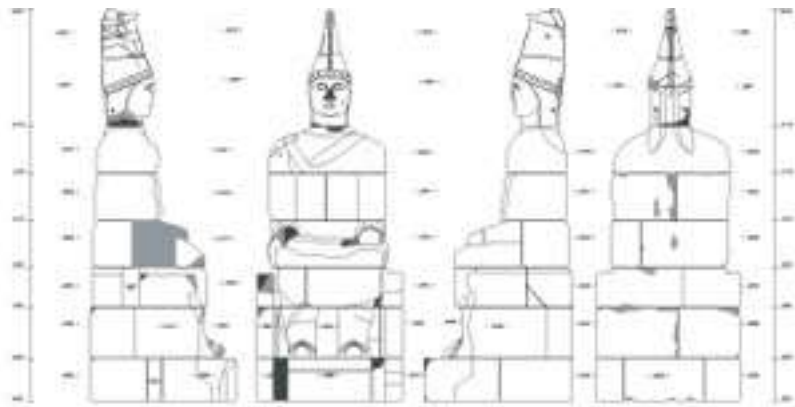


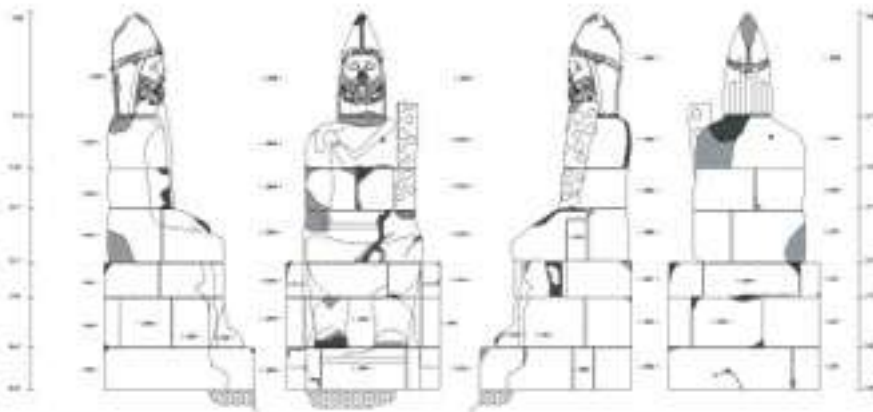
Fig. 6. Digital drawing of the imaginary and idealized reconstruction drawings of the four sides of the nine colossal limestone statues (A-I) on the East Terrace (see also Pl. 8).



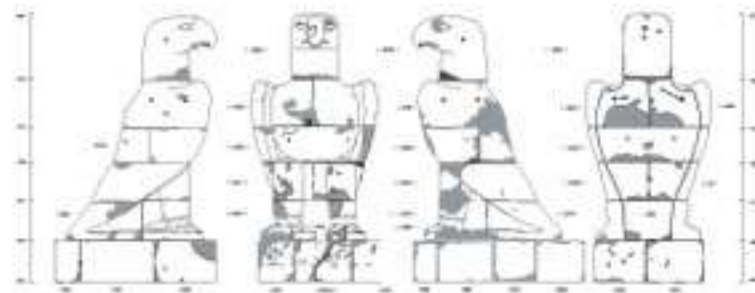
F



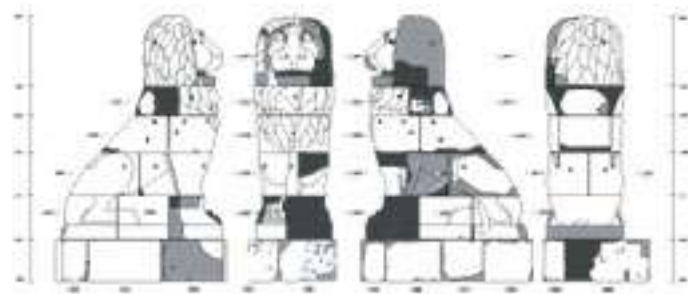
G



H



I



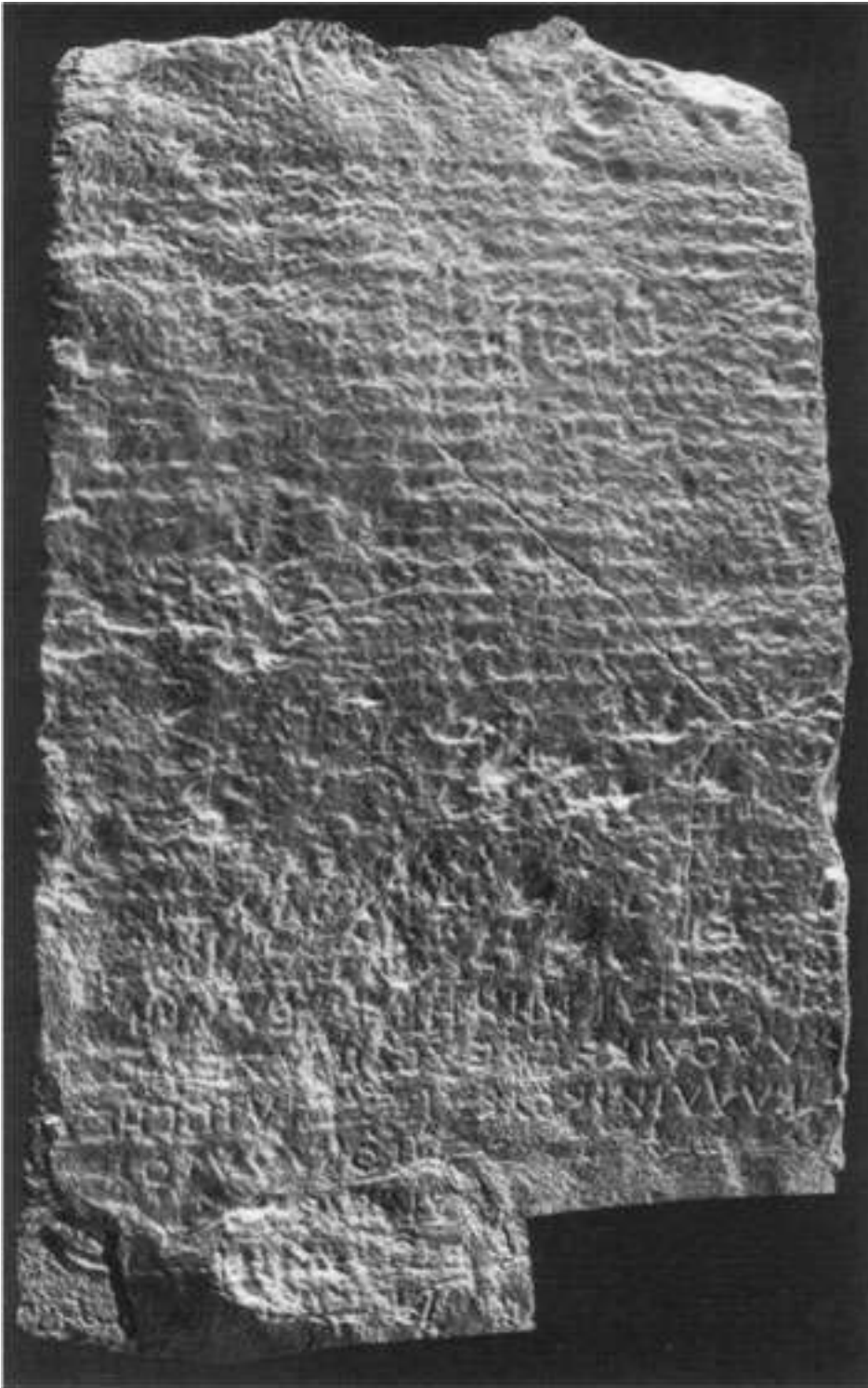


Fig. 7. Paper squeeze of inscription, made in 2002.



Fig. 8. Overview of the heads of the gods (C-G) and animals (B and H-I) standing in a row in front of the statues themselves on the East Terrace. Situation in August 2002 and after.



Fig. 9. Heads of Antiochos and Kommagene standing on the path at the back of the colossal statues on the East Terrace. Situation before August 2002.





Fig. 10. Overview of the colossal statues C-G of the East Terrace, showing the shoulder block of the Apollo statue (F) lying on the terrace steps and the broken fragments of Kommagene's breast and shoulder parts littering her lap. Situation before August 2002.



Fig. 11a. South side of the statue of Antiochos (C) on the East Terrace, showing the awkward position of the blocks, temporarily supported by wooden poles. Situation in August 2002.

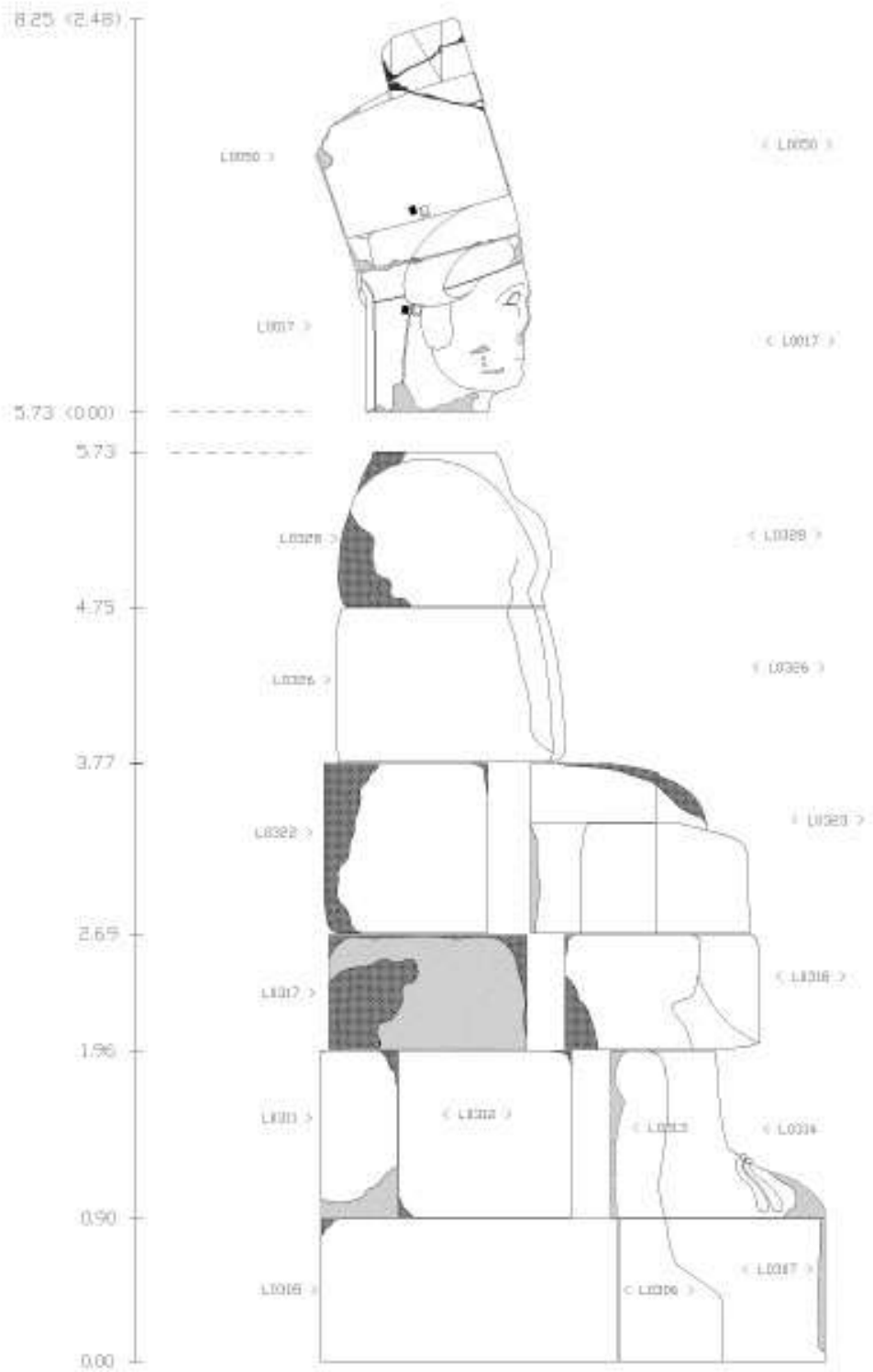


Fig. 11b. Drawing of the south side of Antiochos (C) on the East Terrace, showing the awkward position of the blocks. Situation in August 2002.

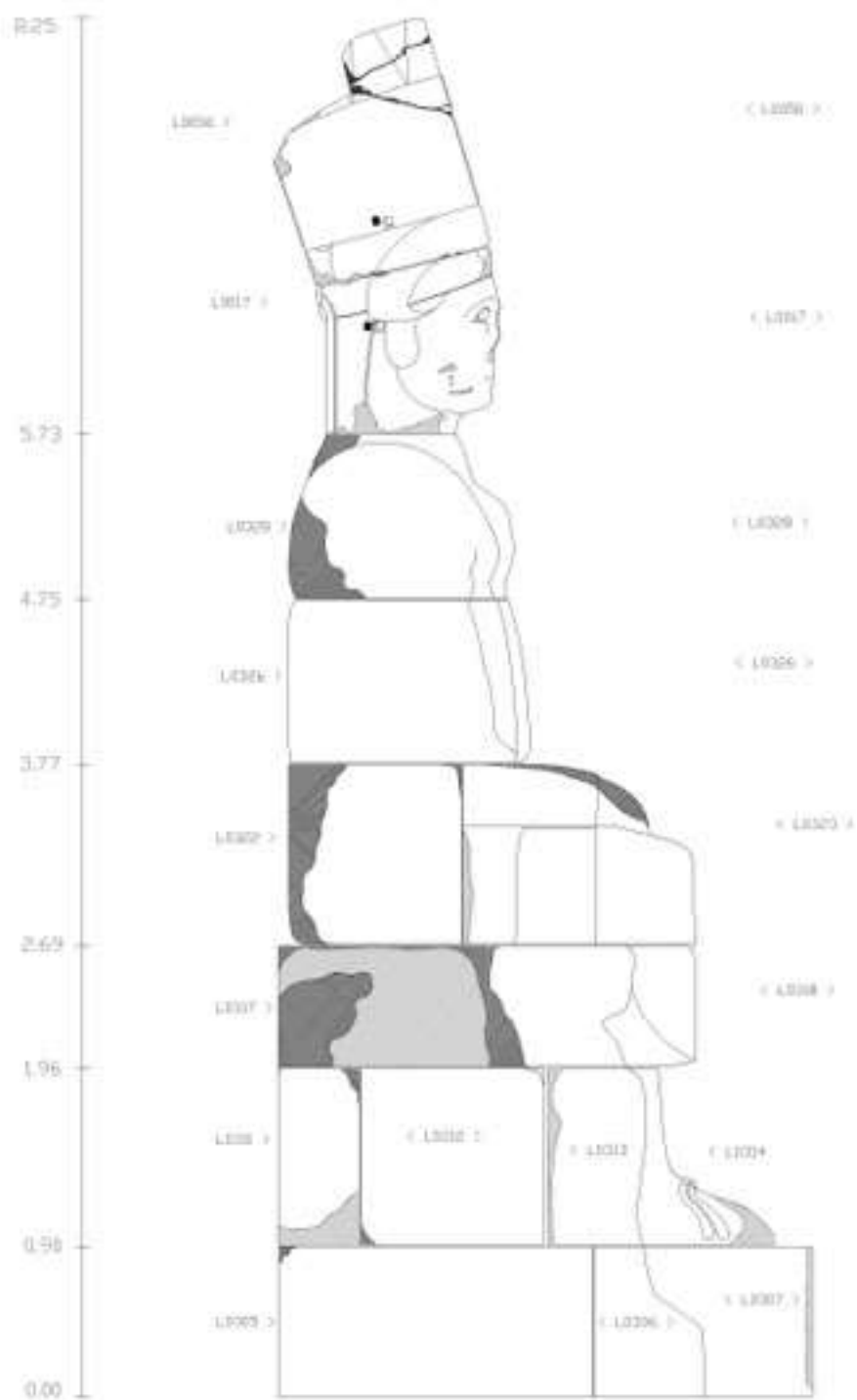


Fig. 12b. Drawings of the four sides of the Antiochos statue (C) after the consolidation in August 2003.





Fig. 13a. North side of northern plinth of guardian eagle and lion (H-I) on East Terrace, after cleaning the bedrock below it. The five blocks belonging to the three lower courses of the eagle statue (H) were temporarily removed. Situation in July 2003.



Fig. 13b. Northern plinth of guardian eagle and lion (H-I) on East Terrace, seen from northwest. Limestone blocks, forming the four sides of the plinth, placed in their original position; part of one block (L. 138) is missing. Filled up with local limestone pieces and grout (see above). The five blocks belonging to the three lower courses of the eagle statue (H) are replaced in their original position. Situation in August 2003.







Fig. 15. Two sandstone dexionis stelae (first and third ones on the left of the row of five) in the north-eastern section of the West Terrace have fallen forward down during the winter of 2001-2002: those of Antiochos-Kommagene and Antiochos-Zeus (Fig. 15). Supports of stone blocks were made. The stelae of Antiochos-Apollo, Antiochos-Herakles and the lion horoscope were treated provisionally and reinforced. Situation in August 2002.



Fig. 16. The snow barrage at the back of the row of sandstone stelae in the north-eastern section of the West Terrace. It was constructed in July/August 2002 in order to prevent the three standing stelae from falling down during the next winter.





Fig. 17. The temporary conservation and restoration laboratory, ready for the treatment of the sandstone stelae and sculptures. Situation in August 2003.



Fig. 18. The pathway between the West Terrace and the temporary conservation and restoration laboratory. It was raised, reinforced and levelled in July 2003.



Fig. 19. Transportation by crane of the sandstone stelae from their plinth in the north-eastern section of the West Terrace to the conservation and restoration laboratory.





Fig. 20a. The sandstone dexiosis stelae and lion horoscope from the West Terrace placed in the temporary conservation and restoration laboratory.



Fig. 20b. Routing for visitors; the track to be used from the East to the North Terraces.





Fig. 21a-b. The two loose, broken off pieces of the left and right claws of the eagle (H), L. 49 (left) and L. 51 (right).

*Continued.....*