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**Croato-Aegyptica Electronica - Database of the Egyptian Antiquities in
Croatian Museum and Private Collections: Documentation vs
Communication Approach**

Summary

The paper is based on scientific and cultural project *Croato-Aegyptica Electronica*. In Croatia there are more than 4,030 Egyptian artefacts in 20 museums and unknown number in private collections (we presume around 1000). The aim of our project is to select relevant material presenting the cultural Egyptian connections with Croatia both in the form of institutions and private collections. It will include all Egyptian museum and private collections in Croatia from Predynastic periods until the Arab conquest of Egypt in 7th century AD.

Our main goal is to make an on-line public access catalogue of all artefacts that can be found in more than 20 collections in Croatia. As a database we have chosen M++ museum information system and we have managed to successfully import data from museums that already have documentation in machine-readable form. We also have managed to analyse and document almost 800 artefacts from museums without any information system. From July 2004 CAE database (111 artefacts and related visual documentation) is accessible on-line (www.croato-aegyptica.hr).

The paper describes the development of transformation mechanisms for structured scientific information created for the documentation purposes into information restructured for communication to users. This will include development of meta-thesaurus through processes of mapping and reconciliation. The paper will bring attention to problems in establishing co-operative on-line access to distributed databases.

Introduction

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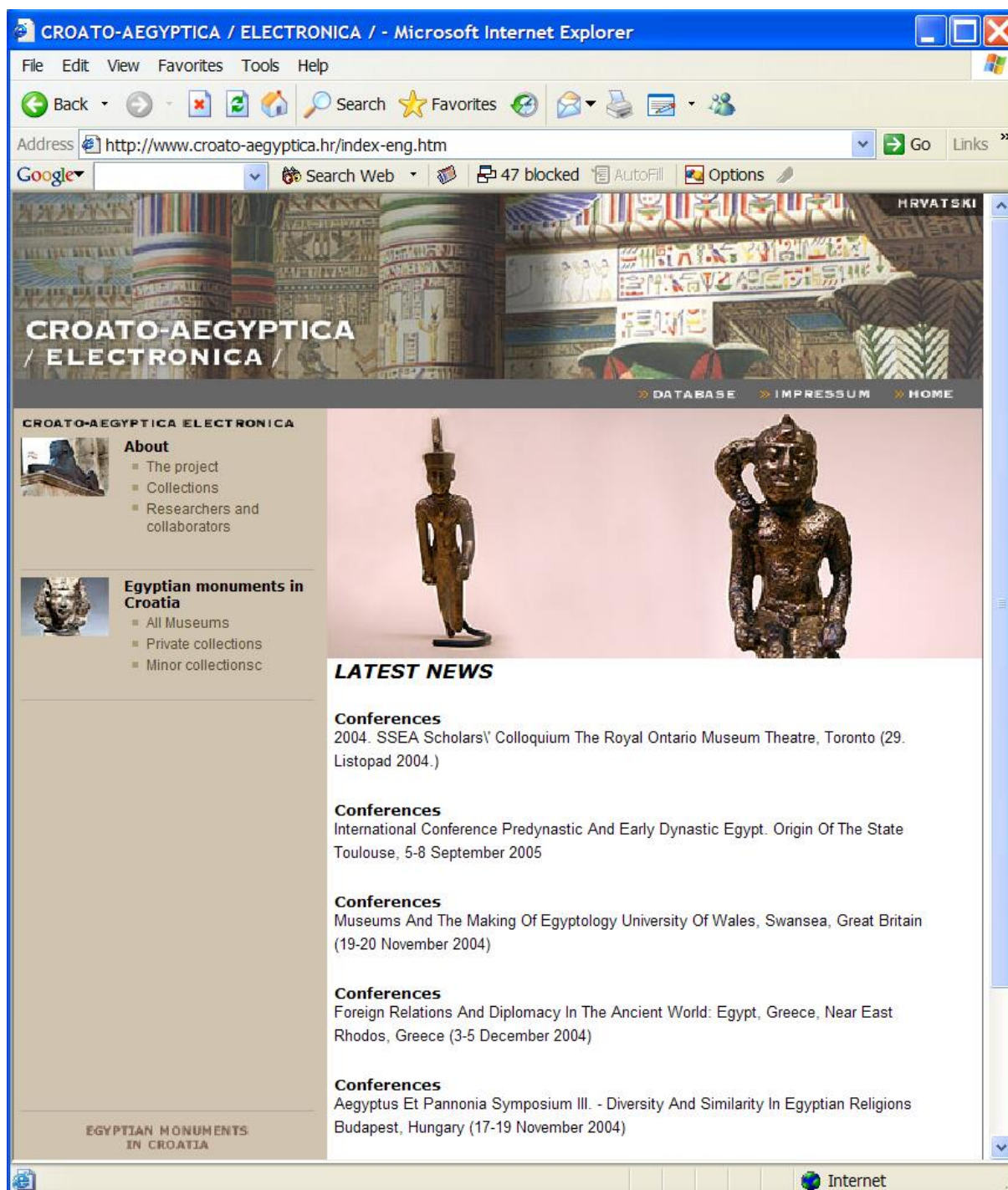


Fig. 1. Croato-Aegyptica Electronica web site – English version (www.croato-aegyptica.hr)

The Egyptian Collections in Croatia

Croatia is in possession of approximately 5000 artifacts of the Egyptian provenance dating to the Arab conquest of Egypt in 642 A.D. They are stored mostly in the large museum but also in private collections.

Egyptian collection in various museum institutions	Number of objects
The Archaeological Museum in Zagreb	3140
The Mimara Museum in Zagreb	503
The Archaeological Museum in Dubrovnik	196
The Archaeological Museum in Split	84
The Archaeological Museum of Istria in Pula	38
The Collection of the St. Euphemia monastery in Kampor - Rab	14
The Archaeological Museum in Zadar	12
The Museum of Contemporary Art in Zagreb	11
The Museum of Slavonia in Osijek	10
The Museum of the City of Varaždin	7
The Archaeological Collection of the Franciscan Monastery in Sinj	6
Lapidarium on the Island of Brijuni	2
Lapidarium in Novigrad (Istria)	1
Lapidarium Varvaria in Bribirska Glavica	1
The Archaeological Collection and lapidarium of Grga Novak in Hvar	1
The Collection Narona in Vid near Metković	1
The Collection of Narodno sveučilište in Imotski	1
The Museum of the City of Koprivnica	1
The Museum of the City of Križevci	1
The Museum of the City of Zagreb	1
Totals	4031

The holdings comprise mostly of smaller artifacts, scarabs, amulets, shabtis, small tablets made of different materials, necklaces, rings, fertility symbols, statuettes of deities, etc. Beside these, there are footwear, various vessels, animal images, and male and female statues. In this vast number of artifacts, it is possible to identify a larger collection of the statues of gods (primarily Osiris and Isis) made of different materials. Very valuable are various wooden and stone stele with the inscriptions and paintings of mostly sepulchral character, then the various inscriptions on papyrus and linen, the books of dead, canopic jars and their lids. The sarcophagi for the burial of animal and human remains made of different material, the mummies and the mummy wrappings form a special group. Thirteen completely or fragmentary preserved sphinx from the Diocletian's palace in Split are also to be mentioned. It is evident those smaller artifacts are predominant in the Croatian area and that they make a majority in institutional and private collections.

The Egyptian antiquities in various Croatian collections can be divided into two basic groups:

1. material of the Egyptian provenance acquired from abroad through intermediates (private collectors, antiquarians etc.) or donation,
2. material from the Croatian area which is to be associated with presence of the Egyptian cult, but also the population from the Ancient Near East. It is acquired through archaeological excavations, and it was brought to the Croatian territory mostly in the Roman antiquity (1st century B.C. - 4th century A.D.). The material is very rich which indicates the good connections with Egypt in the Roman period.

Regarding the material from the Croatian area, there is a problem of its classification. The problem appeared in the second half of the 19th century when the Egyptian antiquities found in the Croatian area by archaeological methods were often said to be fakes. Today, when it is established that the material originates from the Roman antiquity, these Egyptian artifacts are mostly considered to be genuine.

Furthermore, it is imperative to present the material kept in various institutions in Croatia. As it is almost impossible to include all the large and small collections due to a great amount of the artifacts owned by private persons, I relied on the most important ones. So we can single out the collections of the Archaeological Museum in Zagreb, the Archaeological Museum in Split, the Archaeological Museum in Zadar, the Archaeological Museum of Istria in Pula, the Archaeological Museum in Dubrovnik, the Museum of Slavonia in Osijek, the Museum of Ante Topić Mimara in Zagreb, the Museum of Contemporary Art in Zagreb, and series of minor collections in the regional and town museums (such as the Museum of the City of Varaždin, the Franciscan monastery in Sinj, the St. Euphemia monastery in Kampor on the island of Rab, etc.). It is possible to single out a part of the private collections that were published in periodicals. The collections of the institutions and regional museums containing probably valuable material but their presumable value is not known to the scientific public constitute a special problem.

Regarding the publication of the material, there are two basic groups of the artifacts found in the Croatian area:

1. The institutional collections systematically presented and published through exhibition catalogues, and analyzed and published in scientific periodicals. These are the collections of the Archaeological Museum in Zagreb and the Archaeological Museum in Split. There is a corresponding catalogue of the antiquities for the Archaeological Museum in Zagreb published in Paris in 1970¹, and many specialized

¹ Janine MONNET SALEH, *Les antiquités égyptiennes de Zagreb. Catalogue raisonné des antiquités égyptiennes conservées au Musée Archéologique de Zagreb en Yougoslavie*, Paris, 1970.

exhibition catalogues². The exhibits of the Archaeological Museum in Split were presented and published mostly through specialized periodicals³. The Egyptian antiquities included in the Ante Topić Mimara Collection are indicated in the specialized catalogues of the Mimara Museum in Zagreb. The large collections of the Archaeological Museums in Dubrovnik and Pula have been only recently⁴ systematically analyzed and published. The minor collections of the museums in Osijek and Zadar have not been examined systematically, and single artifacts were occasionally published in the periodicals. Very valuable Egyptian collection of the Museum of the Town of Varaždin has been analyzed and published systematically just recently⁵.

2. The collections of the institutions and private persons not presented and published systematically. It is necessary to establish in the future how many artifacts are kept in regional museums, and then to determine the origin of the artifacts, their authenticity, the time when they were made, and their cultural and historical value. It is hard to say how the artifacts found their way to these institutions. The collections of private persons form a special group. Unfortunately, it is impossible to determine the value, amount, way of acquiring, and authenticity of these collections, because they are almost completely unknown to the scientific public.

Private collections in Croatia can be divided into two groups:

1. the private collections included in the collections of various museum institutions,
2. the collections kept by private persons, often in their homes. These collections are mostly unpublished, not systematized, and unknown to

² Šime LJUBIĆ, *Popis Arheološkog odjela Narodnog Zemaljskog Muzeja u Zagrebu*, sv. I. – *Egipatska sbirka*, Zagreb, 1889; Marcel GORENC, *Egipat*, Zagreb 1979; Ante RENDIĆ-MIOČEVIĆ, *Egipatska zbirka, Arheološki muzej u Zagrebu – izbor iz fundusa*, Zagreb 1993; Igor URANIĆ, *Bogovi, duhovi i demoni starog Egipta – Gods, Spirits and Demons of Ancient Egypt*, Zagreb 1999.

³ *Bullettino di archeologia e storia Dalmata*, Split (1878-1918) and *Vjesnik za arheologiju i historiju dalmatinsku* (1919-). The Egyptian artifacts from the Archaeological Museum in Split were mainly published by: don Frane Bulić and Petar Selem.

⁴ The collection of the Archaeological Museum in Dubrovnik: Igor URANIĆ, *Dubrovačka zbirka egipatskih starina*, *Vjesnik Arheološkog muzeja u Zagrebu*, 3.s., XXXIV, Zagreb 2002, pp. 181-204; Romana MENALO, *Egipatska zbirka Dubrovačkog muzeja (Egyptian collection in Archaeological Museum in Dubrovnik)*, Dubrovnik 2003.

The collection of the Archaeological Museum of Istria in Pula: Vesna JURKIĆ GIRARDI, *Egipatska religija i antička Istra, Egipatska religija i antička Istra izložba – Arheološki muzej Istre*, Pula 2001, pp. 5-17; Kristina DŽIN, *Egipatske votivne figurice u lararijima, Egipatska religija i antička Istra izložba – Arheološki muzej Istre*, Pula 2001, pp. 18-21; Igor URANIĆ, *Duhovi i demoni starog Egipta, Egipatska religija i antička Istra izložba – Arheološki muzej Istre*, Pula 2001, pp. 22-28

⁵ Mladen TOMORAD, *Egipatske zbirke u Hrvatskoj s posebnim osvrtom na egipatsku zbirku Gradskog muzeja Varaždin*, *Zbornik radova međunarodnog simpozija Stvaralački potencijali u funkciji društveno-ekonomskog i kulturnog razvoja sjeverozapadne Hrvatske*, Varaždin 21– 22 November 2002, Zagreb – Varaždin 2002, pp. 543-558; Mladen TOMORAD & Igor URANIĆ, *Egyptian collection of the Museum of the City of Varaždin, Croatia, Trabajos de Egiptología-Papers on Ancient Egypt (TdE)*, 3, Madrid 2005. (in preparation for print)

the public. According to the law, every private collection has to be reported, examined, and evaluated, but the law is not abided by in practice.

The most of the Egyptian artifacts came to Croatian museums in the second part of 19th century and first part of 20th century from various private collections.

There are more than 3140 artifacts pertaining to the Egyptian civilization kept in the Archaeological Museum of Zagreb, the most important cultural and museum institution of the city of Zagreb and Croatia. The nucleus of the collection dates from the donation in 1862 of the well known Zagreb mummy of Nesi-Hensu with its linen Etruscan wrappings (*Liber lintheus Zagrabienensis*). The bulk of collection consists of the Egyptian collection by the Austrian under Marshall Franz Koller that was bought for the National Museum in Zagreb in 1868. It comprises about 2300 artifacts of Egyptian origin. Next to the Egyptian collection as a main part of the Egyptological inventory of the Archaeological Museum of Zagreb, there are many other artifacts related to the history of Egypt kept in the museum. There are about 500 pieces of Ptolemaic coinage, and the coins from the Roman era minted in Alexandria kept in the Numismatic collection. The Antique collection is comprised of the statues, statuettes and epigraphic monuments related to the Egyptian cults of Greco-Roman era, originating from the Mediterranean or from the Croatian historical area. During the last 150 years, the collections have been supplemented by a variety of smaller or larger purchases and donations by private individuals, so the number of artifacts increases constantly.

There are also smaller or larger collections of Egyptian origin in other museums in Croatia. The most important collections according to the number of artifacts are to be found in the Mimara Museum in Zagreb (503), the Archaeological Museum of Dubrovnik – the Dubrovnik museums (197), the Archaeological Museum of Split (84), the Archaeological Museum of Istria in Pula (38), the Collection of the St. Euphemia monastery in Kampor on the island of Rab (14), the Archaeological collection of the Museum of Contemporary Art in Zagreb (11), the Archaeological Museum of Zadar (13), the Museum of Slavonia in Osijek (10), the Museum of the City of Varaždin (6), the Franciscan monastery in Sinj (6), and in about dozen more town and regional museums with only one or two artifacts. According to my knowledge, there are 4030 artifacts in museum institutions and almost 1000 artifacts in private collections in Croatia. The history of each collection is published in my book *Egypt in Croatia: Egyptian antiquities in Croatian history and culture* (Barbat, Zagreb 2003).

The Project Croato-Aegyptica Electronica (CAE) - General Information

The main goal of the project Croato-Aegyptica Electronica is to build an aimed and selected database of relevant antiquities pertaining to cultural influences

of Egyptian civilization in the Croatian historical area based on the institutional and private collections in Croatia.

In the first phase of project development (from 2001 onwards), the plan is to process the Egyptological monuments kept in the Egyptian, Ancient and Numismatic collections of the Archaeological Museum in Zagreb (AMZ). Simultaneously with processing the monuments from the AMZ, we plan to process all the artifacts kept in other museum collections in Croatia and to introduce the results into the database. After processing the collections of museum institutions in Zagreb (Mimara Museum in Zagreb, The Museum of Contemporary Art – The Benko Horvat Collection, Museum of the city of Zagreb), we plan to process scientifically the artifacts kept in museums outside of Zagreb (The Dubrovnik museums – Archaeological Museum of Dubrovnik, Archaeological Museum of Split, Archaeological Museum of Istria in Pula, Archaeological Museum of Zadar, The Museum of Slavonia in Osijek, The City Museum of Varaždin, and variety of town and regional museums with minor collections) that have not yet been interpreted and processed, and to introduce the results into the database.

During our second phase we plan to transliterate and translate every Egyptian inscription on our artifacts.

In the third and final phase, we plan to interpret artifacts in various private collections. After we finish each phase we'll publish our results on several CD-ROMs and printed CAE catalogues (the first volume with the selections of the most valuable artifacts in Croatian museum collections is already in preparation).

Several similar projects are currently in progress in the world, such as *EMCP – Egyptologica. Museum Collection Project*, *Totenbuch project*, *The Petrie Museum Project*, and a few projects under the aegis of the CCER (Centre for Computer-aided Egyptological Research, Utrecht University - director Prof. Dr. Dirk Van Der Plas). These links the Croatian project directly to the contemporary activities in Egyptology.

At the beginning of 2003, the virtual *The Global Egyptian Museum* (<http://www.globalegyptianmuseum.com/>) with about 6.600 artifact started working under the aegis of the Centre for Computer-aided Egyptological Research CCER in which are currently included some the most important Egyptian museum collections in Europe. By connecting to this project, Croatia could show the great cultural value of Egyptian artifacts kept in our national museum institutions.

The particular value of the Croato-Aegyptica electronica project is also the fact that it is a pioneer effort aiming to revise and correct the available data published in various catalogues and museological works which are considered relevant even today.

The database as a finale product, available through different media, will guarantee the comprehensive insight into the rich Croatian Egyptological material for the national and foreign researchers and cultural institutions, offering a practical and quick search through the whole inventory and a data display suitable for the general public.

Croato-Aegyptica Electronica Scientific Research Part

We plan to interpret all the Egyptian artifacts according to the standards for the processing of the museological materials valid in the Republic of Croatia and in the world, in cooperation with the experts from the Chair for Museology at the Department for Information Sciences, Zagreb Faculty of Philosophy, and from the Museum Documentation Centre in Zagreb.

The scientific processing of the artifacts would be carried out by Croatian experts from the fields of archaeology, Egyptology, history, art history, classical philology and museology with the help and cooperation by the part of numerous foreign Egyptologists.

The main researchers for the field of Egyptology are professor Petar Selem, Ph.D. (Department of History, Faculty of Philosophy - University of Zagreb), Igor Uranić, M.A. (Archaeological Museum in Zagreb), and Mladen Tomorad, Ph.M. (Department of History, Zagreb Faculty of Philosophy - University of Zagreb, head of the Computer Laboratory, and the project's main researcher); for the field of numismatics Ivan Mirnik, Ph.D. and Zdenka Dukat (Archaeological Museum in Zagreb), for the ancient history: the art historians and archaeologist employed as curators in various museum institutions under direction by Ante Rendić-Miočevićem (Archaeological Museum in Zagreb) and Hrvoje Gračanin, Ph.M. (Department of History, Faculty of Philosophy - University of Zagreb).

Croato-Aegyptica Electronica Computer-aided Research Part

Our basic aim of the computer-aided research part of Croato-Aegyptica Electronica project is to build a special database based on the M++ application developed by Goran Zlodi, Ph.M. (Chair for Museology at the Department for Information Science, Faculty of Philosophy - University of Zagreb). This unique database will be adapted for input and storage of data from the databases of museum information systems, and for the purpose of presenting the monumental heritage of the Egyptian civilization from the Pharaonic and Greco-Roman eras kept in the Croatian institutional and private collections. Such a database would enable manifold reuse of digital content. The adopted forms of presentation, created by automatized generating of interactive multimedia contents from the data stored in the database, would involve a possible distribution through different media: web-pages, printed catalogues, cd-roms, info-kiosks located in the museums, etc.

As the majority of Egyptological collections are unprocessed within the museum information systems for the time being, the project collaborators would help the curators to process and organize the database input. The adopted project's approach is based on the international experiences in the computerization of museum inventories by recognizing the difference between the data for description of a museum artifact with a purpose to manage the museum collections, and the data serving for presentation and communication of the museum inventory to the variety of users.

The digital photographing of all the artifacts and input of the photographs into the database that is enabled by the M++ applications together with the creation of the project's web site which is the responsibility of the web-designer Matija Gračanin.

Web Site www.croato-aegyptica.hr

In May 2004 Croatian version of Croato-Aegyptica Electronica web site was launched at <http://infoz.ffzg.hr/cae>. The English version, which is slightly different than Croatian version, was launched at the end of June 2004. CAE database is accessible on-line since July 2004. In September 2004 we moved our web portal to the new domain www.croato-aegyptica.hr.

www.croato-aegyptica.hr is the first Croatian educational and informative web portal about history of any civilization in the world. Right now it includes:

- basic information about the project Croato-Aegyptica Electronica,
- history of every Egyptian museum collection in Croatia,
- links to the most important Egyptological web site,
- Ancient Egypt:
 - development of Egyptology,
 - Ancient Egyptian chronology from Prehistory until the Arab conquest of Egypt,
 - Ancient Egyptian towns and sites,
 - mythology,
 - Ancient Egyptian history,
 - famous monuments,
 - everyday life etc.
- news:
 - new discoveries in Egypt and others news dealing with Egyptology,
 - announcements about past, current and future exhibitions,
 - information about conferences and symposiums dealing Ancient Egyptian History and culture
 - information about new books, catalogues and guides about Ancient Egypt history in Croatia
 - lectures about Ancient Egypt in Croatia
- CAE database (partly on-line).

News database was constructed using the free software programs PHP and My SQL as powerful open-source programs used to develop our daily updated news. They are divided in five categories: Egyptological discoveries on the field, exhibitions (past, current and future), lectures, conferences and symposiums and new Egyptological books in Croatian language.

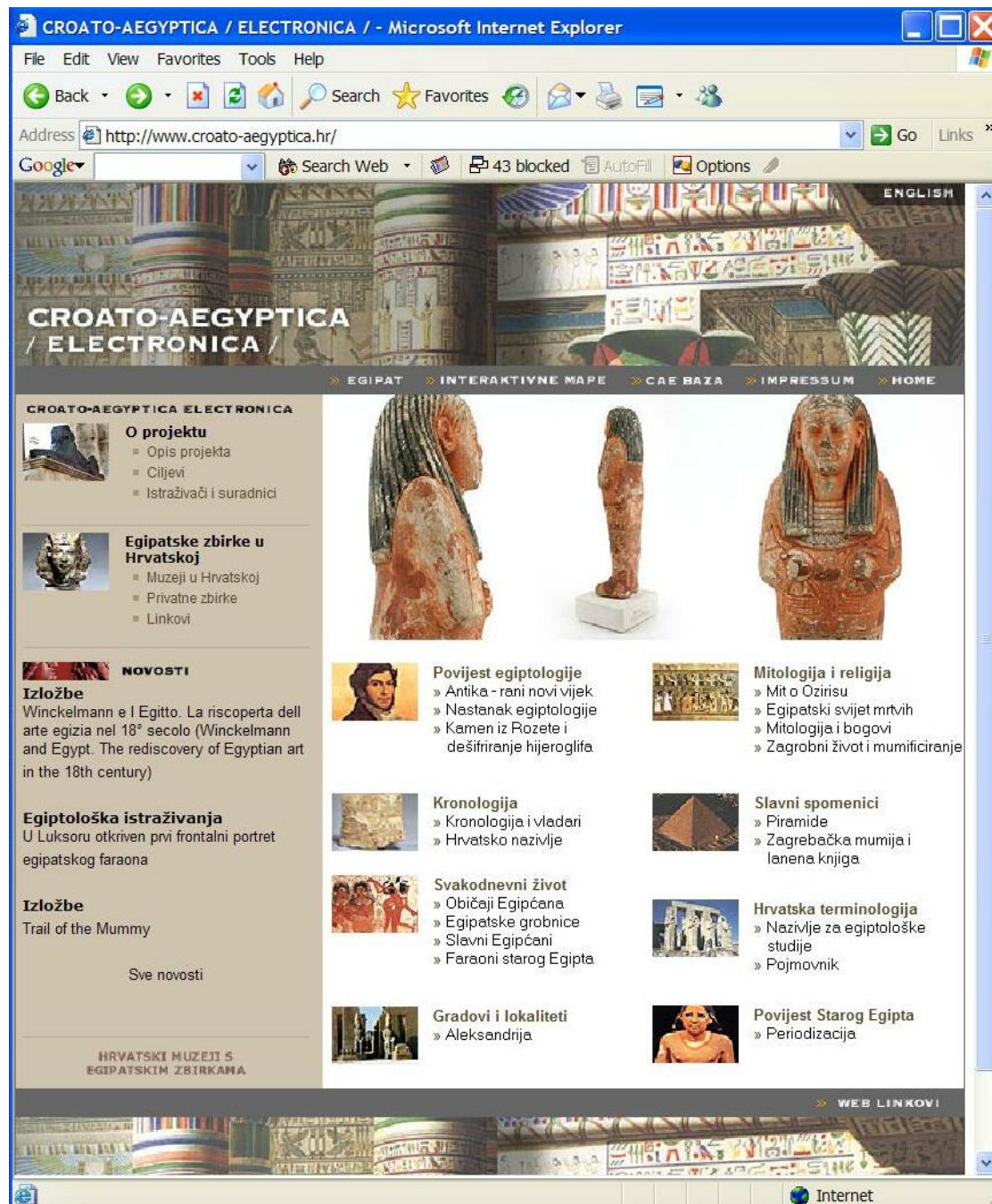


Fig. 2. Croato-Aegyptica Electronica web site
– Croatian version (www.croato-aegyptica.hr)

Museum Documentation and Users

One of the goals of the project was to cooperate and help museums in documentation of egyptian material. That documentation had to meet requirements in museum objects documentation, as well as requirements of the basic scientific discipline - archaeology, i.e. egiptology. Also, final step was to present information about museum objects to various types of users. That's why we had to develop mechanisms to transform structured scientific information created for the documentation purposes into information restructured for communication to users.

The model of museological functions - PRC model (Preservation – Research – Communication), formulated on Reinwardt Academie in Amsterdam is a suitable framework for consideration of a role of documentation, since museological functions as a foothold of museology are at the most represented in a museum as institution.

Documentation is inevitable support in performing museological functions: from documenting condition of objects, preservation and conservation procedures, results during research process, to documenting exhibitions and other communication forms.⁶

The PRC model inaugurates a museological system in which there is an integration of its sub-systems (preservation, research and communication). In this way the output of every sub-system becomes at the same time an input for another sub-system. However, the inputs of the sub-systems need not always be the outputs of other sub-systems. They can come from outside, and in the same way they can have an output directed outside the museum world. Therefore, it is possible to distinguish inner and outer orientations of the museological system.⁷

When we consider inner orientations of museological system, it is obvious that documentation is a dominant form of mediating information about objects inside museum, that is among sub-systems (circulation of cataloguing data, conservation records and visual documentation). When we consider outer orientations of museological system, especially when we communicate museum documentation through web on-line public access catalogue, it is very important to develop mechanisms that mediate documentation in a user acceptable form.

⁶ Maroević, Ivo. Introduction to Museology : the European Approach. Munich : Verlag Dr Christian Muller-Straten, 1998. pp. 221-222.

⁷ Mensch, P. van "Towards a Methodology of Museology", Ph.D. thesis, manuscript, Zagreb: University of Zagreb, 1992. pp. 160-161.

Preparing Documentation for Communication Context: Challenges in Network Environment

The final goal of the project is to make information about Croatian museums and private collections of Egyptian material, available for public access on internet. So we would like to bring attention to major problems in establishing co-operative public on-line access to distributed databases.

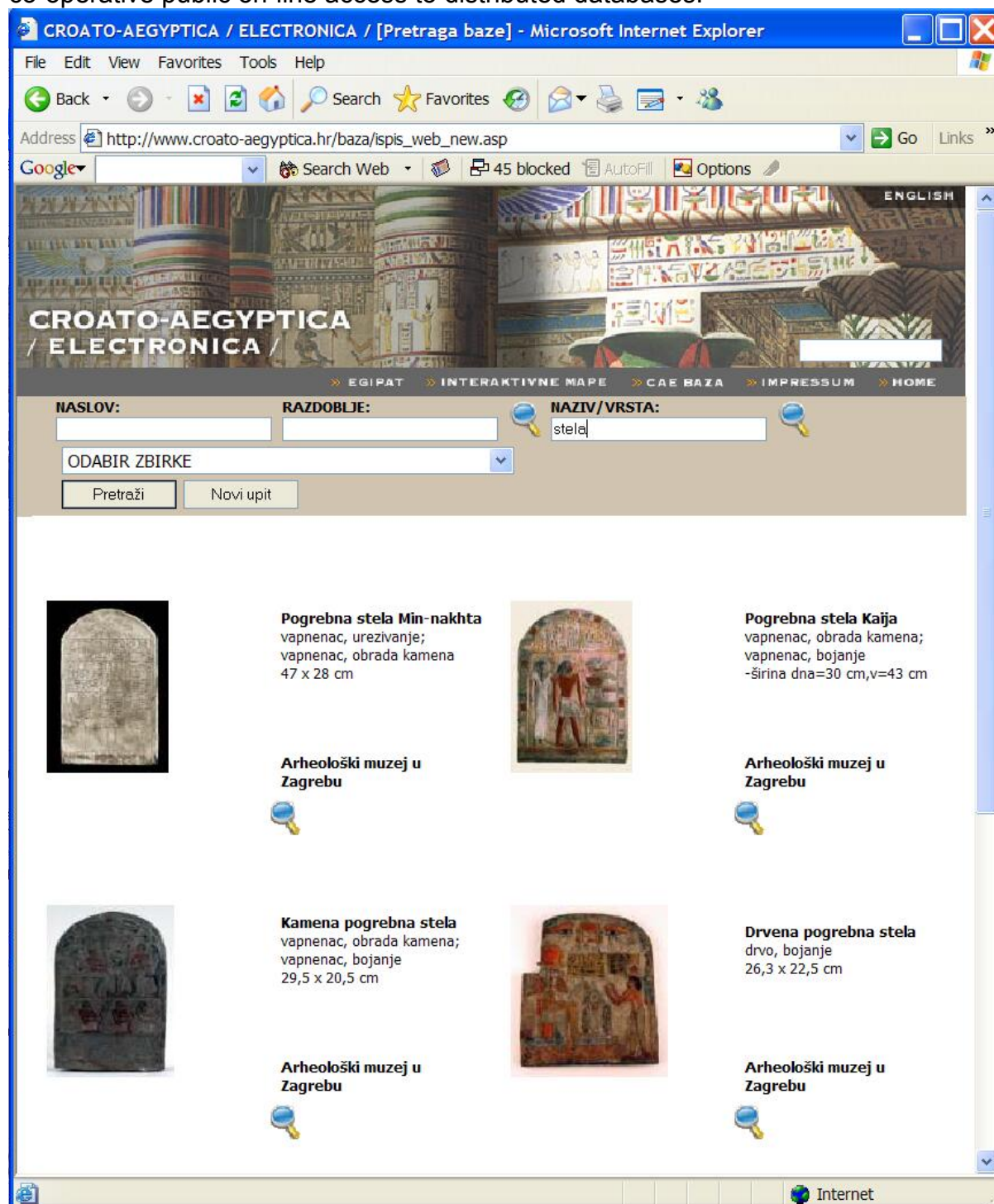


Fig. 3. CAE On-line Public Access Catalogue

Preparing documentation for communication context is starting already in local database, but real challenges are happened in networked environment. In the networked environment standards are of the utmost importance. Information system in particular institution might function without standards, but since in the networked environment several different systems co-work they must be interoperable as much as possible in order to produce consistent results.

At the level of data structure standards, there were no special problems, because, all metadata schemas in this project were structured according International Guidelines for Museum Object Information: The CIDOC Information Categories, which are translated into Croatian.⁸

Much more problems we had at data value and data content level because we don't have terminology resources for this type of material in Croatian. Anyway, structured vocabularies play an important role in improving access to cultural heritage information and thus we have to pay much attention to develop various methods in the use and reconciliation of various terminology resources.

The networked environment offers possibility of simultaneous access to different distributed systems and thus enables integration and searching through a number of spatially remote collections. This type of access presents new problems related to different thesauri use for controlling and managing vocabulary in different remote systems. As mentioned, there are non vocabulary resources for this type of material in Croatian, so museums had to develop their own terminology. This results in a lack of compatibility among thesauri (using different terms, choosing different terms as preferred among equivalent ones, using different hierarchical organization etc.) what is of crucial importance for providing consistent results when browsing or searching through different distributed databases.

Thesauri reconciliation is a method for overcoming such inconsistency, which is very important for museum community, because in this way, different vocabulary resulted from difference in museum material, would be brought into concordance.

Aitchison, Gilchrist i Bawden in their book *Thesaurus construction and use : a practical manual* in the chapter about integration and arranging vocabulary identify and describe four basic methods for arranging inconsistent controlled vocabulary, that are habitually used together:

- mapping - where connections are directly established among equivalent terms of controlled vocabulary
- switching - where intermediary vocabulary is often introduced and according to which co-operating vocabularies are mapped

⁸ Međunarodne smjernice za podatke o muzejskom predmetu: CIDOC-ove podatkovne kategorije. // Vijesti muzealaca i konzervatora, 1-4(1999), pp. 8-9.

- merging - that is often necessary when loading macro-thesaurus with particular micro-thesauri
- integration - that can be carried out on several levels⁹

We choose one database to serve as a main terminology control database. In this database terminology was structured according to Multilingual Egyptological Thesaurus edited by Dirk van der Plas and developed in collaboration of International Committee of ICOM for Egyptology (CIPEG), Center for Computer-aided Egyptological Research (CCER) at Utrecht University and Paris University – Sorbonne, which is available on-line at <http://213.132.220.88/CCER/apps/thesaurus/index.html>.

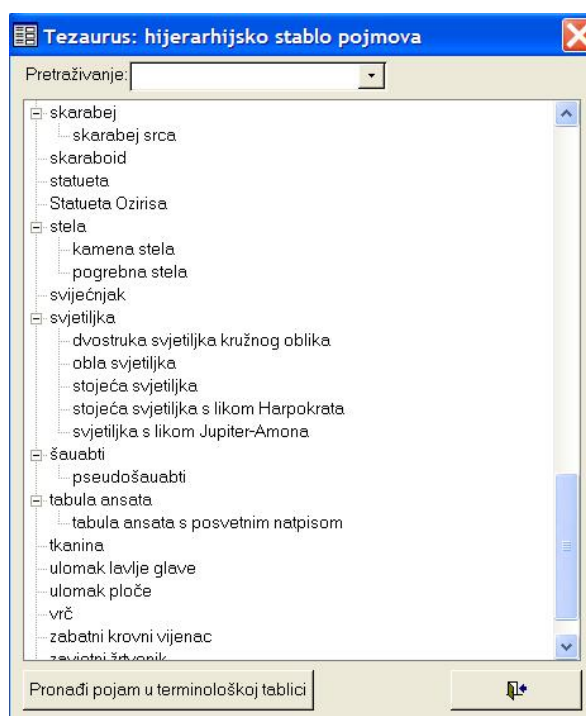


Fig. 4. Hierarchical view of local database thesaurus

⁹ Aitchison, Jean; Gilchrist, Alan; Bawden, David. Thesaurus construction and use : a practical manual. 4th ed. London : Aslib, 2000. pp. 174-175.

02/0673/1	→ SCARAB, SEAL, SCARABOID, INTAGLIO AND SIMILAR OBJECTS
02/0674/2	→ INTAGLIO
02/0675/2	→ SCARAB
02/0676/3	→ COMMEMORATIVE SCARAB
02/0678/3	→ WINGED SCARAB
02/0677/3	→ HEART SCARAB
02/0679/3	→ SCARAB SEAL
02/0680/3	→ UNSPECIFIED SCARAB
02/0681/2	→ SCARABOID
02/0686/2	→ THEATRE TOKEN
02/0682/2	→ SEAL
02/0683/3	→ CYLINDER SEAL
02/0684/3	→ BUTTON SEAL
02/0685/3	→ RING SEAL

Fig. 5. Hierarchical view of Multilingual Egyptological Thesaurus
(<http://213.132.220.88/CCER/apps/thesaurus/index.html>.)

Complex hierarchical and equivalent relations have to be modified to meet user-friendly requirements. For example, selecting a broader term will automatically select all narrower terms, no matter how many hierarchical levels deep are nested in. Also, alternative terms, that users are more familiar with, have to be added to terminology and linked to preferred terms used in documentation process. These mechanisms are still requiring a lot of manual adjustments so further research and development is required to achieve adequate level of automation.

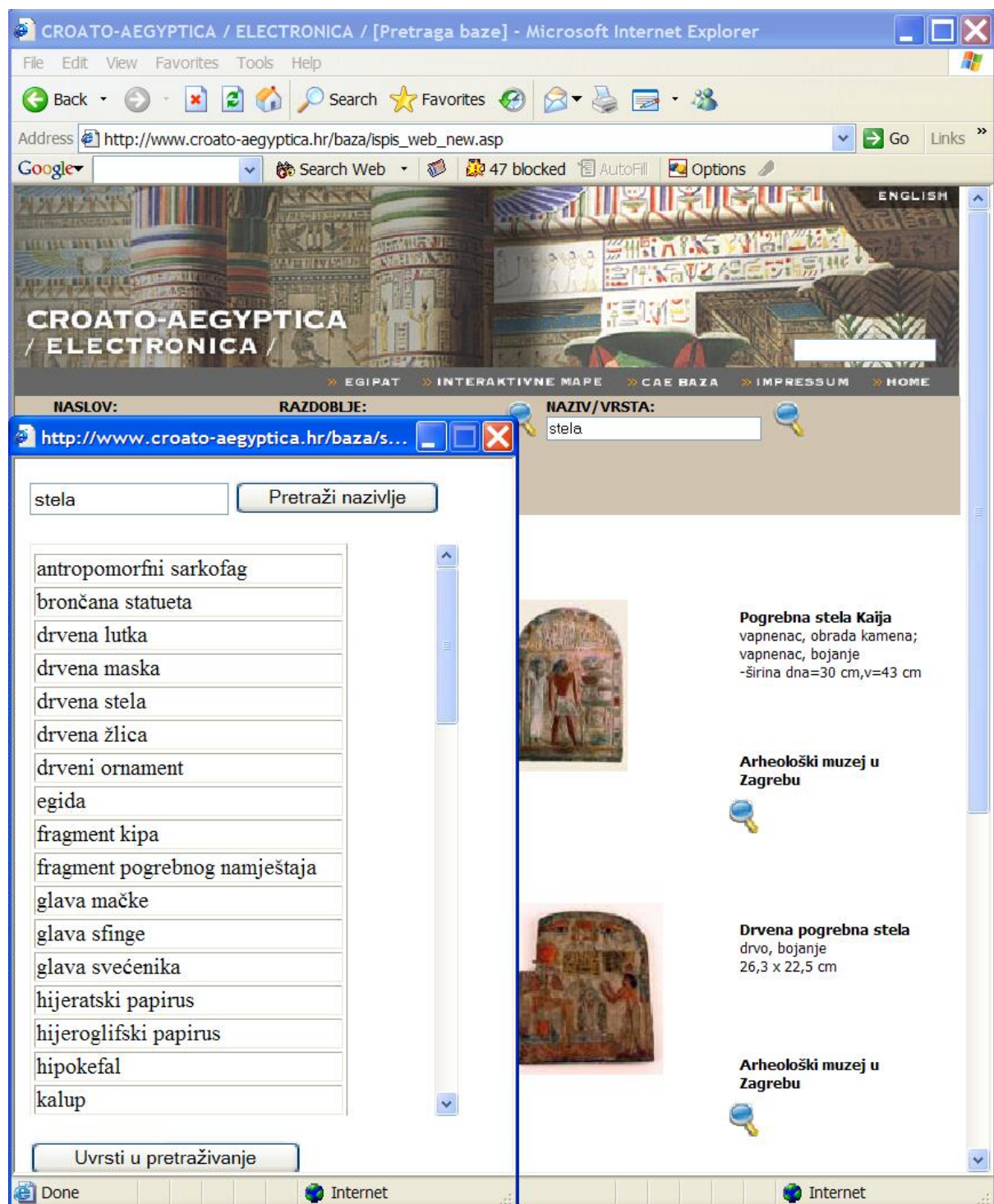


Fig. 6. Terminology as finding aid in network environment

Significant potential for thesauri use in the field of museum documentation in the networked environment offers meta-thesauri. They are tools that combine mapping, merging and integrating methods and thus provide synthesis of different thesauri. In this way with the help of a number of different terminology resources, browsing and searching through different databases

would be enabled if terminology and hierarchy among particular thesauri was brought into concordance.

In a work that has been dealing with the latest results in creating thesauri Badwen warns about renewed interest for meta-thesauri, and gives an example of a thoroughly worked out system: *Unified Medical Language System* – UMLS that contains meta-thesaurus that can comprise several dictionaries. So, in the UMLS the following sources of terminology are included: MeSH (thesaurus used for indexing bibliographic database Medline), SNOMED (thorough nomenclature of pathology) and *International Classification of Diseases- ICD*¹⁰.

Conclusion

The possibility of simultaneous access to different spatially remote collections presents a step further to virtual connecting of dispersed heritage. Structured vocabularies play an important role in improving access to cultural heritage information and thus we have to pay much attention to development of methods in the use and reconciliation of various terminology resources. Further development of documentation standards is of critical importance for future accessibility, accountability and consistent use of documentation, but also museum documentation community had to develop new mechanisms for transformation of structured scientific information created for the documentation purposes into information restructured for communication to users.

¹⁰ Bawden, David. Tezaurusi : nova postignuća. Vjesnik bibliotekara Hrvatske. 44, 1-4(2001), pp.185-186.