SAVING SACRED RELICS OF EUROPEAN CULTURAL HERITAGE.

A CULTURE 2000 PROJECT IN ROMANIA

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Within the European Union Programme "CULTURE 2000", during the month of November 2005, two Romanian organizations – the National Institute for Research and Development in the field of Opto-electronics (INOE) in collaboration with the National Institute for Historical Monuments (INMI) – in partnership with a series of prestigious organizations from Italy, Spain, Portugal and Austria were awarded a grant for the project "**Saving Sacred Relics of European Medieval Cultural Heritage**" (**Fig. 1**).

The main goal of the Project was the organization of the Laboratory for the experimentation of new laser technologies, applied to monuments and tangible cultural heritage items from the north of Moldavia, an extremely rich region of Romania, as far as cultural values are concerned

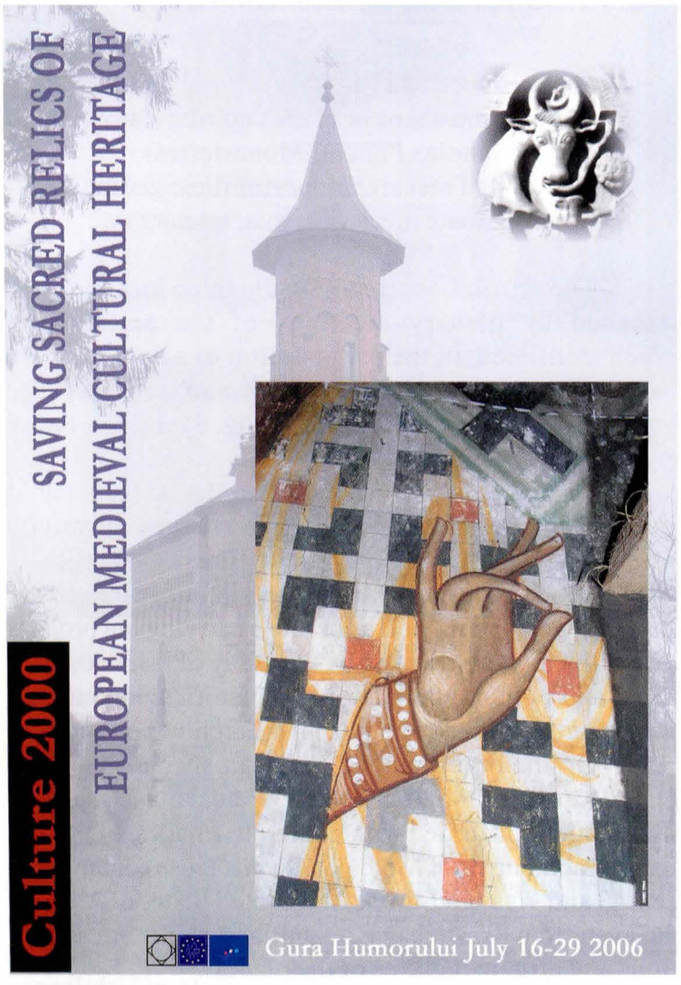

Fig. 1. Poster of the Laboratory in situ

For a two week-period (16th – 29th July 2006) about 100 specialists from Austria, Brazil, Germany, Greece, Italy, Great Britain, The Netherlands, Portugal, Russia, Slovenia, Spain, Unites States of America and Romania met themselves in northern Moldavia for *in situ Laboratory* [See Annex no 2: *List of Participants*].

As far as Romania is concerned, it was represented by the traditional collaborator of INOE from research and development institutes, but also by recognized specialists in the field of historical monuments and tangible heritage (painting restorers, art historians, architects, chemists, physicists). A special opportunity was created for the young Romanian specialists, PhD or master students but also for some students in the terminal years of the Restoration Departments within the Fine Arts Universities of Bucharest, Ia°i and Cluj and of the Sacred Art Departments of the Theological Institutes of Bucharest and Ia°i.

For them, the Laboratory proved to be a very useful workshop training, and the lectures and demonstrations consisted a very first way of disseminating the results of innovative research and applications, thus applying one of the major goals of the CULTURE 2000 Project.

The Laboratory took place in three locations: the monastery of Sucevita (Suceava county), the monastery of St. Nicholas Popãuti in Botosani (Botosani county) and the Church of St. Nicholas in Balinesti village (Suceava county) (**Fig. 2, 3, 4**).

The choice of the three locations above was done taking into account several criteria:

- Artistic importance: All three are very important items of the national and the world cultural heritage especially for their architecture and mural paintings;
- History: All are monuments dated to the 15th century (Balinesti, Botosani) and 16th century (Sucevita)
- State of conservation: it varies at the level of the architectural features (including stone elements), and at the level of the frescoes, respectively
- Before hand existence of a mural painting restoration site

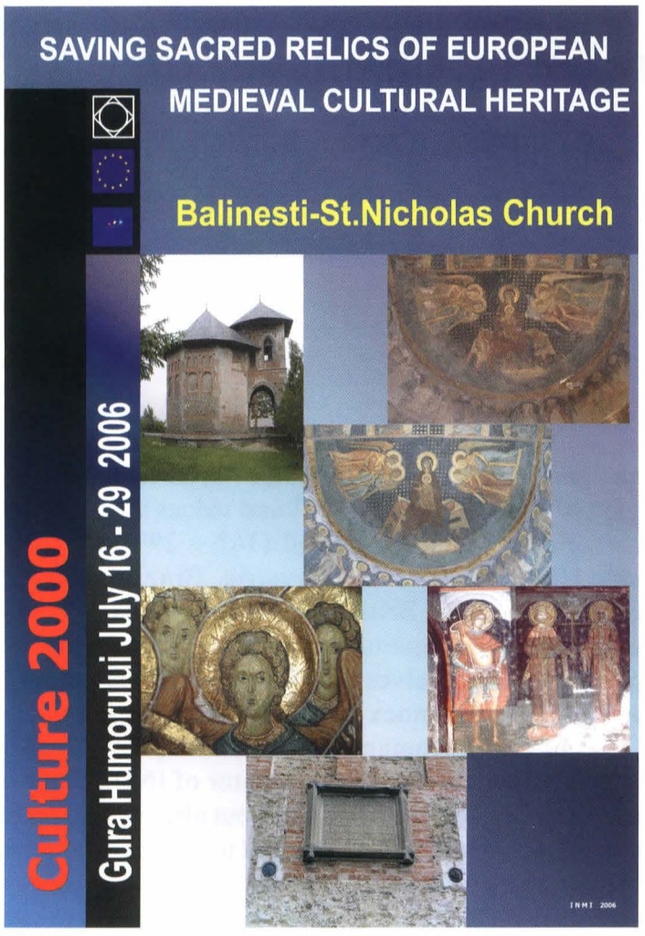

Fig. 2. St Nicholas church, Balinesti

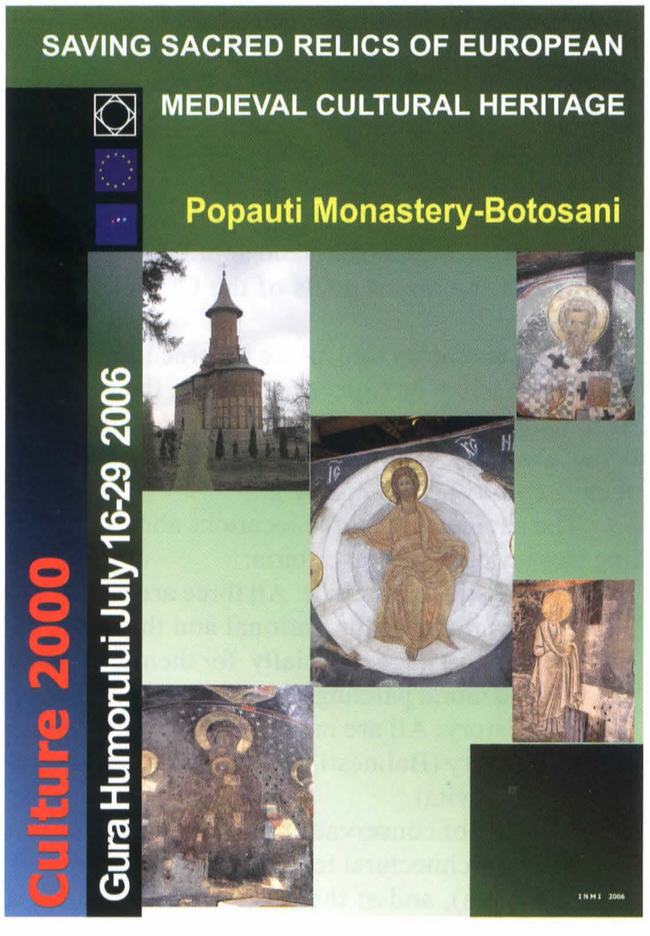

Fig. 3. St Nicholas church, Popãuti Monastery

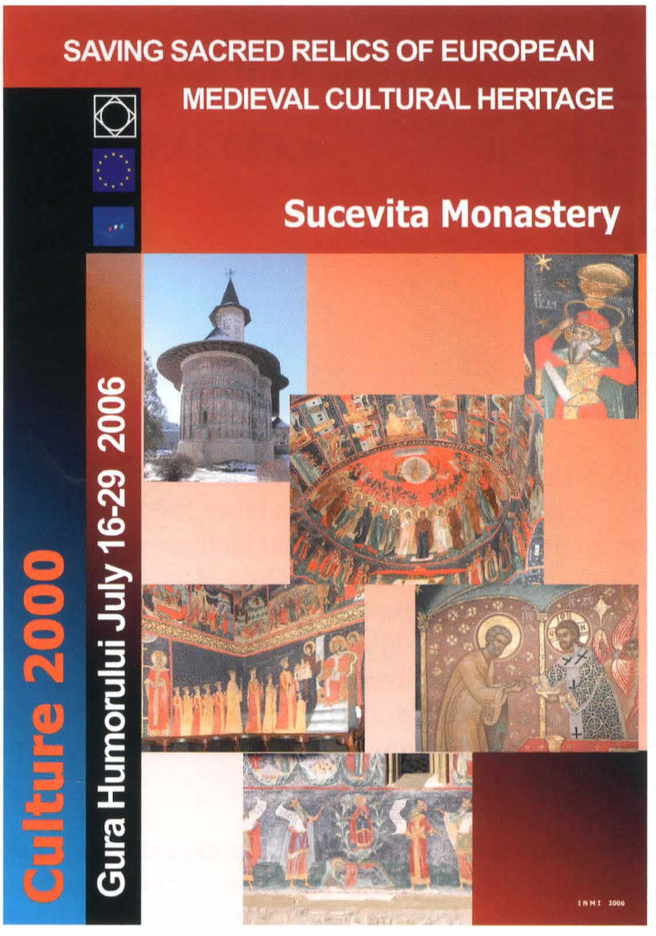

Fig. 4. Resurrection church, Sucevita Monastery

- Existence of a valuable cultural heritage in the local museums or in the deposits (Sucevita and St Nicholas Popauti Monasteries)
- Related research opportunities: georadar, microclimate measurements, art history.

The *in situ* Laboratory on the three locations was preceded by plenary meetings of the participants, which consisted in the presentation of a number of 36 contributions of the foreign and Romanian specialists [See Annex no 1 – List of participants] (**Fig. 5**) and of a Poster session (**Fig. 6**).

Their topics, subordinated to the wider topic of the Laboratory, varied according to the type of activity practiced by each contributor or by the organization to which he/she belonged. Most of the interventions of the foreign specialists as well as of those carrying out projects within INOE were focused on the study of laser developments and of their applications on historical monuments or on tangible heritage in museums , archives or libraries.

On the other hand, Romanian specialists (Prof. Tereza Sinigalia and Eng. Andrei Vretos) made a general presentation illustrated with numerous images, of the mediaeval monuments of Moldavia, so that those coming from Central and Western Europe, the United States of America and even from Brazil, can get familiar with historical, religious and artistic realities of the places.

Mural painting restorers working in the sites of the three monuments specified above (Prof. Oliviu Boldura

Fig. 5.

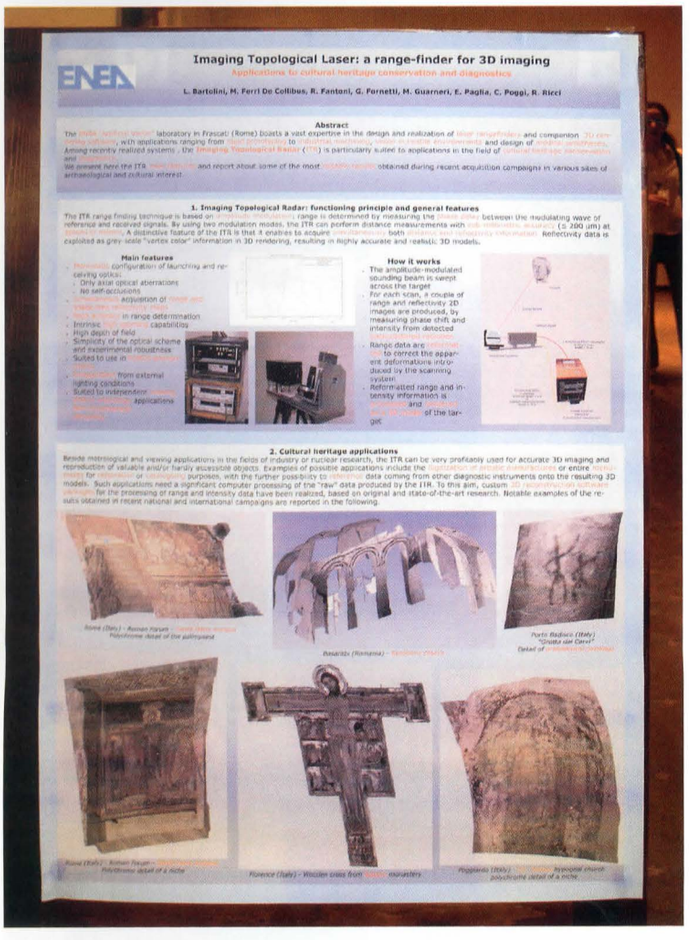

Fig. 6. Poster presented by ENEA, Italy

for Sucevita, Carmen Solomonea for Botosani and Geanina Rosu for Balinesti) prepared ample presentations of their works. Starting from the state of conservation of the wall paintings, the physical-chemical and biological investigations, as well as from the observations on the microclimate, they presented the classical restoration methodology, which consists in the following procedures: cleaning, consolidation of the support layers (masonry, *arriccio, intonaco*) and of the paint layer as well, removal of the biological growth and of its consequences, chromatic integration [See *Presentations* in this paper]. The techniques were discussed in details, with the thoroughness of the practitioner, but also with the opening of the researcher toward the experimentation of new materials proposed during the last decade by restorers from Occidental restoration institutes and then, with the due prudence establishing their adequacy to the local realities - which are different from those known by the initiators and users of such new materials, successfully applied for instance in Italy, where they are currently used – for the restoration of the painted monuments of Moldavia.

Complementary to the theoretical presentations, the Romanian restorers also provided on the spot, punctually, for each objective of the project, additional explanations and even demonstrations as for the application of some of the techniques. .

The rotation of the groups in each of the three locations gave the possibility to all the participants to follow both the application of the traditional techniques and of the innovating ones, as well as a mutually fruitful dialogue (**Fig. 7**).

The practical part of the *in situ* Laboratory – developed on 5 days applications - raised the interests of Romanian specialists and of the foreign ones as well. If the former ones got acquainted with the possibilities of application of laser techniques in cleaning murals (**Fig.**

Fig. 7. Participants to the Laboratory in Popauti Monastery

8, 9, 10, 11), stone surfaces (**Fig. 12**), metal items (**Fig. 13**), textile items (**Fig.14,15,16**) or paper documents (**Fig. 17,18, 19**), in 3D scanning (**Fig.20**) the latter *showed their interest in the richness, variety and state* of conservation of the heritage of these churches, monasteries and collections. The exchange of information, the practical demonstrations (**Fig. 21, 22, 23, 24, 25**), the colloquial atmosphere (**Fig. 26**) dominated the 5 days of the *in situ* Laboratory (**Fig. 27, 28**).

The three goals of the Project were not the only aspects the participants were interested in. In order to complete the information and assure a best possible approach of the cultural heritage of Moldavia, the organizers of the Laboratory also proposed visits to the monasteries of Voronet, Humor and Probota, all three in-

Fig. 8. Laboratory in Gura Humorului. Final photo

Fig. 9.St Nicholas church, Popauti Monastery.
Laser cleaning tests

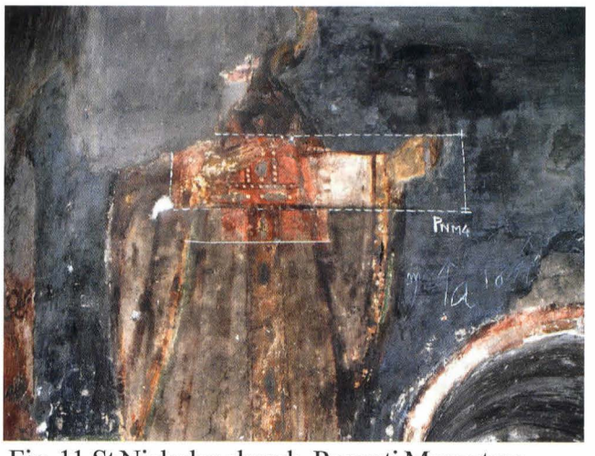

Fig. 11.St Nicholas church, Popauti Monastery.
Laser cleaning tests

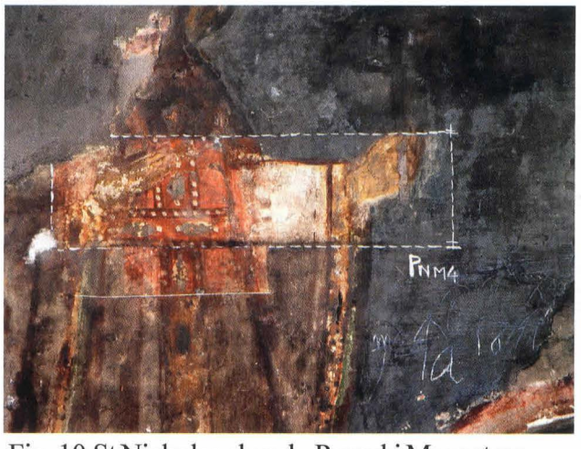

Fig. 10.St Nicholas church, Popauți Monastery.
Laser cleaning tests

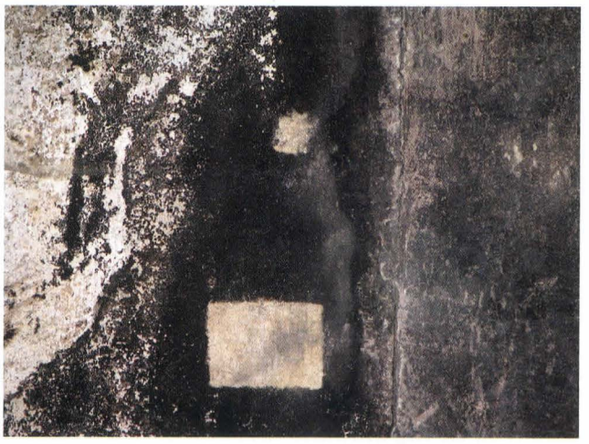

Fig. 12. Nicholas church, Popauti Monastery.
Laser cleaning tests - stone

Fig. 13. Popauti Monastery. Metal cleaning

Fig. 14. Sucevita Monastery. Metal examination

Fig. 15. Sucevita Monastery. Textile examination

Fig. 16. Sucevita Monastery. Textile examination

Fig. 17. Sucevita Monastery. Paper examination

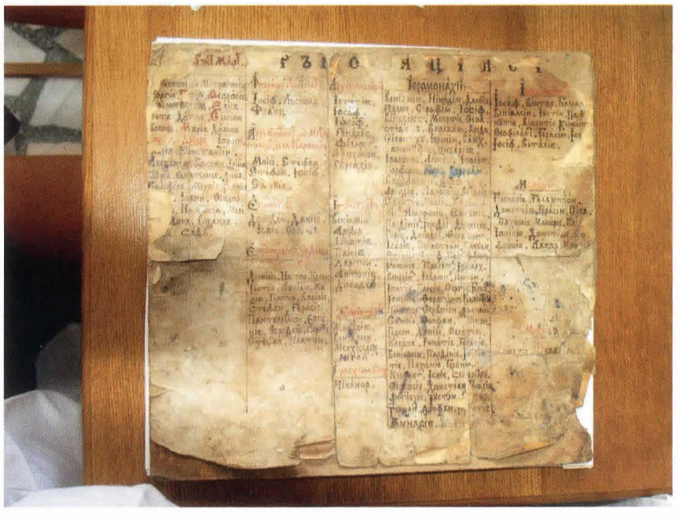

Fig. 18. Sucevita Monastery. Paper examination

cluded in the World Heritage List. In the case of the first two monuments, the murals are still in the process of restoration, while in the case of the last monument, the restoration process was completed in 2001, as the monastic compound, founded by Prince Petru Rares, was subject to a wide programme of research, exhaustive restoration and presentation, carried out by UNESCO and financed by the Japan Trust Fund for World Heritage and

Fig. 19. Sucevita Monastery. Paper examination

Fig. 20.Sucevita church. 3D scanning

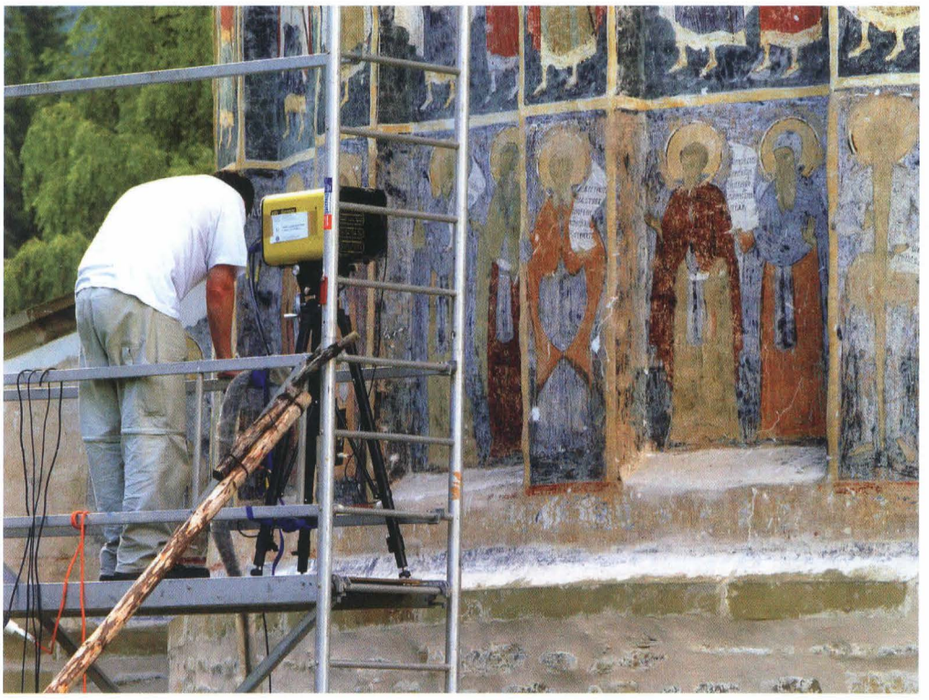

Fig. 21. Sucevita church. Hiperspectral lidar fluorosensor scanning

Fig. 22. Popauti Monastery. Geo-radar

Fig. 23. Laboratory aspect

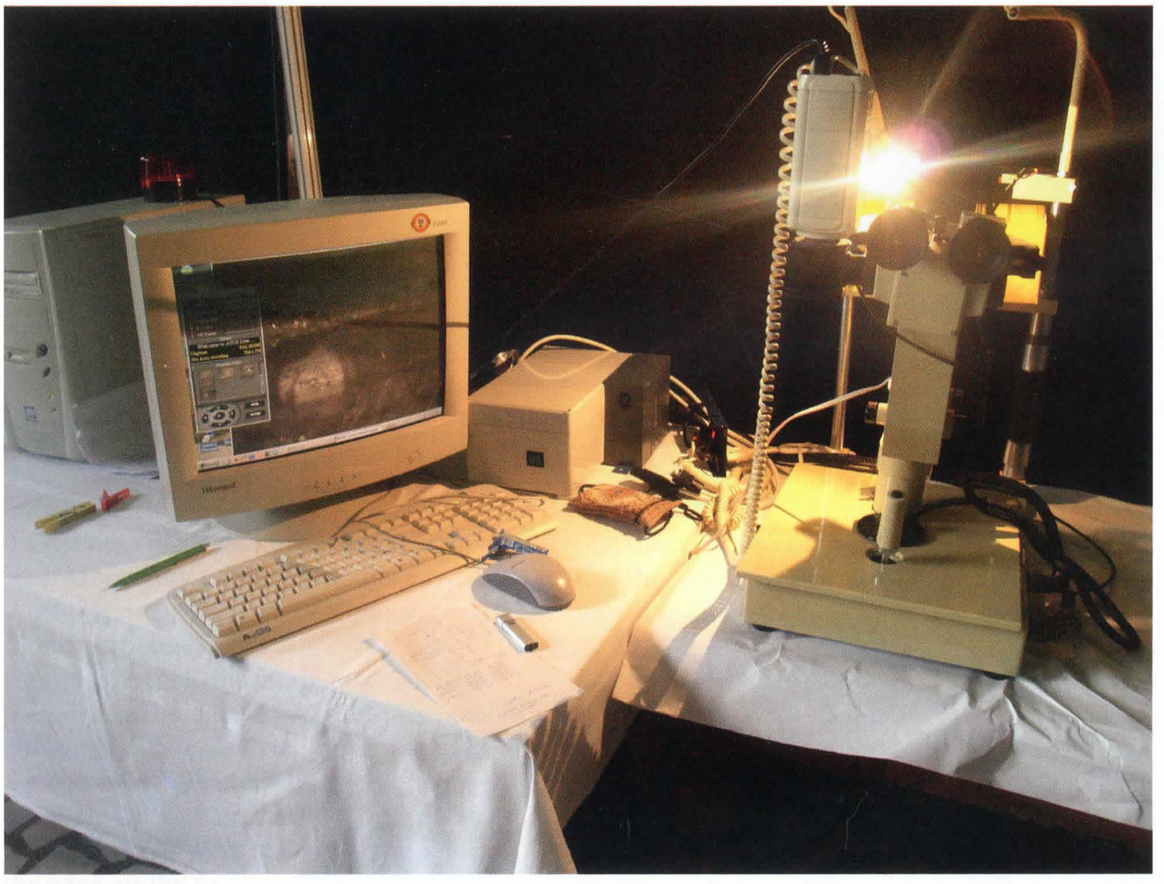

Fig. 24. Laboratory aspect

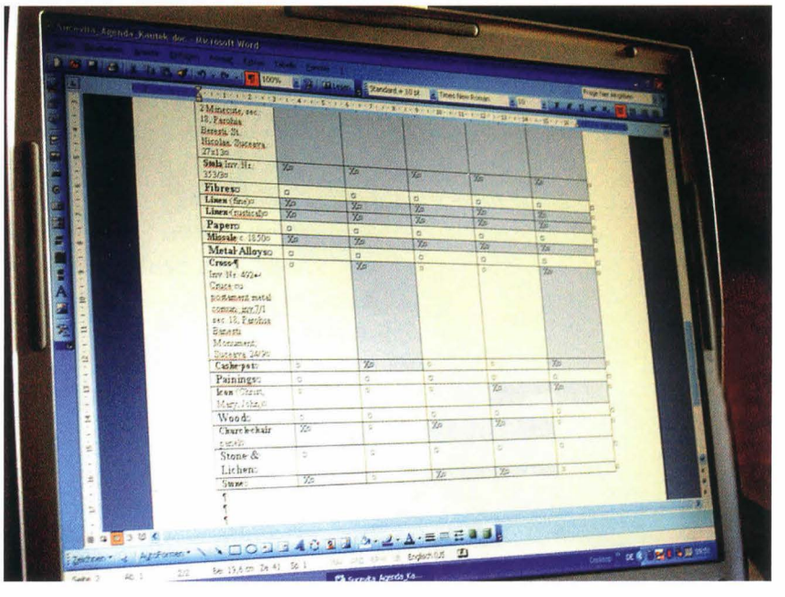

Fig. 25. Programme of the applications on sites

Fig. 26. Sucevita laboratory on site

Fig.27. Sucevita laboratory on site

Fig. 28. Sucevita laboratory on site

the Government of Romania.
Other restoration processes are going on the church of the Arbore village as well as in the church of St John the New Monastery of Suceava, these two also part of the World Heritage List. In the monasteries of Dragomirna (Suceava county) and Bistrita (Neamt county), visits were also made to the museums inside the monastic compounds. In the case of Agapia, the recently restored paintings of Nicolae Grigorescu could be admired. In the church of Neamt Monastery, only paintings of the chancel, the western part of the nave and the former burial chamber were restored, the frescoes in the rest of the nave, of the narthex and porch still waiting for restorers.
The National Institute for Historical Monuments actively involved in the preparation and implementation of the Project from the elaboration phase to the one of the application submitted for obtaining the grant and later on to the selection of the most significant locations for carrying out the Laboratory, the selection of the Romanian specialists and of the young graduates and postgraduates.The Institute prepared the documentation for the general presentation of the monuments in Moldavia, the CD-rom with the sheets of the three major objectives of the Project, together with tens of images, posters for the special demonstration session, which raised the interest of the participants. It was also the Institute who took care of the logistic aspects related to the event, administrating both the funds from the European Union and the funds received from the Ministry of Culture and Religious Affairs for the implementation of the Project.

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Unwritten, but permanently present, the guiding principle of the reunion could have been: "Cross-disciplinary. Communication".

Already at the beginning of the Laboratory, the Greek researcher Vassili Zafiropulos remarked, while speaking of the laser-based techniques, that these are an instrument; they are not the process of conservation in itself, conservation which is the aim of the intervention, in view of preserving the works of cultural heritage and forward them to the future generations. As the laser procedures concern for the most the process of cleaning architectural or art works (for instance the marbles of the Parthenon or mural paintings), Zafiropulos considered their use as a challenge, whose success can be ensured only by the understanding of the phenomenon and by the cross-disciplinary communication, and the use of a mix of procedures (application from case to case of the UV or IR irradiation).

The implementation of experiments within such Laboratories is as important as the transfer of technology, the *khow-how* of a methodology, which although used for decades in other fields, finds in the protection of cultural

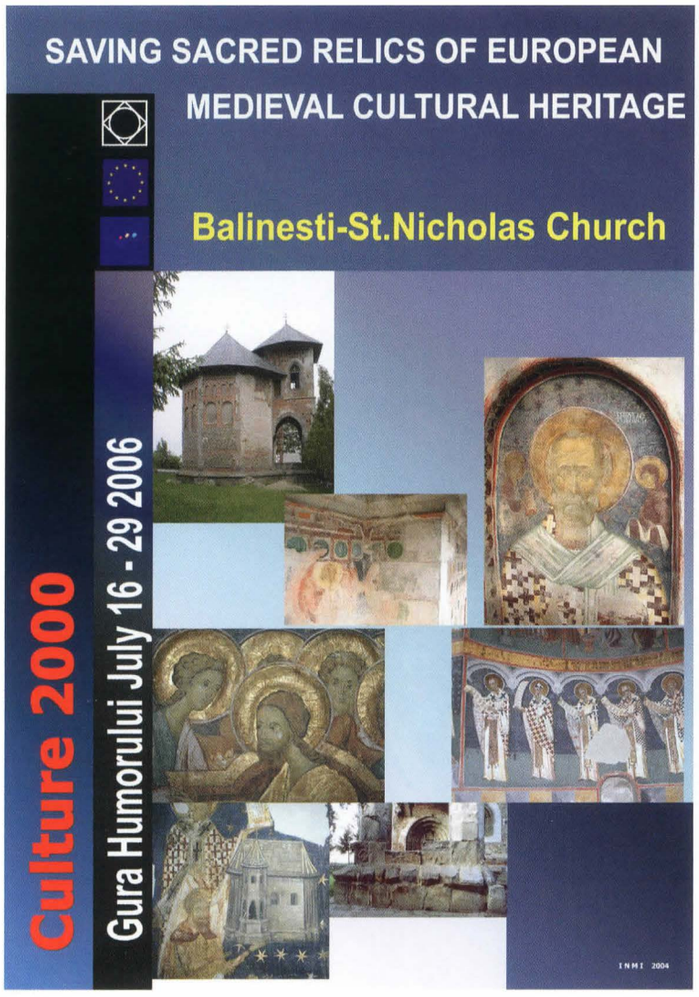

Fig. 29. St. Nicholas church Balinesti. Poster

heritage a new area of application and therefore a new utility (**Fig. 29**).

The introduction on a large scale in Romania of this technology within the restoration of the cultural heritage, combined with the "traditional" methods, specific to each field and type of items, is a wish and a challenge at the same time for all those who participated in the Laboratory, who will moreover forward what they learnt within this framework to those who believe that past may have its future.

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The *In situ* Laboratory in northern Moldavia was not the final point of the Project. Restoration works at mural paintings in the churches of Sucevita and Popauti Monasteries and in Balinesti continued with the traditional methodology, already approved by the National Commission of Monuments of Romania, in August and September. The results of this work is presented in the next pages of the present paper.

Acknowledgements:

European Union, Ministry of Culture and Religious Affairs of Romania, foreign Institutes involved in the Project, Archbishopric of Suceava and Radauti, especially Archbishop Pimen, monastic communities of Sucevița (Superior Mother Mihaela Cozmei) and Popauti – Botosani (Superior Father Luca Diaconu), parish church Baline°ti (Father Gheorghe Lupu), all the participants taking part to the Laboratory.

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