

## THE MOLLUSC COLLECTION OF THE MUSEO NACIONAL DE CIENCIAS NATURALES (MADRID, SPAIN).

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### ABSTRACT

The mollusc collection of the MNCN is composed of about 120,000 lots representative of marine, terrestrial and freshwater species, mainly from the Philippines, Cuba, South America and the Iberian Peninsula. The historical collection contains the specimens compiled by the Spanish conchologists Hidalgo, Azpeitia, Graells and Paz y Membiela, including those of the species described by them, as well as the ones collected by the Spanish expeditions of the XVIIIth and XIXth centuries, especially by the Expedition to the Pacific (1862-1866). The rest of the lots, most of them in ethanol, are new incomes from about ten years ago.

During the last 40 years the collections have been stored in poor conditions. The re-curation process started in 1985 and involves the cleaning and/or rehydration of the specimens, the re-labelling, the inventory and the cataloguing. New containers are used to protect them.

The historical and the new collections have been unified and the lots are stored in metal cupboards in systematic order of families and in alphabetical order of genera and species. About one third of the whole collection has already been re-curated.

A research line concerning the study and testing of materials used in curation was opened to find suitable materials for collection management.

Two new research projects involving the study of new preservatives and anaesthetics and the development of computer programs to manage the collections have been initiated.

### INTRODUCTION

The Museo Nacional de Ciencias Naturales (MNCN) of Madrid was founded in 1771. Along its history some brilliant periods were followed by others of neglect, like the period between the 40's decade and the 70's decade of our century. These lead up the Museum to the non-fulfilment of one of its main task which is the preservation of the collections to be useful to the scientific community. In the last decade there has been an increasing interest on the Museum enabling the development of plans to restore and inventory its collections.

The purpose of this paper is to inform the malacologists about the composition of this collection and the work we are carrying out to restore it.

### HISTORY OF THE COLLECTION

The mollusc collection of the MNCN started with the foundation of the Museum in 1771 by acquiring the collections belonging to the Equatorian D. Pedro Franco-Davila, the first director of the Museum. This collection included molluscs which probably are still in our collections without having been identified yet.

Some of the first records of the collection are those of D. Mariano de la Paz Graells, who was director of the Museum from 1851 to 1867 and the author of the first published catalogue of the freshwater and terrestrial molluscs of Spain (Graells, 1846). The Museum conserves these specimens and their labels as well as the books with the inventory of that collection. This probably was the collection considered by Hidalgo (1884) as "small and very badly classified"

In May 1873, the Museum bought the collection of the marine officer and malacologist D. Patricio M<sup>a</sup> Paz y Membiela, containing 40,000 specimens of about 12,000 species. It includes those collected by the Cuban naturalist D. Felipe Poey and became, according to Jiménez de la Espada (1875), the most complete collection of terrestrial and freshwater mollusca from Cuba. It was up to date by both Hidalgo and Lea (Jiménez de la Espada, 1875). The specimens of freshwater molluscs studied by Lea are now included in the Lea Collection at the National Museum of Washington (Haas, 1916).

In 1879, the molluscs collected by the Spanish Expedition to the Pacific (1862-1866) (see Puig-Samper, 1988 and references therein), came to the museum. This collection, which arrived unclassified and without previous inventory was integrated in the Hidalgo and Paz y Membiela's collections.

In February 1883 the Museum bought the collection of one of its directors, D. Lucas Tornos. This collection made up of 10,000 specimens of about 5,000 species was considered by Hidalgo (1884) as "a collection without any interest". The Museum now conserves very few specimens of it.



Fig. 1.- Dr. J. G. Hidalgo.

Fig. 2.- A detail of the collection before re-curation.

Fig. 3.- New storage of the conchological collection.

Fig. 4.- Motile storage systems for the spirit collection.

In 1913, the Museum bought the collection of Dr. J. G. Hidalgo (Fig. 1), one of the most prestigious Spanish malacologists, author of six books and 65 other malacological papers. He described 143 new species, and 26 species were dedicated to him (Azpeitia, 1923). It is our most complete malacological collection containing specimens of about 9,000 species. ~~It includes many specimens representing the Spanish mollusc fauna and a collection from the Philippines which is considered to be among the five most significant ones in the world.~~ Moreover, Dr. Hidalgo donated to the Museum his valuable library of about 2,000 books (Hidalgo, 1918).

The last historical collection, donated in 1934, is that of D. Florentino Azpeitia Moros, a disciple of Dr. Hidalgo. It is composed of 30,000 specimens of 8,000 species with highly complete informations relating to them.

Since then, there have been no more acquisitions in the Museum until the current investigators began to deposit the specimens of their research. The new incomes include not only the shells but also the preserved animals as well as microscopic slides.

In 1985, the unification of all the collections in just one unit, as well as its re-curation and inventory, was initiated.

#### COMPOSITION AND SCOPE OF THE COLLECTION

Now the malacological collection of the MNCN is composed of about 120,000 lots of terrestrial, freshwater and marine Mollusca.

As the re-curation and inventory process have begun recently, it is at the present date impossible to give accurate data regarding either the number of species or specimens in the collection, or numbers of lots by habitats or by families.

Concerning the geographic scope, the collection has material coming from every part of the world, but is especially representative of the Philippines, Cuba, South America and the Iberian Peninsula.

Types were not segregated nor specifically marked in the original collections. For this reason, we have only been able to recognise, at present, some of the holotypes or syntypes of the species described by the malacologists Drs. Hidalgo, Paz y Membiela and Azpeitia. We hope that in the future all of them will be located.

Due to the increase both in curation guarantees and malacological research, the mollusc collection is increasing its funds. Thus, in the last decade the collection received material type of 100 new species, mainly from the Iberian Peninsula, Cuba and Cape Verde Islands.

Type material is now segregated from the general collection and specifically labelled and protected in order to improve its curation.

#### RE-CURATION PROCESS

Due to the lack of personnel and financial support, the collections were stored in poor condition (i.e. wooden cupboards open in the back) and shells were covered with dust (fig. 2). Since 1985 the possibility of hiring graduate staff allowed the Museum to initiate a re-curation process.

The re-curation process is being made separately for dry and wet materials, which are stored in different rooms.

#### DRY COLLECTION

The re-curation process begins with the dusting of the shells, the relabelling, conserving the old label, and the storing in transparent plastic boxes. Then, a file is made with the information concerning each lot. The files and lots are ordered alphabetically by genera and species and arranged by families. With the files, an inventory is made including all the lots of each family. Doing so, about one third of the collection has currently been restored and arranged. This relates to almost all the marine gastropods, half of the marine bivalves and all the Iberian terrestrial gastropods.

#### WET COLLECTION

The first work is to rehydrate the specimens in case they are dried up and to exchange the methanol for ethanol. Some of the old Museum jars were kept, in other cases new jars were used. Relabelling, taking on file, and arranging is done as in the dry collection.

#### MATERIALS FOR CURATION

In order to obtain optimum conservation of the specimens and the related information, different products of plastic, glass, paper and ink are tested. From the results of these tests, which will be published soon, we have chosen the following materials:

- Transparent polystyrene boxes to keep the lots
- Polyethylene bags for big shells
- Glass jars with plastic closures for wet specimens (AMILCO. S.A., Avda. Fuentemar 8, Poligono Industrial Coslada, Madrid; ABICO S.C., P.O. Box 12, Kashiwa 277, Japan).
- Paper for labels (Casa de la Moneda de España).

- Rotring ink F591017. We are testing the resistance to preservatives of different kinds of computer printer ink.

The cataloguing of the collection will begin when the process of re-curation has been finished. Therefore, we wish to encourage all the malacologists interested in studying and bringing up to date the taxa of their speciality to collaborate in this task.

A current research project is to study different computer programs in order to compile information about the collections in the most versatile way.

#### SPACE AND FACILITIES

Lack of space is one of the main problems in the M.N.C.N. Due to it and also to the increase of the staff, the collections were moved several times. Nowadays the mollusc collection is placed in four rooms (150 square meters). The dry collection is located in two rooms and is being stored in new metal cases with removable trays (Fig. 3). These replace the old wooden cases whose emanations may react with the CaCO<sub>3</sub> of the shells (Tennent & Baird, 1985; Hatchfield & Carpenter, 1987; Fitzthugh & Gettens, 1971; Patfield et al. 1982).

In the last years, special emphasis has been placed on the importance of preserving not only the shells but also the soft parts of the specimens. Therefore the alcohol collection has increased from only a few specimens to several thousands. Samples are stored temporarily in metal cases in a separate room until they are studied and catalogued. Then they get stored in motile storage systems (Fig. 4).

Type material (shells and alcohol specimens) is stored separately in isolated hermetic metal cases especially designed and made for this purpose.

Due to the systematic importance of egg-lying and juvenile animals, behaviour and hybridization tests, a new room has recently been conditioned and several aquaria installed for the maintenance of living freshwater, terrestrial and marine mollusca.

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