

# DBAS Web Portal: on-line DataBases on Aegean Subjects

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*The DBAS web portal (<http://dbas.sciant.unifi.it/>), as an acronym of DataBases about Aegean Subjects, collects a series of linked digital research tools dedicated to the study of the Aegean and Eastern Mediterranean world in the Bronze Age. Two main databases have been taken into account as technical devices to describe the Cretan hieroglyphic seals and the collections of the National Archaeological Museum of Florence. The web development is supported by PHP scripting language in order to retrieve informations from the SQL databases. The complex research instruments and the complete statistical analysis of the data make DBAS a powerful tool of investigation regarding the Aegean and the East Mediterranean areas in the pre-classical period.*

*Keywords:* DBAS, Aegean, Portal.

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## 1. Introduction to the DBAS Project

DBAS (DataBases about Aegean Subjects) collects a series of linked digital research tools dedicated to specific themes of the Aegean and Cypriot civilisations during the Middle and Late Bronze Age (second millennium B.C), with a further view on some aspects of the Near-Eastern civilisations when related to the Aegean one.

The DBAS Project started in 2005 and is promoted by the University of Florence (JASINK *et al.*, 2006; BOMBARDIERI *et al.*, 2007; JASINK *et al.*, 2009); many expertises both from Florence and from other institutions allowed to enlarge the original project, contributing in different fields of the research (historical, archaeological, philological), with the help of the tools of the modern science of informatics. It deals, in consequence, with an interdisciplinary approach to the research, and the portal is organized in seven main sections:

- databases for advanced researches on specific topics;
- bibliographical databases on specific fields;
- downloadable tools (five new fonts on symbols of Cretan Hieroglyphic, Linear A and Linear B are already on-line);
- a section devoted to the Kouris river valley project (Cyprus);

- an educational section with lectures about single themes;
- links with other portals;
- news and information about forthcoming Meetings, Exhibitions and the like, and an updated bibliography.

This paper will address the technical devices of two completed main data bases: DBAS-CHS (on Cretan Hieroglyphic seals) and DBAS-ACF (on the Aegean Collections of the National Archaeological Museum of Florence).

## 2. The Data Base on Cretan Hieroglyphic Seals (DBAS-CHS)

A *Corpus* of Cretan Hieroglyphic inscriptions (CHIC) has been published by Olivier and Godart in 1996 (OLIVIER *et al.*, 1996). It furnishes the first complete edition of all the written documents in this script and represents a basic work for further analyses. These inscriptions are also collected in several volumes of the whole *Corpus* of Minoan and Mycenaean seals (CMS).

The Database considers only the 192 inscriptions on seals and sealings and offers, at first level, a complete digital archive of the available data concerning the single objects (photo and drawing, provenance, material, dimension, shape), and inside every object the position of the symbols (iconographic elements and script signs) with respect to each other. The collected entries allow to create a search system to ask the database for specific

queries, with a crossed analysis. A *specific search*, related to the elements carved on any seal's face, is the core of the database and, conceiving the Hieroglyphic signs and the iconographic symbols as elements at the same level, may offer new hints about recurring series of symbols and allow a likely script value for some of them. For instance, the monograph by JASINK 2009 has made a large and profitable use of this database.

### 2.1. Technical description

The DBAS-CHS is a challenging database that gives a conceptual order to the large amount of data coming from Cretan hieroglyphic seals. The relational database is a powerful tool to build crossed relations between seal faces. The complex mechanism of queries establishes detailed relations between single signs on different faces with statistical recurrences. The probability to obtain statistically relevant results may give important clues about the meaning of the combination of symbols.

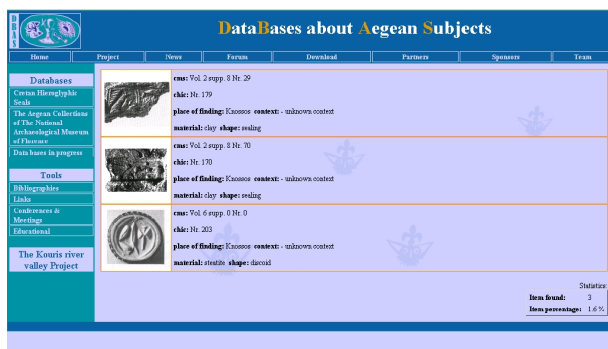


Figure 1: Result obtained from a general query in the CHS database. A pictorial representation of the seals together with the catalogue (CHIC or CMS) entries are shown.

The DBAS-CHS is divided in three levels. In the first level the information that can be collected deal with the general description of the seals as a sort of on-line catalogue. In this way, one can have the first details about the place of finding, the context, the material and the shape of a seal. The reference to the CMS and the CHIC catalogues is offered together with an image of the object as depicted in Fig. 1 where a selection of seals coming from Knossos is shown.

The second and third levels deal with the relations between elements. The detailed search form to build the specific queries is reported in Fig. 2. It is represented by a pull-down menu for a more intelligible approach.

In the second level, detailed Element to All Elements relationships are performed for elements on the same face of a seal. These are obtained by selecting one iconography and submitting the SQL query through a PHP script. The results are shown in Fig. 3 and they are applied for example for the “Arm (also CHIC 007)” element.

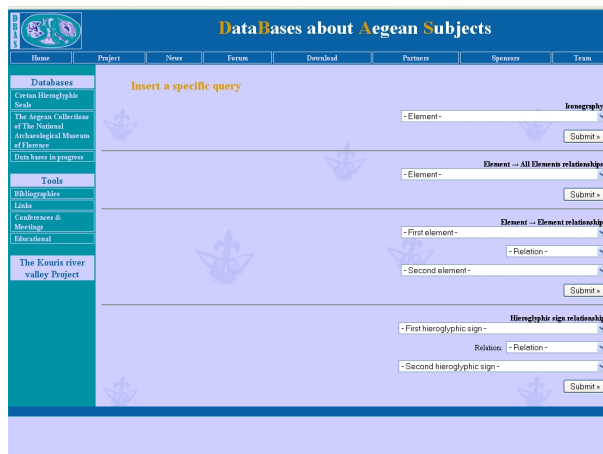


Figure 2: Search form for crossed and specific queries in the CHS database.

As it can be seen, the output is very satisfactory since it gives a list of all the elements related to the selected one, their recurrence and their percentage with respect to the total processed combinations. Moreover, a list of the detailed relations of the selected iconography with the second element is offered together with the CHIC number in order to point out the seal with the matched relation.

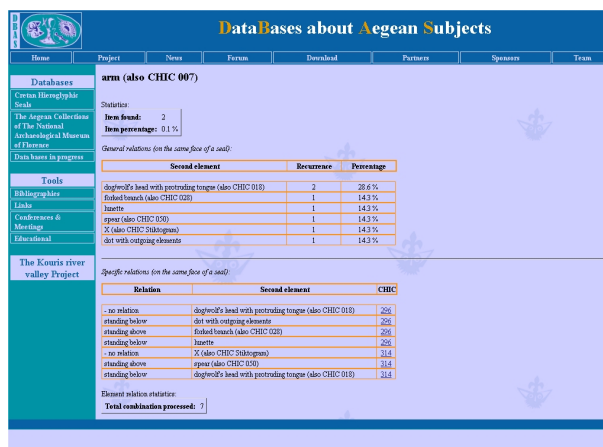


Figure 3: Element to All Elements relationships. The results show general and specific relations on the same face of a seal, the recurrence and the CHIC catalogue together with some statistical informations.

In the third level, a specific Element-to-Element relationship is considered, by selecting two elements and the threading relation between them. The “Eye (also CHIC 005)” and the “X (also CHIC Stiktogram)” have been chosen as an example to investigate the relation in which they are “near” to each other. A PHP script executes the SQL query and the results are plainly reported as can be seen from Fig. 4.

Despite the great number of total processed combinations, only few relations have been found. The CHIC catalogue number and the specific relation are also shown for the matched results.

In the last two levels of queries, a temporary table is built to contain all the theoretical combinations of the selected elements. The contiguous positions, such as “standing left”, “standing right” and so on, have to be considered as “near” and they are added to the sum of the total combinations. Similar considerations are made whenever the “on the same face” relation is selected. The transitional table may contain a large number of rows to be processed and they are compared within all the seals. All the matched elements are reported with the CHIC number and the specific relation found.

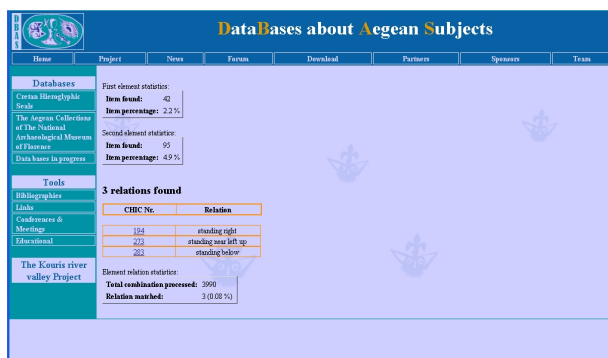


Figure 4: Element to Element relationship. The results show the relation type and the CHIC catalogue together with some statistical informations.

### 3. The Database on the Aegean Collections of the National Archaeological Museum in Florence (DBAS-ACF)

The Aegean collections of the National Archaeological Museum of Florence are filed in a relational database (JASINK *et al.*, 2010a) collecting the whole informative elements related to every object.

Detailed description fields are developed to give exhaustive information concerning technological features such as surface treatment, colours, and tempers. Furthermore, the complete catalogue is enriched by a selection of digital pictures, photos and drawings of the repertoire. Collection, provenance, chronology, and class of the materials are taken into account to sort out the objects through single or crossed queries for an easy and quick consultation of the whole database.

#### 3.1. Technical description

The target of the DBAS-ACF is to order the number of objects from the archaeological investigations of the Aegean collection of the museum. Provenance, chronology and material are some of the most important parameters in order to frame the objects in a more accurate context. The description of the finds with images and drawings gives a quick and immediate display of the single object.

A search form based on SQL queries has been developed, aiming at an easier and quick use of the database. PHP scripts execute the queries and print out

all the informations about the objects. The output pages are well organized for an easy consultation of the large amount of data related to each find. An enriched selection of coloured pictures, detailed photos and accurate drawings is at disposal. A complete view of each find with the related images has been successfully achieved by implementing javascript functions. Stand-alone popup windows show the images in separate frames out of the main page of the data as reported in Fig. 5.

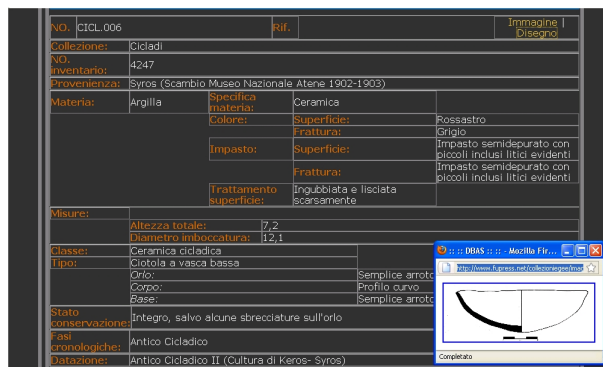


Figure 5: Results obtained from a detailed query in the ACF database. A pictorial representation of the object is shown in the javascript popup window moved on the margin in order to reduce the hindrance to the reading.

The digital archive of Aegean Collections is also hosted on the Firenze University Press server (<http://www.fupress.net/collezioniegee/>). The on-line resource offers an advanced research tool based on the already published complete catalogue (JASINK *et al.*, 2010b).

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