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KÜLTÜR VE TURİZM BAKANLIĞI
KÜLTÜR VARLIKLARI VE MÜZELER GENEL MÜDÜRLÜĞÜ

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ÇANAKKALE

Küçük Tavşan Adası: Final Report 1996-2005

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AYRIBASIM

KÜÇÜK TAVŞAN ADASI: FINAL REPORT 1996-2005

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August and September 2005 marked the tenth study mission to Küçük Tavşan Adası, concluding the first, extensive phase of the project *Towards a databank of mural paintings and mosaics in Asia Minor (4th-15th centuries): images, materials, techniques (1996-2010)*. Starting from this year, the project will continue with the study of groups of pictorial decoration in the regions of Göreme and Ürgüp in Cappadocia.

The general objective of the project is the setting up of a data base which brings together the results from an integrated scheme of analyses and documentation with the aim of improving our knowledge of the extraordinary cultural and historical heritage of byzantine pictorial art in Asia Minor, while at the same time establishing a basis which will enable us to handle better the problems linked to its conservation.

The project, in the period 1996-2005, involved the study of the pictorial and mosaic decoration in Christian monuments in south-west Turkey¹. A

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1 See M. Andaloro, Küçük Tavşan Adası 1996 the Wall-Paintings: Chronological Sequence, Technique and Materials in *The XV International Symposium of Excavations, Survey and Archaeometry*, (Ankara, 26-30 May 1997) Ankara 1998, pp. 183-200; Eadem, Küçük Tavşan Adası: 1997 Report in *The XVI International Symposium of Excavations, Survey and Archaeometry* (Tarsus, 25-29 May 1998) Ankara 1999, pp.183-201; Eadem, Küçük Tavşan Adası: 1998 Report in *The XVII International Symposium of Excavations, Survey and Archaeometry*, (Ankara, 24-28 May 1999), Ankara, 2000, pp.109-122; Eadem, Küçük Tavşan Adası: 1999 Report in *The XVIII International Symposium of Excavations, Survey and Archaeometry*, (Ankara, 22-26 May 2000), Ankara, 2001, pp.87-102; Eadem, Küçük Tavşan Adası Fifth Campaign Balance and Perspectives in *The XIX International Symposium of Excavations, Survey and Archaeometry*, (Ankara, 8 May- 1 June 2001), Ankara 2002, pp. 125-136; Eadem, Küçük Tavşan Adası: 2001 Report in *The XX International Symposium of Excavations, Survey and Archaeometry*, (Ankara, 27-31 May 2002), Ankara, 2003, pp. 153-168; Eadem, Küçük Tavşan Adası: 2002 Report in *The XXI International Symposium of Excavations, Survey and Archaeometry*, (Ankara, 26-31 May 2003), Ankara, 2004, pp.211-224; Eadem, Le pitture della chiesa di Küçük Tavşan Adası in Asia minore, in *Le vie del Medioevo a cura di A. Quintavalle (Atti del Convegno Internazionale di Studi, Parma, 28 maggio- 1°ottobre 1998)*, Milano 2000, pp. 73-87; Eadem, Küçük Tavşan Adası: 2003 Report in *The XXIII International Symposium of Survey and Archaeometry*, Ankara, 2006, pp. 41-44; Eadem, Küçük Tavşan Adası: 2004 Report in *The XXIII International Symposium of Excavations, Survey and Archaeometry*, (Antalya, 30 May-3 June 2005), Ankara, 2006, pp. 44-56.

particularly detailed study was carried out on the 6th century church (Fig. 1) on the summit of the Island of Küçük Tavşan, a few miles from the peninsula of Bodrum, the ancient Halicarnassus. Field studies to improve our understanding of the original materials (pigments, mortars, marbles, etc.) and techniques used in the mural paintings and mosaics were also applied in parallel to other groups of pictorial decoration in Asia Minor (Fig. 2): the fourth century mural paintings in the Christian underground site at Iznik (the ancient Nicea)², the twelve grottoes painted between the sixth and the eighth centuries in the territory of Latmos³ and the paintings from late antiquity to the middle ages from Aphrodisias, Iasos, Gölköy, Monastır Dağ, Kara Ada⁴ and Kisebükü⁵.

The success of the previous ten research missions on the pictorial decoration of the above sites was only possible due to the helpfulness of the General Direction of Monuments and Museums of the Turkish Republic, the keen interest of the commissioners with whom we were lucky enough to work and especially the hospitality of the archaeological missions active in Iznik, Latmos, Aphrodisias and Iasos and of their directors⁶.

- 2 It has been possible to perform some analysis on the Christian ipogaeum of Iznik wall-painting restored by M. de A. Barbet (C.N.R.F.) in 1998. M. Andaloro et Alix Barbet, Le tombeau paléochrétien d'Iznik. Recherches sur les techniques de mise en oeuvre in *"Mélanges de l'Ecole Française de Rome"*, 114, 2002, 1, pp.171-186 ; M. Andaloro et C. Pelosi, *Analisi microscopiche e chimico-fisiche di campioni di pigmento provenienti dai dipinti murali*, ibi, pp.186-195.
- 3 The recognition of medieval painting on the Latmos mountain, guest of the German mission in Herakleia started in the 2000 (Andaloro. Küçük Tavşan Adası Fifth Campaign Balance and Perspectives cit., p.127,129; Eadem, Küçük Tavşan Adası 2002 Report, pp. 214-215; Eadem, Küçük Tavşan Adası 2003 Report, pp. 44-45; Eadem, Küçük Tavşan Adası 2004 Report, p. 47). See U. Peschlow, Die Latmos Region in Byzantinischer Zeit in A. Pechlow-Bindokat, *Der Latmos*, Berlin 1996, pp. 58-86; M. Restle, Byzantinische Wandmalerei in Kleinasien Region in *Byzantinischer Zeit*, Recklinghausen 1967, pp.81-84.
- 4 See Andaloro, Küçük Tavşan Adası: 1999 Report cit., pp.91-92; Eadem, Küçük Tavşan Adası Fifth Campaign Balance and Perspectives cit., p.127, 129; Eadem, Küçük Tavşan Adası:2002 Report cit., pp. 214-216.
- 5 Eadem, Küçük Tavşan Adası 2002 Report cit, p. 215-216; Eadem, Küçük Tavşan Adası 2003 Report cit, p. 44; Ruggeri, *Il golfo di Keramos dal tardo-antico al medioevo bizantino*, Catanzaro 2003, pp. 168-174; pp. 181-184.
- 6 In Iznik the French survey directed by M. de A. Barbet (C.N.R.F.); in Latmos mountain the German mission directed by Dr. Annelise Peschlow-Bindokat of the German Archaeological Institute of Berlin; in Aphrodisias the British mission directed by Prof. Roland Smith (University of London); in Iasos the Italian mission directed by Fede Berti (Sovrintendenza di Ferrara).

For the 2005 mission, in particular, we are greatly indebted to the deputy of the Cultural Ministry Melih Arslan of the Anadolu Medeniyetleri Müzesi of Ankara, who always showed deep interest in our research.

FIRST PATH: KÜÇÜK TAVŞAN ADASI

Research and work during the 2005 mission involved the completion of the project for the analysis and documentation of the church of Küçük Tavşan Adası.

In particular, the following phases were concluded: - the 3-D model of the church and related structures (Fig. 3), initiated during the survey mission carried out in 2003⁷;

- the graphic documentation of the 6th century floor mosaic and of the wall paintings of the nave and south aisle, which were executed in four different phases of decoration of the church from the 6th to the 13th centuries (Fig. 4). The information collected on the condition of the mosaics and the various painting layers was entirely computerised and integrated with the architectural survey⁸.

- the measurement of the surface area of the fragments of paintings found on the flooring of the church during the earlier study missions. The shape of the fragments in layer I meant that no reliable estimate could be made of their surface area. However, it was estimated that there were approximately 2 m² of fragments from layer II, 3.5 m² from layer III and 0.5 m² from layer IV⁹ (Fig. 5)

- the cataloguing of sample areas of the walling of the church, the narthex, the cistern and the structure known as the Baptistery. The record forms employed were based on a model developed by the ICCD¹⁰, which was

7 Eadem, Küçük Tavşan Adası 2003 Report, p.45. The 3-D model was performed by the University of Chieti, Department of Sciences, History of Architecture, Restoration and Representation.

8 The mapping of the mural painting started in the 1996. See M. Andaloro, Küçük Tavşan Adası 1996 the Wall-Paintings: Chronological Sequence, Technique and Materials cit., pp. 183-200.

9 M. Andaloro, Küçük Tavşan Adası:2004 Report cit., p. 48.

10 Central Institute for Catalogue and Documentation (Istituto Centrale per il Catalogo e la Documentazione).

simplified and adapted to the particular nature of the structures on site. Each form contains an image showing the walling technique used in each area examined (Fig. 6).

The conservation treatments carried out inside the church principally involved the floor mosaics of the two aisles. All of the mosaic uncovered during the removal of debris from 2000 to 2002¹¹ was stabilised, and then protected with a permanent covering to ensure the best conservation possible. The technique employed was developed during the treatment carried out in 2003 and had previously been used on the covering of the nave¹².

Treatment of the exterior of the church involved consolidating the structural plaster on the southern side of the nave and the adjacent vault so as to protect the paintings inside the northern nave from infiltrating rain water¹³ (Fig. 7).

At the end of the mission in Tavşan, the sculptural material and the excavation finds (ceramics, metal and glass) were deposited in accordance with appropriate conservation criteria in the store room specially constructed in 2002 near the church¹⁴ (Fig. 8). The sculptural work with inscriptions and the more valuable finds were deposited in an area set aside in the "Italian tower" in the Museum of Underwater Archaeology in Bodrum. A complete inventory, including photographs of the more important finds and the more interesting sculptural fragments, was handed over to representatives of the Bodrum Museum, which is responsible for the conservation and upkeep of the site.

Finally, two illustrated panels were compiled to provide information on the monument. The first is located at the end of the path which leads to the church and provides a detailed description of the building and its paintings and sculpture (Fig. 9). The second has been placed next to the store room and provides information about the material held in Tavşan and the Bodrum

11 M. Andaloro, Küçük Tavşan Adası: 2001 Report cit., pp. 155-156; Eadem, Küçük Tavşan Adası: 2002 Report cit. p. 214.

12 Eadem, Küçük Tavşan Adası: 2003 Report cit. p. 42; Küçük Tavşan Adası: 2004 Report cit. p. 46.

13 Eadem, Küçük Tavşan Adası: 2003 Report cit. p. 43-44; Küçük Tavşan Adası: 2004 Report cit. p. 47.

14 Eadem, Küçük Tavşan Adası: 2002 Report cit. p. 56.

Museum, illustrating the research methods employed in the mission. Both the panels are written in three languages (Italian, Turkish and English) and are fixed in the ground using specially designed supports.

SECOND PATH: THE OTHER SITES

Within the framework of the study project mentioned above, we continued research at the sites of Iasos and Kisebükü in order to conclude the programme of analyses of the pigments used in the paintings, tested the forms used to record conservation information developed in 2000¹⁵ and complete the photographic survey.

In particular, at Iasos a photographic survey of the marble quarries was carried out using medium format film and digital images, while at Kisebükü the documentation of the paintings in the baptistery using medium format and 35mm film was completed. The latter survey was intended to bring out the architectural characteristics of the pieces of structure projecting above ground as well as the layout of the terrain.

In the final phase of the mission at Tavşan a study was implemented on the geomorphologic aspects of the island (Fig. 10) and the Gulf of Mandalya¹⁶.

The study, which was carried out on land and sea, showed that the coast of the gulf which appears to be limestone is in fact composed of a number of coarse grained igneous formations. On the other hand, on the island of Küçük Tavşan there are only limestone formations which are significantly eroded in the parts closest to the sea.

THIRD PATH: CONCLUSIONS

For ten years an interdisciplinary "laboratory" has been active on Küçük Tavşan Adası, with art historians, chemists, architects, archaeologists, geologists, photographers and conservators working side by side and blending art-historical investigative methods with technical-scientific ones.

15 Eadem, Küçük Tavşan Adası Fifth Campaign Balance and Perspectives, cit., pp.129-130.

16 The research was carried out by Giuliano Bellezza (geographer), University of Viterbo.

A work that will shortly be published will illustrate the research which has been carried out and the results which have been obtained. These can be summarised as follows:

- the development of a global integrated system of graphic, photographic and computerised documentation for all the aspects of the monuments,

- the development of a plan for analytical-scientific studies aimed at identifying original materials and investigating the artistic techniques employed in the mural paintings, the mosaics and the sculpture. Various classes of works (mural paintings, mosaics, sculptures and ceramics) were analysed employing prevalently non-destructive methods, and samples were taken from the sites involved in the missions¹⁷,

- setting down a protocol to establish the condition of various classes of objects,

- emergency treatment of mural paintings, mosaics and sculptures,

- planning and setting up the data base “Egeria”, created to handle—via an image and a specially designed query form—all the information gathered on documentation (graphic and photographic), original materials, artistic techniques, physical and chemical analyses and condition (Fig. 11).

At the conclusion of these ten years of rigorously gathered material concerning the analysis, the understanding of and the conservation of an unknown 6th century church on the uninhabited island of Küçük Tavşan Adası, we have recreated an “image” of the monument in all its phases, separating out the layers of its extraordinary pictorial palimpsest, reconstructing in our minds’ eye its liturgical furnishings and the architectural sculptures and bringing to light the floor mosaic.

In collaboration with the University of Chieti¹⁸, a 3-D model of the church and its surrounding structures has been created (Fig. 12). The model includes

17 The samples have been analyzed in the Laboratory of Diagnostic for Conservation and Restoration of the University of Viterbo “Michele Cordaro” and in the Laboratory Raman Spectroscopy, Univeristy of Viterbo.

18 Prof. Pasquale Tunzi (architect), Dr. Pierpaolo Palka (architect, senior lecturer), Dr. Roberto Potenza (architect).

all the internal structures of the building (iconostasis, tombs, synthronon) and forms an accurate basis on which can be mounted the photoplans of the paintings and mosaics as well as the wall decorations¹⁹.

Through the repositioning of the photoplans of the walls and floors on the 3-D model we can show the present appearance of the church²⁰ and provide access to various types of data, concerning, for example, iconography, condition or original materials, through links with the computerised graphic documentation carried out in previous missions, and the databank set up in these years (Egeria and DB analyses).

The model should be understood as an interactive multi-media archive which will allow us to associate various levels of documentation to the object under study and as an instrument capable of suggesting further areas of study on the building.

Finally, the 3-D model was inserted into its geographical context employing georeference and positioning on a satellite photograph of the island (Fig. 13). Inserting the model within the international UTM grid system means it will be possible to monitor the environmental conditions of the island (climate, rainfall, vegetation, the nature of the subsoil) and to take advantage of information fundamental to the conservation of the structure.

ACKNOWLEDGEMENT

The members of the research team of the 2005 campaign were: Prof. Dr. Maria Andaloro (Director of the survey), Prof. Giuliano Bellezza (geographer, University of Viterbo), Dr. Claudia Pelosi (chemist of the Tuscia University of Viterbo); Marina Marchese (information technologist, Central Institut for

19 M. Andaloro, Küçük Tavşan Adası: 2003 Report cit, p.45.

20 The work carried out in Tavşan on the relation between wall paintings, mosaics and monument is also the model for the project in progress (University of Viterbo-University of Lausanne-Suisse) on the Roman painting in the Middle-Ages, funded by Regione Lazio. *La pittura medievale a Roma (312-1431)*. *Corpus* and *Atlas*. The work foresees the publication of nine books—six of *Corpus*, three of *Atlas*. The first three books (vol. I M. Andaloro, *L'orizzonte tardoantico e le nuove immagini* 312-468; vol. IV S. Romano, *Riforma e tradizione* 1050-1198; M. Andaloro, *Atlante*, vol. I Vaticano, Suburbio, Rione Monti) will be printed in the 2006 (Jaca Book, Milano 2006).

Restoration, Rome); Francesca Consoli, Flaminia Pizzino (archeologists); Benedetto Di Fazio, Manuela Mencherini, Francesca Moretti, Dr. Simone Piazza, Paola Pogliani, Maria Donatella Raneri, Daniela Sgherri, Domenico Ventura and Dr. Manuela Viscontini (graduates of the Tuscia University of Viterbo); Chiara Bordino, Stefania Mezzabarba, Giuliana Solimine (students of the Tuscia University of Viterbo).

The architectural survey was carried out by architects of the University of Chieti: Prof. Pasquale Tunzi (architect), Dr. Pierpaolo Palka (architect, senior lecturer), Roberto Potenza (architect), Alberto Viskovic (engineer, senior lecturer).

The conservative plan for the floor mosaic consolidation and for the preservative operations in the south vault was carried out by the restores: Silvia Borghini (Sovrintendenza dei Beni Archeologici delle Marche), Cristina Caldi, Sara Scioscia; Dr. Bekir Eskici, Dr. Selçuk Şener (Ankara University).

Photos, image analysis acquisitions and graphs were made by the graduates of the Tuscia University of Viterbo and by the photographer Rodolfo Fiorenza.

Dr. Ulderico Santamaria (chemist, University of Viterbo) coordinated the scientific operations; the microscopical and microchemical analysis were performed by the Laboratory of Diagnostics for Conservation and Restoration "Michele Cordaro" of the Tuscia University of Viterbo by Dr. Claudia Pelosi. The Raman microscopy analysis were carried out by Prof. Alberto De Santis, Director of the Laboratory Raman Spectroscopy, University of Tuscia-Viterbo with the collaboration of Elisabetta Mattei.

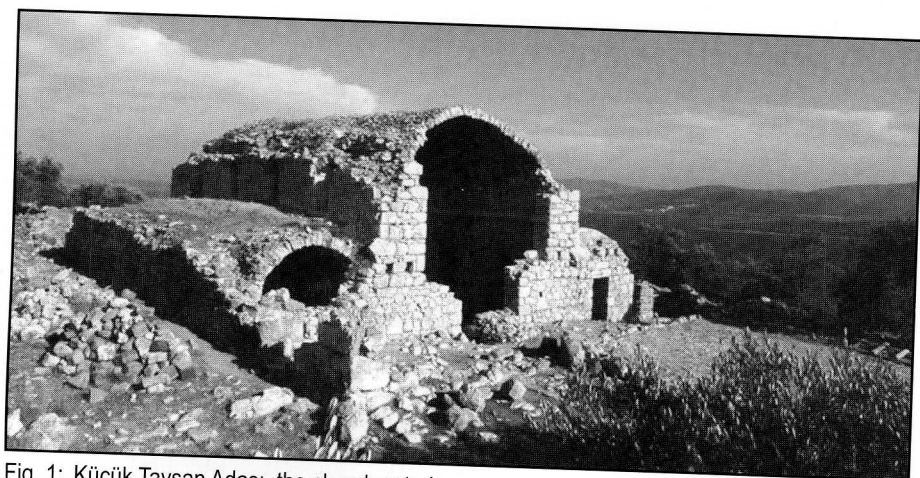


Fig. 1: Küçük Tavşan Adası, the church exterior

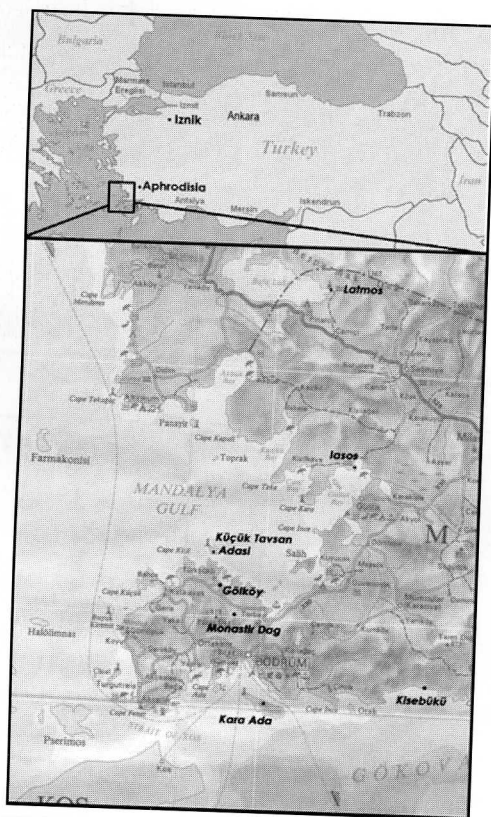


Fig. 2: The sites of the survey in Asia Minor

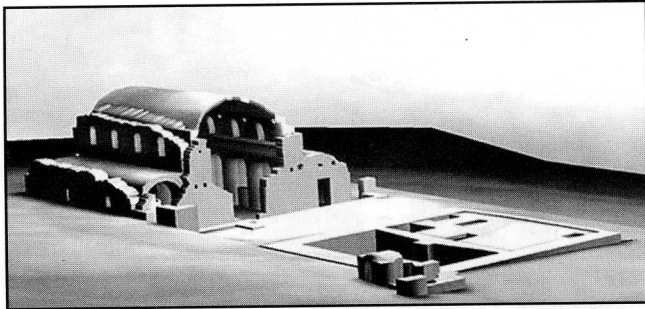


Fig. 3: Küçük Tavşan Adası, relief of the church, and the related structures

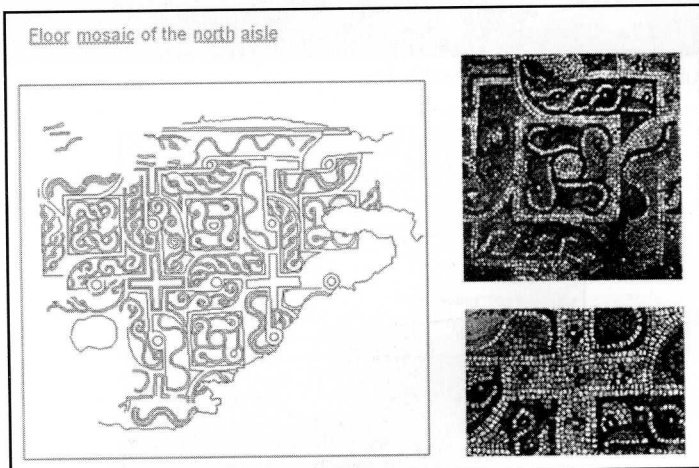


Fig. 4: Küçük Tavşan Adası, documentation of floor mosaic

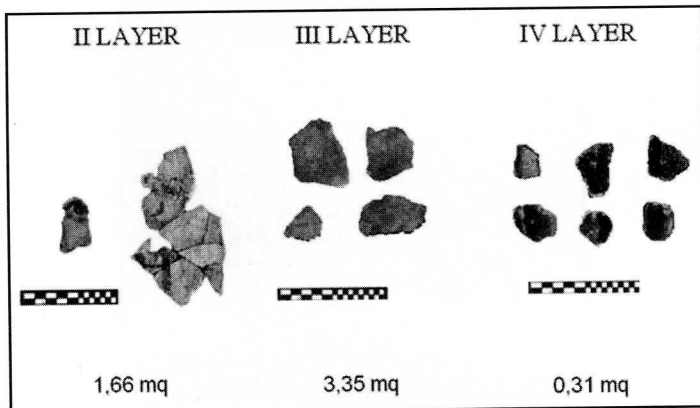
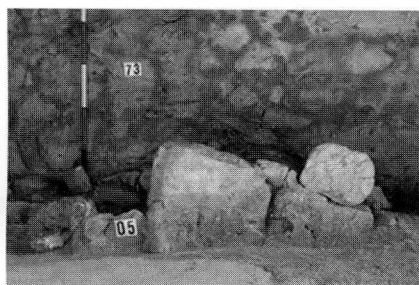
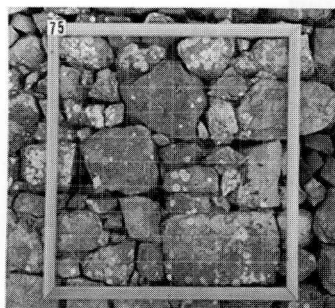


Fig. 5: Measurement of the surface area of the fragments of paintings

the cataloguing of sample areas of the walling of the church



USMUNITA' STRATIGRAFICA MURARIA		UNIVERSITA' DELLA TUSCIA	
M. S. COVALEDO			
LOCALITA'	ANNO	AREA	SETTORE
KUCUK TAVSAN ADASI (BOGRUM)	2005		chiesa
m	B3.158		si m.
PIANTE n°	SEZIONE	FOTO n°	2003.28-29
DEFINIZIONE struttura muraria			
ORIENTAMENTO		TECNICA	
nord-sud		cimentizia	
PARAMENTO blocchi di pietra		MODULO no	
NUCLEO cementizio calcarea		LEGANTE malta grigia a prevalente matrice	
MISURE		STATO DI CONSERVAZIONE	
m		discreto	
DESCRIZIONE			
Struttura muraria localizzata nell'abside, ne occupa tutto l'emidisco. E' costituita da una serie di 5 gradini, i primi quattro dei quali, a partire dal livello del mosaico, hanno un'altezza variabile tra i 20 e i 25 cm e una larghezza massima di 30, l'ultimo livello è il più alto, h 40 cm, e doveva in origine avere una finitura del piano orizzontale in quota con l'inizio del rivestimento ad intonaco dipinto conservato nella metà nord dell'abside.			
Il muro è costituito con cordi di pietra di varie dimensioni, messa in opera su letti di malta di spessore variabile (6-10 cm), regolarizzati per ottenere piani orizzontali con tramezzamenti laterali e scaglie di pietra. Nella metà nord si conservano alcuni brani di intonaco della finitura superficiale, che in origine doveva rivestire completamente la struttura, USR 165.			
Nella metà sud, tra i gradini superiori e il muro absidiale, è visibile lo strato di creta, US 166.			
Coperto da 166 e USR 165. Gli si appoggia il mosaico, USR 101, si appoggia all'abside, USM 74, copre la roccia, US 148.			
OSSERVAZIONI			
UGUALE A GLI SI APPOGGIA USR 101		SI LEGA A SI APPOGGIA A USM 74	
COPERTO DA COPRE 01.100, 04.166, 04.165		148	
TAGLIATO DA RIEMPIUTO DA		TAGLIA RIEMPIE	

Fig. 6: Cataloguing of sample areas of the walling

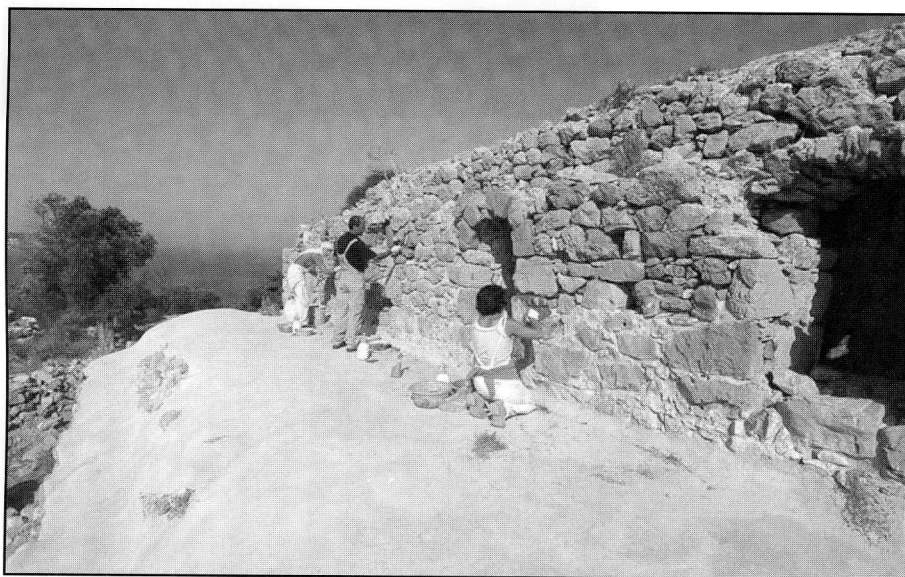


Fig. 7: Küçük Tavşan Adası, southern side, consolidating the structural plaster

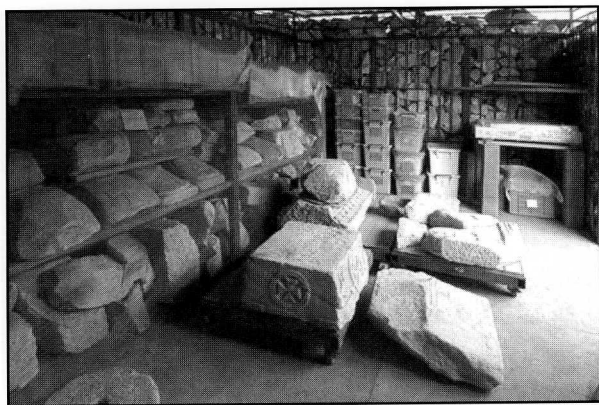


Fig. 8: Küçük Tavşan Adası,
store room



Fig. 9: Küçük Tavşan Adası,
illustrated panel

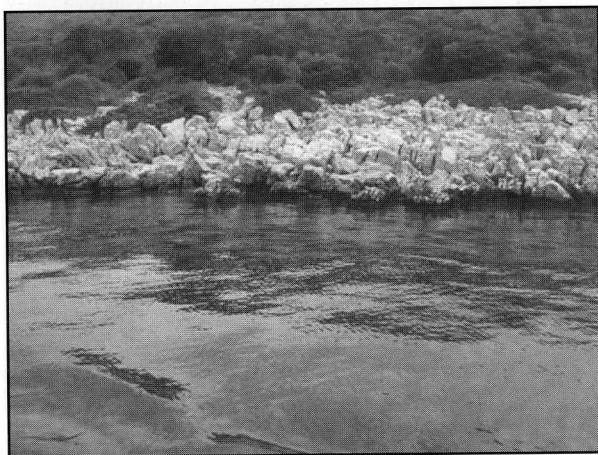


Fig. 10: Küçük Tavşan Adası,
limestone formation

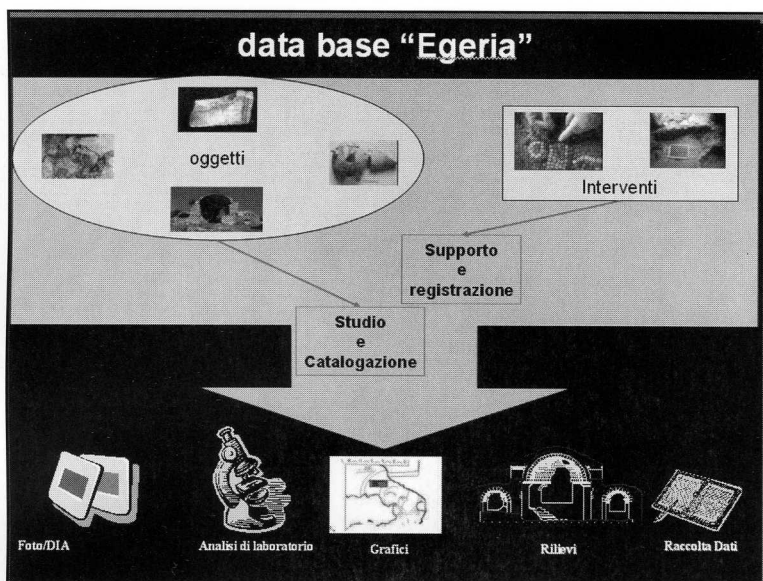


Fig. 11: The data-base "Egeria"



Fig. 12: Küçük Tavşan Adası, church, 3D model

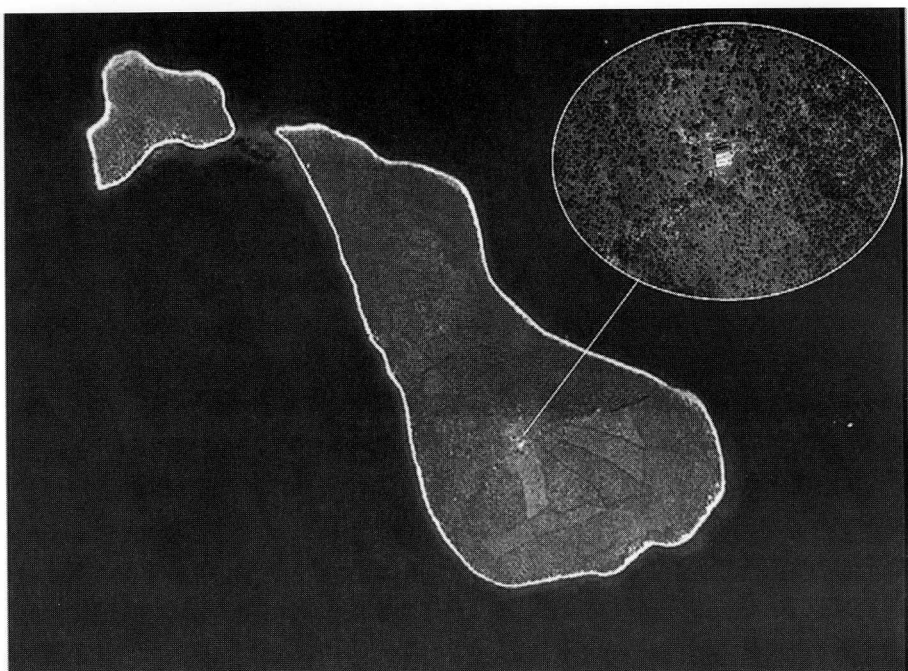


Fig. 13: Geographical context



Fig. 14: Members of the research team