AN OPEN SOURCE OSTEOLOGICAL DATABASE PROPOSAL

1. Introduction

Since 2005, after the Human Paleontology course was activated within the Archaeology degree at the University of Padua, an osteo-archaeological study team has been created. In order to record the paleobiological research data in a comprehensive and systematic way, a database became necessary. Since no centralized database for archeological and osteological data exists on ministerial scale, every University and research team process their own data collection system, using in most cases proprietary software. The presented database has instead been developed on an open source platform, ensuring this way a free and most functional use of such data. Open source choice is moreover the most suitable one for what concerns university research (Lotto 2012; Lotto, Biscani, Tibolla 2012), as it allows release data from software solutions that may become outdated or incompatible and that can prevent the use of their data.

2. The database

The database is based on a multi-platform software which is versatile and easy to use, called LibreOffice Base (Gris 2011), but it can also be compiled using OpenOffice Base or NeoOffice Base. The software has been chosen mainly for its simplicity and intuitiveness, making its use suitable also for unskilled users. Even if the project is still on an advanced testing stage, the transfer of the database itself on a RDBMS platform such as PostgreSQL has already been planned; another scheduled improvement is the remote Internet access of the database server. The data is entered and stored in the table within the software, which is easily exportable through application (also provided by the LibreOffice software package). The table is visualized through eight different forms created into LibreOffice Base, and described in the following paragraphs.

2.1 Biological forms

The first section collects all information relating to the general biological profile of each individual (Brothwell 1972; Canci, Minozzi 2005; Duyard 2004; Mays 2010). The section (Fig. 1) was structured in four different types, according to the specific needs of various classes of age at death (0-2, 3-12, 13-20 and adults). Each of them collects data about sex, age at death, stature and other main anthropological measurements based on the bones of the individuals. Each individual is catalogued by an identification number.
Fig. 1 – Biological form for adults.
Fig. 2 – Paleopathologies and alterations form.
Fig. 3 – Dental health analysis form.
(ID) given by the user, and used to relate each form to the others and to make easier the database querying; the ID hence represents the primary key. The form is completed by an image of a skeleton type (Duday 2004), which is colored using a color scheme that visually describes the quantity and state of conservation of the skeleton itself.

### 2.2 Palaeobiological and palaeopathological forms

This specific section, dedicated only to adults, is designed to record palaeobiological data and consists of two different forms. The first one is a summary where the user can recall presence or absence of trauma and/or pathologies, by graphically locating them on the skeleton picture presented in the form. In the second one all pathologies, alterations and bones characteristics (Canci, Minozzi 2005; Baxarias, Herrerín 2008) are listed in a more detailed way for each single bone (Fig. 2).

### 2.3 Dental form

The final form is intended to recording data about dental health status of adult and sub-adults (Fig. 3). First of all the form presents a graphical illustration which shows presence or absence of teeth, and is then followed by an extensive table that allows reporting of pathologies for each observed tooth (Hillson 2005).

### 3. Future plans and conclusions

A study for a new database version is under way, and it is intended to collect data on multiple and/or collective burials both for adults and children. Moreover, other two forms for the recording of cremation data are under development as add-ons (either for the current database or its newer version): the first form will collect general information about bone’s fragments and their related temperatures. The other one will provide a table to study in detail the cremated bones.

The database is now available in a release candidate 1.5 version formally called “Bumblebee”, but still being tested and therefore subject to further changes or add-ons. A new database version based on PostgreSQL as on-line server and LibreOffice as client is now under testing. Currently the database is distributed under a Creative Commons Attribution Non Commercial Share Alike 3.0 Italy (CC BY-NC-SA 3.0).

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ABSTRACT

At the University of Padua, since 2005, after the inclusion of a course in Human Paleontology as part of the degree in archaeology, an osteo-archaeology study team has been active. In order to record in a comprehensive and systematic manner data relating to paleobiological research, an open source osteological database was developed. The database is based on LibreOffice Base, a versatile and easy to use software, as well as a multiplatform. The data is entered and stored in a table within the software, which is freely and easily exportable. The table is visually expressed through eight forms created in LibreOffice Base. The first section collects all information relating to the general biological profile (sex, age at death, stature, etc.) of each individual. The next section, developed only for adult subjects, is intended for the recording of paleobiological data and consists of two different parts, reporting of the possible presence or absence of trauma and/or pathologies. All pathologies, alterations and bone characteristics are listed in detailed form. The final form is intended for recording data about the state of dental health of adult and child subjects. Currently the database is distributed under a Creative Commons Attribution - Non Commercial - Share Alike 3.0 Italy (CC BY-NC-SA 3.0).