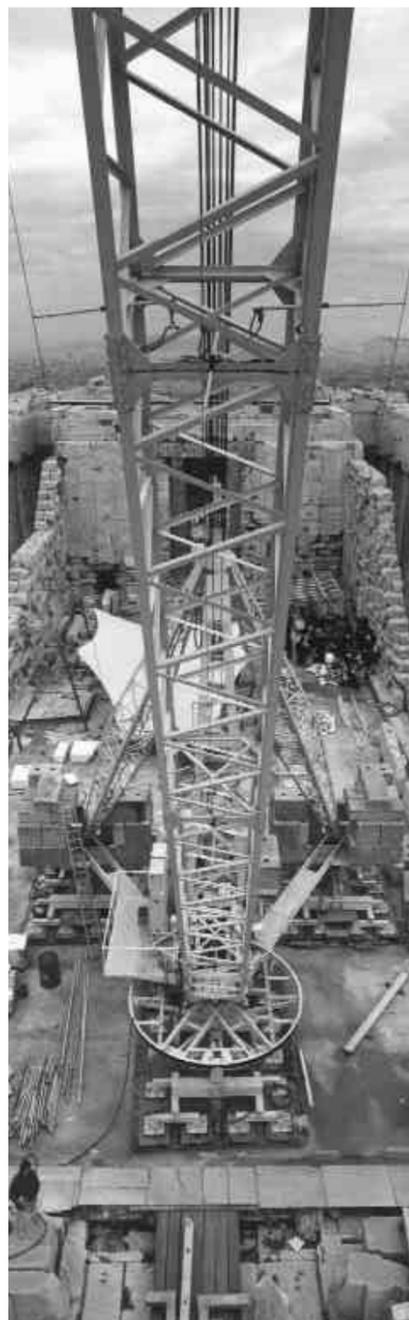


Twenty-five Years of Restoration Work on the Acropolis

With the dawn of the new century, and the establishment of The Acropolis Restoration Service (YSMA), a new phase begins in the work of restoration on the Acropolis. It has been decided that an informative periodical would be a useful accompaniment to this start. The Acropolis Restoration News is addressed to everybody, to the general public interested in what happens on the Acropolis and in the progress of the works being carried out there. It is addressed at the same time to readers with a more specialised interest who would like further information on some of the more specific aspects arising in the course of the work. It is therefore hoped that this periodical will contribute in its own way to the dissemination of the valuable information that has been collected –and is being constantly increased– in the archaeological and technological field, throughout all the years this project has been under way.

On this occasion let us remember and review what has actually been realised during the past twenty-five years on the Acropolis.

As is well known, since 1975 systematic work has been carried out on conservation and anastelosis of the Acropolis monuments under the scholarly supervision of The Committee for Conservation of the Acropolis Monuments (CCAM). The members of CCAM, specialists in various fields –archaeologists, architects, civil engineers and chemical engineers– were recruited at that time, in collaboration with the Acropolis Ephorate, responsible for the site. Their task was to direct rescue work in order to tackle the extremely serious problems of the monuments: cracking and splintering of the marble caused by the rusting of the extensive iron reinforcing that had been



The Interior of the Parthenon as it was in 1990. View from the East. Photo S. Mavrommatis

inserted during earlier interventions, and from other causes too (explosions, displacements caused by earthquake, fires, and so on) and the deterioration of the marble surfaces through atmospheric pollution. Gradually, during the course of the projects, other problems were solved: architectural members of the monuments that had earlier been wrongly positioned were reset in their correct positions on the monuments, scattered architectural members were identified and reset in the monuments to which they belong. Through interventions of this sort some of the structural and formal authenticity of the monuments is regained, the immediate result being the demonstration of their importance for scholarship with their inherent architectural worth and more generally their aesthetic and environmental values. In addition the monuments can be better comprehended by more of the visitors. Apart from the monuments, there is the problem of wear on the Acropolis Rock – in itself a monument, bearer of valuable traces of a long history. So too, the structural problems of its Circuit Wall.

In the course of these interventions, the parts of the monuments that had been restored in the past –and in some cases sections that had not been restored before but which show the same signs of wear and breakage– are dismantled. The articulated system of construction characteristic of classical buildings greatly facilitates this sort of work. For they are made up of independent architectural members, which have been assembled into a whole as ‘dry masonry’, without the use of plaster. The dismantled pieces undergo conservation while on the ground. The old rusted metal reinforcements are removed. The fragments of the architectural members are then joined using titanium elements and

cement plaster. The rusted ancient and modern metal clamps and dowels that joined the architectural members are replaced by titanium elements. Where considered necessary, missing parts of the members are filled in with new Pentelic marble so as to restore their original structural efficiency. The filling in of the fragments is done with the use of a pointing device so as to reduce any further abrasion to a minimum.

Along with structural restoration, the surfaces of the monuments undergo conservation. This includes the joining of superficial fragments and flakes, filling of cracks and joins with an inorganic material, reversible, and with proven stability over time. Finally, in order to avoid further damage, the architectural sculpture is transferred to the Acropolis Museum, being replaced on the monuments by faithful copies in artificial stone with a cement base, specially prepared for colour and texture.

The detailed recording of the work, the use of contemporary technology, the carrying out of special programmes for educating the young and informing the general public, are all an integral part of the work. Most important, however, are the special studies that are made prior to each intervention and the scholarly research that accompanies the project in all its phases. Both studies and research enrich it to a unique degree, providing a standard for all comparable projects.



Proposal for the Restoration of the Ceiling in the East Stoa of the Propylaea.
Study by M. Ioannidou, T. Tanoulas, 2000

restoration to be done on the Rock. The person sought had to be able to carry out such restoration and at the same time have long experience in organising large projects. In the end it was not possible to find an engineer with all these qualifications.

Thus another system was used, that of collective responsibility for each task separately. With the passage of time, the young engineers recruited for the Technical Office between 1975 and 1979, not only rose to the occasion with great success but they ac-

The past three years have seen a basic change in the system for studying, programming and accomplishing the work on the Acropolis. This was dictated primarily by the need of accomplishing the work in less time and by modernising the way in which it is carried out.

In the proceedings of the meetings of The Committee for Conservation of the Acropolis Monuments, twenty-five years ago, is recorded the agonising effort of finding and recruiting a director for the project who would have overall responsibility and would also act as coordinator of all the

quired valuable experience and abilities of all kinds. The system has, however, a number of disadvantages, especially in immediate supervision of the work by the Committee, the lack of coordination and the creation of competition among those responsible for the work. Clearly the CCAM as a scholarly organisation was not in a position to carry out continuous and first hand supervision of the work, while the lengthy duration of the project was fatiguing and led to time schedules being cancelled. The lack of personnel (a result of the interruption in hiring in the public sector from 1994 on), unexpected delays in funding

and bureaucratic difficulties of every conceivable sort have led during the past five years to an extended crisis. This, while not affecting the quality of the work being done, greatly reduced the rhythm of the work and made it quite evident that the system as a whole was incapable of completing the project.

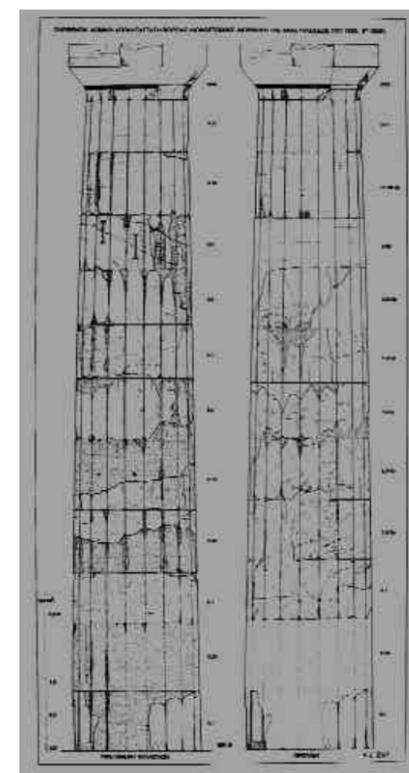
Turning again to the proceedings of the meetings of the Committee for Conservation of the Acropolis Monuments, one notes the continuous efforts of some of the

members to analyse the causes of the crisis and to find solutions. There are at least three extremely detailed and analytical reports by the civil engineer K. Zambas with specific proposals for this purpose. He concluded that rather than partial corrections to the existing system, structural and institutional solutions were needed. The first response to these appeals on the part of political leadership was during the summer of 1996, when St. Benos was the Minister. Given the change in the Ministry of Culture in September of the same year, however, a solution was not forthcoming.

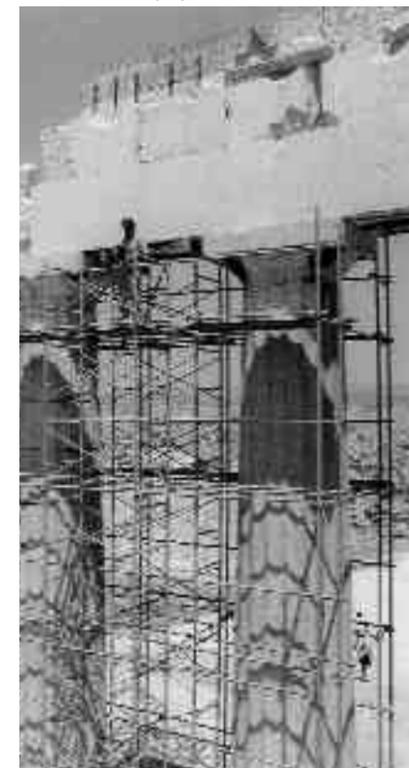
The move toward change came about with the voting of Law 2557 of December 1997, when the leadership of the Ministry (Minister E. Venizelos and General Secretary E. Yiannakopoulos) were persuaded that structural changes were absolutely necessary. With this law, the Acropolis Project was characterised as an exemplary standard and a Presidential Decree was expected which would bypass all other decrees, and which would make all activities of the Committee simpler. At the same time there was a complete reestablishment of the Administrative Council of the Fund for the Administration of the Credits for the Execution of Archaeological Works. Funding for projects on the Acropolis was thus secured from the Community Support Frameworks.

The projected Presidential Decree was published in May 1999. This established The Acropolis Restoration Service (YSMA) which had a Director. Defined also was the structure of the former Technical Office with the personnel in charge of the various works. The Committee for Conservation of the Acropolis Monuments was reestablished and prerogatory regulations were enacted for economic matters, the salaries of personnel and a significant increase in the number of positions.

It must be said that these substantive changes were met with suspicion on the part of the Acropolis employees as well as by the members of the Committee for Conservation of the Acropolis Monuments, who by unanimous vote rejected the final plan of



Actual State (left) and Proposal (right) for the Restoration of the 8th (from E.) N. Column of the Parthenon. Study by K. Zambas, 1998



Partial view of the N. Colonnade of the Parthenon from the SE. Photo S. Mavrommatis

the Presidential Decree at the beginning of April 1999. The explanation for this suspicion does not lie in the present. The fact is that application of these measures, even if delayed, did indeed bring about a substantive reorganisation and acceleration of the projects. Nearly all the employees were detached to the new Service, nearly all the new positions were filled after an essential evaluation of the applicants, the Secretariat and the Accounting Office were restructured and it was now possible to delegate the supervising and completion of separate works to collaborators outside the Service. Paramount in this first phase of reorganisation was the participation of the civil engineer K. Zambas, long time member in the Technical Office and first director of the new Service. From September 2000 on, the director of the YSMA has been M. Ioannidou, likewise a civil engineer.

The members of The Committee for Conservation of the Acropolis Monuments are well aware of their purely scholarly role. They realise, however, that to carry out the giant task of saving the Acropolis monuments, precisely because of the special requirements of this work, administrative operations are demanded that cannot be carried out by simple managers and technicians. Thus their forces were spent during the last three years in non-scholarly activities, in the hope of seeing the completion of the great Acropolis projects.

Professor Emeritus Charalambos Bouras
President of the Committee for Conservation of the Acropolis Monuments

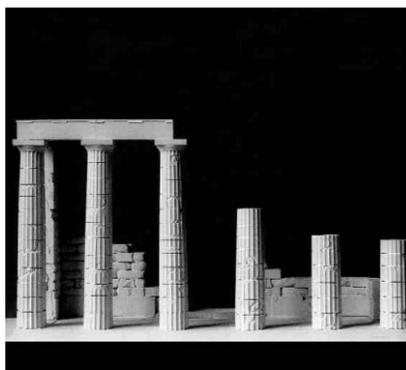
Maria Ioannidou
Director of The Acropolis Restoration Service

The Acropolis Restoration Service (YSMA) is a special service of the Ministry of Culture, which comes under the jurisdiction of the General Secretary. Its purpose is the organising and carrying out of conservation and restoration projects on the Sacred Rock. The director of the YSMA, which today employs some 200 people with various specialities, is the civil engineer Maria Ioannidou.

The Committee for Conservation of the Acropolis Monuments, with Professor Emeritus Ch. Bouras as president, is responsible for the scholarly aspect of the work and for supervision on behalf of the Service. Committee Members are the following: A. Choremi, Director of the 1st Ephorate of Prehistoric and Classical Antiquities, G. Despoinis, Professor Emeritus of the Aristotle University of Thessalonike, D. Giraud, Director of the Directorate of Anastelosis of Ancient Monuments of the Ministry, E. Kakavoyannis, Director of the Directorate of Prehistoric and Classical Antiquities, M. Korres, Associate Professor of the National Technical University of Athens, V. Lambri-noudakis, Professor of the University of Athens, N. Minos, Director of the Directorate of the Conservation of Antiquities, Th. Skoulikidis, Professor Emeritus of the National Technical University of Athens, K. Syrmakizis, Professor of the National Technical University of Athens, P. Themelis, Professor of the University of Crete, E. Touloupa, Ephor Emeritus of Antiquities.

In accordance with Presidential Decree 97/99, the Acropolis Restoration Service has been organised in the following sections:

- Technical Office and Work-site for conservation and restoration of the Parthenon, with the architect N. Toganidis in charge. P. Kouphopoulos, architect, is working on the restoration of the Opisthodomos in particular as Technical Supervisor.
- Technical Office and Work-site for conservation and restoration of the Propylaia, with T. Tanoulas, architect, in charge.
- Technical Office and Work-site for the conservation and restoration of the Temple of Athena Nike, with D. Michalopoulou, civil engineer, in charge.
- Technical Office and Work-site for conservation, consolidation and restoration of the Circuit Wall of the Acropolis, not yet staffed.



Proposed Restoration of the Parthenon Pronaos. Study by M. Korres, 1989

- Office for inventorying, documenting and organising the scattered architectural members, with the archaeologist K. Kissas in charge.
- Office for conservation, with E. Papakonstantinou, chemical engineer, in charge.
- Laboratory of casts. A Mantis, archaeologist in the 1st Ephorate of Prehistoric and Classical Antiquities, is in charge.
- Photographic Laboratory, with the photographer, S. Mavrommatis in charge.
- Documentation Office, including the data bases, plan and photographic archives and library, with the archaeologist F. Mallouchou-Tufano in charge.
- Office of Information and Education, with the architect-archaeologist C. Hadzi-aslani in charge. Participating also in the educational programmes, which are carried out in collaboration with the 1st Ephorate, are volunteers from the association 'Friends of the Acropolis'.
- Office of the Secretariat, the purpose of which is administrative support for all sections of the Service and the running of the CCAM secretariat. In charge is M.-X. Garezou, archaeologist.
- Accounting Office, responsible for managing the funds of the 3rd Community Support Framework.
- Office of support and allotment of material, including the storeroom and services of a general nature, with Th. Phoutsas in charge. Finally, Sp. Oikonomopoulos, mechanical engineer, is responsible for mechanical matters on all of the Work-sites.

Maria-Xeni Garezou
Head of the Office of the Secretariat of
The Acropolis Restoration Service

Chronicle

1975

The Committee for Conservation of the Acropolis Monuments is founded.

1976

Establishment of a Technical Office and Documentation Archive for the project.

1976-1977

Recording and thorough study of all the problems of the Acropolis monuments in collaboration with other academic institutions such as the National Technical University of Athens, the Centre for Nuclear Research 'Demokritos' and the Institute for Geological and Metallurgical Research (IGME).

Transfer of the pedimental figures of Kekrops and his daughter and Kallirrhoe from the West pediment of the Parthenon to the Acropolis Museum.

As a temporary means of protection: canopies placed over the Porch of the Maidens and the West Frieze of the Parthenon.

Study for the Restoration of the Erechtheion (a group work).

International Meeting on the Restoration of the Erechtheion (December 1977).

1978

Construction of a passageway for the circulation of visitors along the Propylaia-Parthenon axis.

The task of recording the antiquities scattered over the Acropolis Rock begins.

M. Korres, Report on the Condition and Intervention in the Roof of the North Porch of the Erechtheion (typescript).

1979

Work on the restoration of the Erechtheion begins.

Transfer of the Caryatids to the Acropolis Museum.

Beginning of consolidation of the rocky slopes of the Acropolis Hill.

1981

A. Tzakou - M. Ioannidou, Study on the Restoration of the Epistyle of the East Colonnade of the Propylaia (typescript).

A. Papanikolaou - K. Zambas, Report on the Condition and Intervention in the Roof of the N. Porch of the Erechtheion and in the area of the North Wall above the Doorway (typescript).

Beginning of the work on consolidating the 2nd (from S.) epistyle block in the en-

tablature of the East stoa of the Propylaia. Location of narthex in the NE corner of the Parthenon after the February earthquake.

1982

Consolidation of 2nd (from S.) epistyle block in the entablature of the East stoa of the Propylaia completed.

K. Zambas, The Rearrangement of the Blocks in the South Wall of the Erechtheion.

1983

Ch. Bouras - M. Korres, Study on the Restoration of the Parthenon.

2nd International Meeting on the Restoration of the Acropolis Monuments (September 1983).

Exhibition entitled 'Acropolis 1975-1983: Conservation, Restoration and Research' in the National Gallery - Alexander Soutzos Museum.

1984

Installation of the Work-site at the Parthenon begins.

Report of the Parthenon Restoration Subcommittee (J. Demakopoulos, Ch. Bouras, G. Lavvas, G. Dontas, G. Despoinis, E. Touloupa, typescript).

1985

Installation of the Parthenon Work-site completed.

A. Papanikolaou, The Rearrangement of the Blocks in the North Wall of the Erechtheion (typescript study).

Tour of 1983 Exhibition at Moscow, Amsterdam and London.

1986

A. Papanikolaou, The Restoration of the NE Corner of the Erechtheion (typescript study).

Launching of the 1st programme of anastelosis of the Parthenon (restoration of the East façade).

Work of conserving the surfaces of the monuments begins with the Parthenon.

Transfer of pedimental sculpture (heads of horses of the chariot of Helios) from the East pediment of the Parthenon to the Acropolis Museum.

1983 Exhibition opens in Paris.

1987

Restoration work on the Erechtheion completed.

Th. Skoulikidis, E. Papakonstantinou, D. Charalambous, G. Doganis, The Parthenon

Metopes of the East Doric Frieze (typescript).

Launching of programme to create a data base for the management of the projects records.

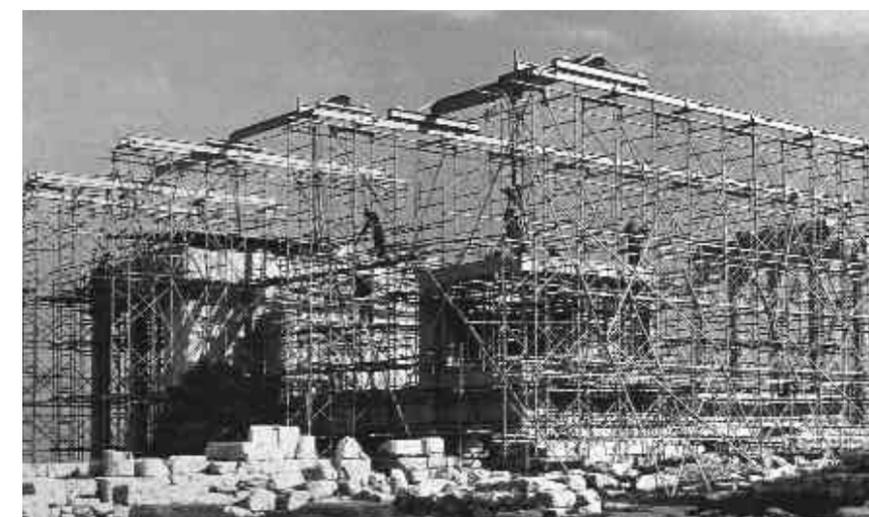
Educational programmes started.

1989

M. Ioannidou, The Propylaia Work-site (typescript study).

Transfer of the metopes of the East façade of the Parthenon to the Acropolis Museum.

M. Korres, Report of the Intervention Method to be used on the 5th South Column of the Parthenon in order to prevent it from falling to pieces (typescript).



View of the Erechtheion from the SW in 1981. Photo A. Papanikolaou

M. Korres, Study on the Restoration of the Parthenon, vol. 2a-b.

3rd International Meeting on the Restoration of the Acropolis Monuments (March/April 1989).

Permanent exhibition of restoration work on the Acropolis in the Centre for Acropolis Studies.

1990

Installation of Propylaia Work-site. Beginning of removal of the previously restored coffer ceiling of the central building and East stoa of the Propylaia.

K. Zambas, Binding and Transfer Mechanism of Column NK5 of the South Side of the Parthenon. Structural Load Study (typescript).

1991

P. Kouphopoulos, Study on the Restora-

tion of the East Pediment of the Parthenon (typescript).

Th. Skoulikidis, E. Papakonstantinou, Preparation of an Artificial Patina (typescript study).

Completion of the 1st Programme of Anastelosis of the Parthenon concerning the restoration of the East façade.

1992

Completion of the project for consolidating the rocks of the Acropolis slopes.

Restoration of the 5th column on the South side of the Parthenon.

Dismantling of the previously restored coffer ceiling of the central building of the Propylaia completed.

Completion of the electronical data base of the records of the Erechtheion restoration.

The transfer of the West Frieze of the Parthenon to the Acropolis Museum begins.

Th. Skoulikidis, Report on the Method used for Creating an Artificial Patina on New Marble or on the Cement Copies used in the Restoration of the Acropolis Monuments (typescript).

A. Matthaïou et al., Catalogue of the Acropolis Inscriptions (typescript).

1993

Transfer of the West Frieze of the Parthenon to the Acropolis Museum completed. Dismantling of previously restored sections of the side walls of the Parthenon cella.

Structural restoration of the coffers and beams from the dismantled ceilings of the Propylaia begins.

K. Babanika, State of Preservation of the Frieze of the Temple of Athena Nike (typescript report).

1994

P. Kouphopoulos, Study on the Restoration of the Parthenon, vol. 3a.

K. Zambas, Study on the Restoration of the Parthenon, vol. 3b.

Th. Skoulikidis, E. Papakonstantinou, A. Galanou, G. Doganis, Study on the Restoration of the Parthenon, vol. 3c.

M. Korres, Study on the Restoration of the Parthenon, vol. 4.

N. Toganidis, Study on the Restoration of the Parthenon, vol. 5.

T. Tanoulas, M. Ioannidou, A. Moraitou,

Acropolis projects in the countries of the European Union.

1996

Identification of the scattered fragments of the coffered ceilings of the Propylaia completed.

M. Ioannidou - T. Tanoulas, Study for the Intervention in the South Wall of the East Stoa of the Central Building of the Propylaia (typescript).

Report of the Subcommittee (D. Ziro, D. Monokrousos, K. Syrmakizis) on the problems of the foundation of the Athena Nike Temple (typescript).

D. Ziro, Report on the Problems of the Western Gateway of the Acropolis (type-

tion on the Surface of the Propylaia Column with the new protective film with n-semiconductors (typescript).

Th. Skoulikidis, Critical Review of the Earlier Consolidating Materials and the Protection of the Surface of the Monuments (typescript study).

1998

Transfer of the Nike Temple frieze to the Acropolis Museum.

K. Zambas, Study for the Structural Restoration of the North Façade of the Parthenon (typescript).

M. Ioannidou, Structural Restoration of the Dismantled Beams of the Propylaia Ceilings (typescript study).

A. Mantis, Making the Copies of the Frieze Blocks of the Athena Nike Temple (typescript study).

Work begins on the South side of the East stoa of the central building of the Propylaia.

1999

Installation of Work-site at the Temple of Athena Nike.

Completion of the in-situ consolidation of the columns of the Parthenon Opisthodomos.

A. Panou - Kl. Papastamatiou - K. Phratzikinaki, Study on the Conservation of the West Frieze (typescript).

M. Papademetriou, Stoa of the North Wing of the Propylaia, Report on its Present State of Preservation and Proposal for a Programme to Repair the Damage (typescript study).

Parthenon Exhibition opened by the Hellenic Foundation for Culture in Bucharest and Belgrade.

Presidential Decree 97/1999 founding The Acropolis Restoration Service (YSMA).

Fani Mallouchou-Tufano
Head of the Documentation Office of
The Acropolis Restoration Service



View of the Erechtheion from the SW in 1987. Photo. S. Mavrommatis

Study on the Restoration of the Propylaia.

D. Ziro, Study on the Restoration of the Temple of Athena Nike, vol. 1a-b.

Th. Skoulikidis et al. Conservation of the Surface of the Acropolis Monuments.

4th International Meeting on the Restoration of the Acropolis Monuments (May 1994).

Reorganisation of the permanent exhibition of restoration work on the Acropolis in the Centre for Acropolis Studies.

1995

Work on the restoration of the Parthenon Pronaos begins.

Work begins on the structural restoration of the architectural members of the Parthenon Opisthodomos that had been dismantled.

Work begins on the conservation of the surface of the Erechtheion.

Travelling photographic exhibition of the

script).

A. Mantis, Making Copies of the West Frieze of the Parthenon (typescript study).

International Symposium on the Preservation of Cultural Heritage in Athens and in Osaka, Osaka, Japan (October 1996).

In cooperation with the Hellenic Foundation for Culture, an exhibition opened in Osaka, Japan, entitled 'The Parthenon, Architecture and Conservation'.

1997

N. Toganidis, Study for a Partial Restoration of the Side Walls of the Parthenon (typescript).

Consolidation, in situ, of the columns of the Parthenon Opisthodomos.

Work begins on resetting of the first three layers of side walls of the Parthenon Cella.

Th. Skoulikidis, Report on the Interven-

The projects being carried out at present by the Acropolis Restoration Service were programmed and structured by priority in the framework of the meetings of the Committee for Conservation of the Acropolis Monuments. The Archaeological Council of the Ministry of Culture has subsequently given its approval in the meetings of August 1, 2000 and February 13, 2001.

The work on 'Conservation and Restoration of the Acropolis Monuments' has been incorporated in the Programme 'Culture' of the 3rd Community Support Framework with a cost estimate of 10,750,000,000 drs. It comprises part of the work on structural restoration and conservation of the Parthenon, the Propylaia, the temple of Athena Nike, as well as the surface conservation of the above monuments and of the Erechtheion, the consolidating of the Circuit Wall and, finally, the recording and classification of scattered architectural members. Included likewise is all the work of the support sections, such as record keeping, informing the general public, educational programmes and technical support.

Analysis:

In the Parthenon

To be completed in 2001 is the restoration of the Pronaos columns with extensive repair of the drums, using new marble. The intervention is being carried out in accordance with the approved study of M. Korres. Included in the work to be done is the dismantling of the SE column that had been restored earlier, removal of the rusted clamps and resetting of the column drums.

In the Opisthodomos, approved and already started is the dismantling of the 21 epistyle blocks, their structural restoration while on the ground, replacement of all marble blocks removed from the entablature, as well as the making of cast reproductions of the frieze. The work is to be completed by 2003. The intervention is being carried out in accordance with the approved study by P. Kouphopoulos.

In the North colonnade, approved is the gradual dismantling and restoration of the entablature and the eight columns that had

been restored earlier. Completion of this work is expected by 2004. The rusted metal clamps and dowels are to be removed, new marble is to replace the cement fillings of the previous intervention, and the architectural members are to be restored to their original positions. The intervention is being carried out in accordance with the approved study of K. Zambas.

The period 2004-2006 is to be devoted to work on the cella of the monument, such as the restoration of the SE corner and the anastelosis of the side walls with the resetting of the blocks now on the ground in their original positions. This intervention is to be carried out on the basis of the relevant study of N. Toganidis and C. Parasches, now nearing completion. Planned also for this same period is the restoration of the West door and the West wall, in accordance with the approved study by M. Korres.

In the Propylaia

Planned for the central building of the Propylaia is the dismantling of the remaining 88 architectural members of the Balanos restoration from the East stoa and the superstructure of the West hall. The rusted iron reinforcements are to be removed, the architectural members will be restored and new marble will be used to complete them. Following this, the architectural members of the East stoa and West hall—beams and coffers—that have already been taken apart and restored, will be restored to their original positions. At the same time, the cracked central blocks in the lintel above the doorway will be reinforced in place. The intervention, now beginning, is expected to be completed by 2004. It is being carried out according to the approved study of M. Ioannidou and T. Tanoulas. Planned for the period 2004-2006 are the repair of the architectural members in the NW corner of the Central building and the restoration of the blocks of the superstructure that have been moved and set incorrectly in the North wing of the monument.

In the Temple of Athena Nike

Conservation and anastelosis of the temple, with the dismantling, restoration and reassembling of the some 300 architectural

members of the monument, has been planned for the period 2000-2004, following the approved study of D. Ziro. In addition, the system of metal girders in the NE corner of the temple will be replaced, as well as the slab of reinforced concrete that covers the entire floor of the cella. The restoration will be completed with an artificial stone cast of the frieze which is now on display in the Acropolis Museum.

In the Section of Conservation of the Monuments

Throughout the duration of the programme, the Conservation Section carries out conservation work on the surface of the monuments with rescue and systematic interventions on those parts of the monuments that are being restored, as well as on other areas that need attention (columns of the East colonnade of the Parthenon, columns and capital of the West hall of the Propylaia, the doorway wall of the Pinakothek in the Propylaia, columns of the East porch and South wall of the Erechtheion). Finally, included in the work programmed is the systematic cleaning of the West frieze of the Parthenon and the frieze of the Athena Nike Temple, both now in the Acropolis Museum.

The Consolidation and Conservation of the Acropolis Circuit Wall includes problems posed by serious structural faults evident in the south and east sections, as well as the removal of fragments of architectural members and sculpture that have been incorporated in the Wall. Planned in addition are a photographic and architectural survey, a study of rain-water run-off and a study for restoration of the Wall. The work is expected to be completed by 2006.

Maria Ioannidou

The various projects on the Acropolis continued in 2000 at an ever increasing rate. At the beginning of the year, the neoclassical building at 10 Polygnotos Street, seat of the Acropolis Committee since 1979, was repaired. The work was based on a study by K. Zambas, then director of the YSMA, and was carried out under his supervision. The Support Services and the Administration Offices of the YSMA were established in the building, which had been abandoned after the earthquake of September 1999. The work was given impetus by the ample addition of personnel in 2000. Through careful interviewing, 85 people were chosen of various specialisations, among them 32 marbleworkers and 10 conservators. New scholars began to be occupied at the Work-sites of the monuments, taking on the torch from their worthy predecessors. At the Parthenon, the architects R. Christodouloupoulou and L. Lambrinou and the civil engineers M. Mentzini and E. Toumbakari. At the Propylaia, the architect K. Karanasos, at the Temple of Athena Nike, the architect K. Mamaloungas and the civil engineer D. Michalopoulou. The archaeologist E. Lembidaki, who was detached from the Nauplion Ephorate of Antiquities to the YSMA, joined the team of scholars working on the Acropolis monuments in December 2000.

In the Parthenon, work continued on the Pronaos and the side wall of the cella. The intervention in the Pronaos is being carried out according to the approved second alternative solution of M. Korres's 1989 study. This proposes the complete restoration of the three southernmost columns together with the epistyle above and partial restoration of the others. In order to save time, seven column drums were supplied from outside workshops, all of new marble in semi-finished state. The final working of the marble before their setting in the monument was carried out by the Acropolis-project marble-cutters, following the ancient method. It was possible to incorporate ancient fragments in some of these. At the same time, following the specifications in the study, the completion of ancient drums with new marble continued where needed. By the end of 2000 the restoration



Restoration in the Pronaos of the Parthenon, October 2000. Photo L. Lambrinou



Restoration of the South Wall of the Propylaia East Stoa, September 2000. Photo T. Tanoulas

of the 1st column (from the N) was finished, and the restoration of the remaining four columns to the south had progressed to varying degrees between 50 and 80%. While the column drums were being reset, research and trials were being carried out in the laboratories of the National Technical University of Athens on the designing of new titanium centring pins. The restoration of the three first layers of

the side walls of the Parthenon cella is based on the relevant 1997 study by N. Toganidis. In 2000, the settling that had been observed for a length of four metres in the first step of the krepis of the North wall was repaired. Following this, twenty blocks of the overlying toichobate were set definitively beginning at the NE corner of the floor. Meanwhile, casts were made of all the stones of the outer orthostate of the South wall so that work could begin on the new filling pieces, as dictated by the study. Finally, in 2000 improvements and additions to the equipment of the Work-site, started in 1999, were completed with the installation of additional machinery and special devices speeding up the preparation of the marble additions to the architectural members.

In the Propylaia, during the first two months of 2000, conservation and structural restoration of the members dismantled in 1998 from the South wall of the East stoa of the central building was finished. Their resetting on the monument began in March. The main purpose of this work was to correct the displacements and, as far as possible, to restore the original structure of the wall. It should be borne in mind that the wall as a whole was not dismantled, and that in the area where it joins the doorway wall of the Propylaia, some of the displacements remain. The reassembling of the wall, which by the end of the year was nearly finished, progressed step-by-step with successive measurements and experiments in placing the blocks so that the horizontal surfaces and the vertical joins of the blocks would again coincide precisely. At the same time, in the framework of the new intervention scheduled for the ceilings of the central building of the Propylaia, structural restoration of the coffered ceilings of the East stoa continued. The column capital, used by Balanos in his anastelosis of the Ionic column of the West hall and made up of four corner fragments, was dismantled. The task of restoring the ceiling beams was facilitated likewise by installing at the Propylaia Work-site a special construction, designed by Sp. Oikonomopoulos, which will make the horizontal joining of these enormous architectural members possible.

Most important is the fact that the 'Study for the Restoration of the Ceilings of the Central Building of the Propylaia' by M. Ioannidou and T. Tanoulas was completed and has been approved first by the CCAM and then by the Central Archaeological Council of the Ministry of Culture. In the study, it is proposed to extend the anastelosis of the ceilings beyond the boundary of Balanos' intervention, on the basis of additional members, coffered slabs and beams, that surfaced during the process of combining the ancient fragments under discussion in the Propylaia during the past seven years. Specifically the study proposes resetting in the ceiling of the East stoa 7 beams (that is, 4 more than the number set by Balanos in his anastelosis at the beginning of the 20th century) and the coffer slabs of the first three (from the N) inter-beam spaces (that is, 5 more slabs than used in the Balanos intervention). Proposed for the Western hall is the anastelosis of the coffers in the two inter-beam spaces of the NE corner of the ceiling, which had indeed been reset earlier, but also in the two above mentioned spaces toward the S, above the central passageway of the monument. In a supplementary study M. Ioannidou adds the in situ consolidation with injections of the eastern stone of the lintel of the central doorway of the Propylaia, undisturbed since antiquity but now seriously cracked. Finally, in the framework of the same project, T. Tanoulas went to London and made measured drawings of the architectural members of the Propylaia in the British Museum. He found that the drum fragment is the upper part of the 9th drum of an Ionic column, and probably belongs to a Propylaia fragment now on the ground.

In 2000 work on the Athena Nike temple continued. In 1998, the frieze of the monument had already been taken to the Museum, and in 1999 the Central Archaeological Council of the Ministry of Culture had approved the relevant Study on the restoration of the monument by D. Ziro. The study proposed the complete dismantling of the temple, which had already been reconstructed two times in the past, with conservation of the architectural members and their resetting in order to correct the errors of the earlier interven-



The Temple of Athena Nike from the East. Photo A. Anagnostou, 2000



Conservation of Block IV of the Parthenon West Frieze. Photo A. Panou, 2000

tions. Installation of the Work-site was completed in 2000, and the task of dismantling the members of the monument commenced with the removal of the ceiling coffers and beams of the porches. Conservation and structural restoration of the dismantled blocks was started on the ground.

The Conservation Projects continued in 2000, work being carried out on the sur-

face of all the Acropolis monuments. Along with this, the dismantled architectural members on the ground underwent conservation, if needed, before being reset in the monuments. Significant work was done in the Parthenon on the 2nd, 3rd, 4th and 6th columns (from N) of the east side, rescue interventions on the drums of the pronaos in the process of anastelosis and on blocks of the side walls of the cella. In the Propylaia, systematic conservation was carried out on two Ionic columns of the West hall of the central building, on the dismantled members of the south wall of the East stoa and on the fragments of the Ionic capital from the Balanos intervention. Likewise completed was the conservation of the coffer slabs from the ceiling of the West hall, and preliminary, rescue interventions were carried out on the eastern stone of the centre lintel of the monument. In the Erechtheion, column drums from the east side underwent conservation. During the second half of 2000, conservation of the dismantled architectural members of the Athena Nike temple was also started. With the relevant approval of the Central Archaeological Council, in October 1999, conservation of the stones of the Parthenon West frieze in the Acropolis Museum was started. The work includes, where appropriate, prestabilising the surface of the sculpture, cleaning surface breaks, filling of cracks, mending surface chips and fragments (the larger ones with titanium elements), selective removal of plaster and nails used earlier for mending the sculpture. Work on the following frieze slabs was carried out in the year 2000: III, IV, VIII, XII, XIII and XIV. Experiments continued on removal of carbon accretions and the black crust from the surface of the marble sculpture. A Comparative Study of Cleaning Methods was prepared by E. Papakonstantinou and K. Phrantzikinaki.

This year too, the Scattered Members on the Plateau of the Acropolis Rock continued to be registered and organised in stone piles, and by groups. In 2000 particularly, work was done on general organising and arranging of the area west of the Archaioi Naos; the fragments of the pedimental geison of the temple were collected in the courtyard east of the Museum.

In 2000, in the Cast Laboratory established in the Centre for the Acropolis Studies, under the supervision of the Acropolis Ephorate archaeologist A. Mantis, there was much progress in making the copies of the West Frieze to be placed on the monument. Copies were made in plaster of all the dismantled frieze slabs, using plaster moulds of the early 20th century. These were then taken to the Acropolis Museum for comparison with the original sculpture. In addition, plaster moulds were made of eleven fragments of Parthenon sculpture, and a plaster cast of the filling needed for a drum from the 3rd column (from N) of the Pronaos.

two documentary films based on the cinematographic material in the archive. Finally, in May 2000, the application of the Data Base for the electronical management of the Acropolis Projects Records was presented at a Symposium at Rethymnon on the Use of Information Technology for Archaeological Applications.

In the framework of informing the general public about the Acropolis projects, the Office of Information and Education undertook to run educational programmes in schools, to publish information pamphlets, to hold seminars for school teachers, to organise the lending to schools of mu-



Plaster cast of Block III of the Parthenon West Frieze. Photo. H. Mangaphas, 2000

thenon' by C. Hadziaslani with photographs by S. Mavrommatis was published in November 2000 by the Melina Mercuri Foundation. The book is addressed to adults and young alike, introducing them in a easy and delightful fashion to the world of the Parthenon.

Fani Mallouchou-Tufano



From the Acropolis Educational Programmes: Setting the Temples on the Sacred Rock



Proposal for the Restoration of the Ceiling of the East Hall of the Central Building of the Propylaea. Study by M. Ioannidou, T. Tanoulas, 2000

The Documentation Office continued in 2000 with registering and classifying the records of the work, pressing ahead with the electronical management of the material. In particular, the photographic record of the 1999 work was registered and organised, 3500 entries of the archive of architectural members in the Data Base were checked and supplemented with the entry of illustrative material, and 2800 photographs were prepared for entry. The Data Base of studies and reports was reorganised (500 entries). The assignment of cinematographic recording of the work continued as well as the procedures for producing

seum equipment and educational folders, and more generally to furnish educational material not only to schools but also to other cultural institutions such as Museums, Ephorates of Antiquities, Libraries, both academic and public. In the year 2000 alone, educational programmes were carried out in 63 school classes (1872 students), seminars held for 1060 school teachers, museum equipment and educational folders were lent to 161 schools (and seen by 10,703 students), and educational material was sent to 800 cultural institutions.

Finally, the book 'Promenades at the Par-

Work on the Erechtheion began collectively.

1976-1977. The Diamantes Guard-house on the northwest slope of the Acropolis. The first building that housed the young engineers of the newly-established Acropolis Technical Office. Atmosphere of the Post-Junta Regime period. Echoes of the Polytechnion. Collective procedures. Collective surveying of the monuments. Collective study of their structural efficiency. Again, in the laboratories of the Polytechnion, three chemical engineers do research together on the mechanics of physiochemical attack on the monuments and on ways of confronting the problem. In the library of the German Archaeological Institute, a newly recruited archaeologist collects all the bibliographical references to earlier interventions on the monuments. Again, part of the collective effort.

Concentration of research efforts on the Erechtheion. Drafting of the 'Study on the Restoration of the Erechtheion'. Everybody participates in the writing. The architects Ilias Moutopoulos, Avge Tzakou, Alekos Papanikolaou, Tasoula Lazaridou. The civil engineers Mary Ioannidou, Kostas Zambas, Dionyses Monokrousos. The physiochemists Evi Papakonstantinou, Nikos Beloyannis, Demetris Charalampous. The preservation historian Fani Mallouchou. The various texts are collected by Ilias, the most advanced at that time in writing. He forms the texts into a whole, unifying them. His contribution to the study is the greatest of all. Pity that he resigned and left the group so early. A weekly gathering in the office, checking and guidance by the supervisory professors, Charalambos Bouras, Sokrates Angelides. At the National Technical University of Athens, Theodoros Skoulikides.

December 1977. Publication of the Study. A Study done without prior experience but with tremendous enthusiasm, and, for its time, of pioneering nature. International Meeting on the Restoration of the Erechtheion. The first public recognition.

1978. Manolis Korres returns from Germany. He becomes involved with Erechtheion matters. Documented report on the problems of the North Porch of the monument. Proposals for organising the Work-site for the task. Ministerial decision on the choice of

those in charge of the work: Alexander Papanikolaou, Konstantinos Zambas, Maria Brouskari.

1979. The work begins. The Caryatids are taken to the Museum, the first intervention. Copies are made for the monument by Stelios Triandis and his assistants. Among them is Lefteris Valakas. Splendid sculptor, splendid man. The first of those who left early.

The work grows. Dismantling. Conservation of architectural members on the ground. Alekos and Kostas constantly there. The work is supervised by both together. There is total collaboration and concord. Together with supervision of the work, continuation of re-



A. Papanikolaou and K. Zambas Supervising the Dismantling of the South Epistyle of the West Wall of the Erechtheion. Photo A. Tzakou, 1979

search. 1980, Alexander Papanikolaou, 'Recent Observations on the Erechtheion': new, unknown facts about the archaeology of the monument, the basis of his doctoral dissertation. 1982, Konstantinos Zambas, 'The Resetting of the blocks of the South Wall of the Erechtheion': the first study to correct Balanos' erroneous placement of the architectural blocks of the monument, with pioneering use of the computer, opening the way for those who were to follow. From 1984 on, Kostas was gradually to devote more and more time to work on the Parthenon. Alekos, alone, remains to work on the Erechtheion.

Markos Skaris, Georgios Vidos, Georgios Voudouris, Alexandros Nikolouzos, Tzortzis Alibertis, Manolis Gäitis, Georgios Sinanis, Paulos Tsolakidis, Ioannis Markopoulitiotis,

the older generation of Erechtheion marble workers. Most of them Tenians, they came bringing their experience, and they taught the younger generation. First among them was Nikolaos Skaris, son of Evangelos, the head of the crew. Calm, respectful, his goodness reflected in his eyes. A man of character. He never raised the level of his voice. His presence was persuasive enough. Chiefly with his great skill, recognised by all. Paulos Psaltis, the draftsman of the enterprise, Aleko's 'right hand'.

1987. Work on the Erechtheion completed. Alexander Papanikolaou awarded the Silver Medal of Europa Nostra and the European Award for Protection of Historical Monuments by the F.V.S. Foundation. Work on the Erechtheion is identified with Alekos.

The resetting of the blocks of the North Wall, the restoration of the NE corner of the monument are both exclusively his work. The 'Journal of the Course of Work on the Conservation of the Acropolis Monuments', three hundred pages, written by his hand. With plans and elevations. A monument of calligraphy, of aesthetic value in itself. Evidence of the standard of work that characterised him. He did not live to publish the final report on the Erechtheion restoration. Paulos is trying to finish it. It will be published. All of us want this. Alekos has gone. His work remains with us.

Fani Mallouchou-Tufano



N. Skaris (right), G. Sinanis and M. Skaris Repairing the Blocks of the Erechtheion S. Wall with New Marble. Photo A. Papanikolaou, 1980

The Acropolis again an enormous Work-site! Memories and Expectations

Every time I climb the Acropolis I remember with emotion the first day I took on the directorship of the Ephorate. The work of conservation had begun three years before, but until this moment it so happened that I had not climbed up there so early in the morning, when the movements of visitors had not blanketed yet the sounds I now heard. These were the sounds of the heavy mallets used by the marble-cutters to strike the chisels to remove the iron from the marble blocks taken down from the Erechtheion. A wooden shed east of the monument served as Work-site; there the men worked who used the pointing device for the precise joining of added marble. Yet most of the marble technicians preferred to work in the open, weather permitting. Always present, to follow and to guide them, like master foremen, the architect Alekos Papanikolaou and the civil engineer Kostas Zambas. Often they went to the shed when they took a break for their morning snack. We chatted about their technique, their art. They were all experienced Tenian marble-workers. Often enough we talked about international events, and here too they seemed quite well informed.

Happy indeed were those who saw their work completed and rewarded well with prizes! Those who did not retire moved on to the Work-sites of the Parthenon and Propylaia, established now in ample, pre-fabricated work-rooms. The engineers acquired offices,

drafting rooms and PC's and there was a restaurant for everybody. Finally, the Temple of Athena Nike acquired a modern workshop.

It is a delight to see today a host of new technicians working with ultra modern technical equipment and the supervision of many well-qualified engineers and archaeologists. Yet the sight of the shed, the sounds of the hammers, the whole atmosphere as it was around the Erechtheion took us back more closely to the time when the Acropolis monuments were built, took us closer to the years of Pheidias.

It is now some 25 years that our visitors have faced the Acropolis monuments with scaffolding and in partly dismantled condition. Even though the work has recently been progressing more rapidly, a few more years will yet be needed to complete the great task of conservation. Our marble was very ill and needed therapy. We took care of this with all our strength and all possible means and we believe the work has been done correctly. We are certain that when our visitors realise why the area today looks so confusing, they will show understanding.

Evi Touloupa
Ephor Emeritus of the Acropolis
Member of the CCAM



Restoring the Dismantled Blocks of the Erechtheion South Wall. Photo A. Papanikolaou, 1980

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