



# PROMET NEWSLETTER



Januarv 2008

Dear PROMET Partners and colleagues,

With the first PROMET newsletter in 2008 we would like to wish all of you a happy and successful new year. In April this year the PROMET project will finish officially. Even though most of the tasks have been completed by now there is still work to do concerning mainly the dissemination of the significant results. In this regard the main task will be the compilation of the PROMET book which is in preparation. The conference proceedings of the CSSIM/LIC conference in Cairo are in print now and will be ready for distribution very soon. In February 2008 the PROMET consortium will meet for a last time in Athens. Then, also a public event will be organized for the presentation of the project and the results obtained during the last three years.

End of 2007 the analytical survey of the Syrian and Jordanian metal collections finally took place. In the present newsletter you will find an extended report about this campaign.

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## **PROMET Final Meeting, 14./15. February 2008, Athens**

The final PROMET meeting will take place in Athens on 14./15. February. The meeting will be organized by the TEI of Athens. For the second day a public event is planned in the Benaki Museum. More information regarding this event and an agenda for the meeting will be provided soon on the PROMET web page ([www.promet.org.gr](http://www.promet.org.gr)).

## **The PROMET analytical campaign in Syria and Jordan, Oct/Nov 2007**

The morning of 26 October 2007 marked the beginning of a two-week analytical campaign of PROMET to Syria and Jordan. Scientists from NCSR Demokritos and IESL-FORTH left Athens to land to Damascus, where they spent a week working with colleagues at the National Museum of Damascus before continuing the campaign to Yarmouk University in the city of Irbid, Jordan.

The aim of the campaign was to demonstrate the use and potential of two new mobile instruments, in analytical investigations of archaeological and historical metal objects in collaboration with PROMET colleagues in Syria and Jordan. The Demokritos group, Andreas Karydas, Vicky Kantarelou and Makis Bistekos, carried to Damascus their state-of-the-art micro-XRF spectrometer,

while the IESL-FORTH group, Annie Giakoumaki and Demetrios Anglos, brought their portable LIBS instrument.



The NCSR "Demokritos" and IESL-FORTH research groups together with Mrs. Abir Kurdab at the Damascus Archaeological Museum during the PROMET campaign in Syria, October 2007

### *First week: Damascus, Syria*

During the first week the center of action was the conservation laboratory at the basement of the National Museum in Damascus campaign. Luda Mahfoud and Aber Kurdab, Mayada El Saadi and Kasem Yahya from the Damascus Archaeological Musuem, Prof. Ahmad Almansour and Prof. Jameel Alshehne from the Aleppo University, Syria, presented a number of really unique objects (mostly gold and gilded copper alloys) from the impressive metals collection of the museum. These objects were examined for the first time by the XRF and LIBS spectrometers with the aim to characterize raw materials, in order to improve the knowledge about the manufacture technology and to identify surface corrosion products. The measurements were attended by Dr. E.H. Bakraji, D. Halloum, H. Eassa and M. Al Waze from the Syrian Atomic Energy Commission.



*Eail God, Gilded copper alloy, Late Bronze Age 1400-1300 B.C., Museum No. 3573, Archaeological Museum of Damascus, Syria, October 2008,  $\mu$ XRF and LIBS analysis of gold foil composition and thickness, identification of surface corrosion products. © PROMET*

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On 28 October a special event was organized by the Directorate General of Antiquities and Museums of the Ministry of Culture, which is a partner in the PROMET consortium. Maher Azar, advisor of the Minister of Culture and engaged in PROMET, offered a welcome address. The activities of the PROMET project and the aims of the campaign were presented by the project's coordinator Prof. Vasilike Argyropoulos, Greece, and Prof. Ahmad Almansour, representing the Syrian partners, followed by a discussion session with conservators, archaeologists and historians.



*PROMET teams from Greece and Syria at the public event in Damascus*

*Second week: Irbid, Jordan*

In the second week people and instruments traveled to Irbid, Jordan, for the second part of the campaign and settled at the Numismatic Museum of the Yarmouk University. In collaboration with colleagues from the Department of Conservation of the Faculty of Archaeology and Anthropology, Manar Bani Hani, Lina Khrees, Prof. Mohammed S. Shunnaq, Prof. Zaidon Al Muhasin and Prof. Ziad Al-Saad, and the curator of the Umm Qais Museum, Mohammad Bashabsheh, the LIBS and Micro XRF groups focused on the analysis of a series of gold and copper coins among the unique collection of the museum. This collection spans a broad time period from the Roman, Byzantine, Arabic and Ottoman times.



*The Greek PROMET team during the measurements at the Numismatic Museum of the Yarmouk University.*

Furthermore, in collaboration with Abeer Arafat from the Royal Scientific Society in Jordan several copper objects from the Umm Qais site were examined by both techniques in order to characterize their bulk composition,

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to identify surface corrosion products and thus to assess their preservation state. In addition, together with Manar Bani Hani and Abeer Arafat naturally weathered coins and coupons treated with different coatings were also examined in order to evaluate their protection performance and in some cases their reversibility.

The university environment provided a nice opportunity to the groups from Greece to interact with students and teaching staff at the Department. Following two special lectures by A. Karydas and D. Anglos, students came by and had a chance to see and use the analytical instruments. (by D. Anglos and A. Karydas)



*D. Anglos presenting the principle of LIBS operation at the conservation laboratory of Damascus Museum, Syria (left) and at the Yarmouk University, Irbid, Jordan (right) during the PROMET campaign.*



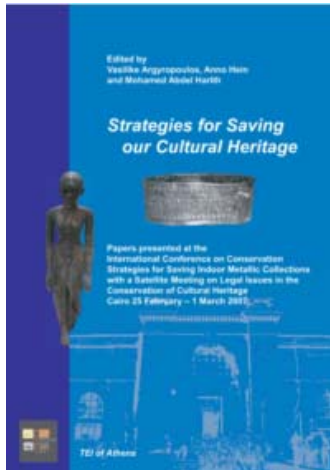
*A. Karydas at the Yarmouk University in Jordan.*

*Visit at the Aleppo University and the Museum of Aleppo*

On 23 October during her visit in Syria Vasilike Argyropoulos, the coordinator of PROMET, was given a tour at the Department of Materials Engineering at the University of Aleppo, which is one of the two Syrian partners in the consortium. Together with the Aleppo team she visited also the Museum of Aleppo, where the PROMET metal coupons are stored in order to examine the effect of local storing conditions.



*J. Alshehne, A. Almansour, S. Badleh and V. Argyropoulos (from left to right) 'checking the PROMET coupons'.*

**CSSIM/LIC proceedings**

The proceedings of the *International Conference on Conservation Strategies for Saving Indoor Metallic Collections / Legal Issues in the Conservation of Cultural Heritage* in Cairo are currently in print and will be presented for the first time at the PROMET final meeting in Athens 14./15. February 2008. The proceedings will be available also in electronic form on the PROMET web page. Already now registered users can download in-press versions of the edited articles on the PROMET web page ([www.promet.org.gr](http://www.promet.org.gr)).

*Strategies for Saving our Cultural Heritage* (Eds. V. Argyropoulos, A. Hein and M.A. Harith), TEI of Athens, Athens, 2007.

**26<sup>th</sup> Conference on Corrosion Challenges in Industry**

PROMET was represented at the 26<sup>th</sup> Conference on Corrosion Challenges in Industry held in Ismailia, Egypt (26-28 November 2007). A paper entitled "*Tarnishing and Protection of Silver in Sulfide Environments*" has been presented by Dr. V. Gouda from the National Research Centre, Cairo, Egypt.

**Partner profiles: IBN TOFAIL University (Morocco)**

The progress of our studies concerns the toxicity essays. The obtained results show that the two examined products are not toxic. The biological tests indicate that LD50 is very high compared to concentrations used in inhibiting effect. Ms. H. Hammouch has represented our group at Metal07, Amsterdam, in September last year, and she presented results concerning the use of cactus extract as corrosion inhibitor for iron archaeological artefacts. This study represents one part of Ms. Hammouch's PhD subject. (by N. Hajjaji)

**Note**

We thank all contributors to the present newsletter. The next PROMET Newsletter is scheduled for April 2008. If you wish to provide us with any contributions we would like to request from you to send them until 31<sup>st</sup> March. We wish you a nice 2008. (VA, AH)