

ARTIGOS / ARTICLES

The scientific museums of the University of São Paulo, Brazil, and their search for an identity

MARTHA MARANDINO*

Abstract

In this article some of the challenges faced by the scientific museums of the University of São Paulo (USP), Brazil, are presented. Based on a brief description of four USP museums – the Museum of Zoology, the Museum of Veterinary Anatomy, the Oceanographic Museum and the Science Station – the difficulties of characterizing university museums and their objects are discussed. The broader debate of what characterizes a scientific museum in general is also taken into consideration. Finally, some remarks concerning university policies towards the role of heritage in establishing links with the community at large are presented.

Resumo

Neste artigo é apresentada uma discussão dos desafios que hoje enfrentam os museus científicos da Universidade de São Paulo (USP), Brasil. Discute-se inicialmente a problemática da classificação dos museus universitários e, em especial, dos museus científicos da USP, sublinhando as dificuldades na respectiva caracterização. Com base numa breve descrição de quatro dos museus científicos desta universidade – o Museu de Zoologia, o Museu de Anatomia Veterinária, o Museu Oceanográfico e a Estação Ciência, realiza-se uma reflexão sobre as dificuldades da adoção de critérios baseados no acervo para classificação dos museus científicos universitários. Discute-se ainda o problema, evidenciado na literatura e nas práticas na área da museologia da ciência, quanto à classificação dos museus de ciências. Por fim, pontua-se a necessidade de estabelecer uma política universitária de extroversão do património científico que tenha em conta as particularidades e a diversidade dos museus científicos universitários.

Introduction

Most scientific museums¹ either belong to or are related to universities. Given the alleged crisis universities are facing, these museums encounter growing difficulties and challenges. WARHURST (1986: 137) stated that the university museums' crisis starts with the difficulty of identifying what a university museum is. Even considering definitions such as the one in the Manual of Curatorship²,

Warhurst believes that "there are (...) university museums which do not satisfy these criteria".

In spite of the diminishing resources, some university museums are trying to find an identity of their own and make efforts to provide a new meaning to their existence. As WARHURST (1986: 137) points out, university museums face a triple crisis: "a crisis of identity and purpose; a crisis of recognition; compounded by a crisis of resources".

* Martha Marandino is finishing a PhD thesis at the Faculty of Education of the University of São Paulo with a CAPES scholarship. Address: Rua Marquês de Sabará 98/102, 22460-090 Rio de Janeiro, RJ Brasil, E-mail: marmaran@unisy.com.br.

¹ In this text, I include museums presenting 'natural' and 'exact' sciences to the public under the broader designation of 'scientific museums'.

² The Manual of Curatorship states that "A university museum is a museum whose building is owned by a university; whose collections are owned by a university; and whose staff are employed by a university – for the most part".

In this article, some of the challenges currently faced by the scientific museums of the University of São Paulo (USP), Brazil, are discussed. Data have been gathered in the course of a PhD research at the Faculty of Education of USP, aimed at exploring the ways biological knowledge is presented in scientific museums' exhibitions and particularly in the construction of the exhibition discourse. First of all, a preliminary inquiry was conducted in order to identify scientific museums in the USP that presented biological exhibitions. However, this inquiry revealed some classification problems, apparently acknowledged by the University boards and personnel. Moreover, these problems were not geographically restricted or exclusively related to the Brazilian university museums context. In fact, a worldwide classification and identification problem is, among others, affecting museums and causing some interesting museological problems. In this paper, criteria used to select and characterize the USP's scientific museums are presented and data from interviews, documents and site visits are used to discuss some of the problems that they are currently facing.

Characteristics of USP Collections and Museums

To ABREU (1999: 11)³, the University of São Paulo - created in 1934 - has been incorporating, for purposes of teaching and research, "very diverse scientific, cultural and artistic collections, that could be generally called museological collections". This accumulation of objects was slow at first but increased in the 1990s, indicating that it will probably be

reinforced in the near future. According to Abreu (1999), this coincided with the progressive shift from a "sacred place" into an education-oriented "social arena", which the museum world underwent during the 1970s. These changes, directly related to a stronger presence of 'cultural industry', would have produced 'pattern' knowledge and 'value' mechanisms that included a strong 'marketing' presence, with clearly global perspectives, independent of social classes' (ABREU 1999: 11). Abreu clarifies that this context is relevant to understanding the value of collections in USP museums, which was strongly influenced by the 'new museology' movement.

Officially, the USP has four museums, belonging to what is called the USP 'integration organ'⁴: the Paulista Museum, the Museum of Zoology, the Archaeological and Ethnological Museum, and the Contemporary Art Museum. Excluding the latter, the collections had their origin:

"(...) in scientific and cultural pioneer expeditions that occurred in the State of São Paulo during the last decades of the 19th and the beginning of the 20th century. The original core was organized by Colonel Joaquim Sertório, and was donated to the State Government of São Paulo in 1890. At the beginning, the Sertório Collection was placed under the jurisdiction of the State Geographic and Geological Commission, created in 1886 by the geologist Orville A. Derby. They were integrated in the Paulista Museum when this was created, in 1893. The Paulista Museum was inaugurated in 7 September, 1895." (ABREU 1999: 11).

Nowadays, the collections are diverse and have distinct roles in teaching, research and cultural action. First mentioned by ABREU (1999), this diversity was confirmed during my research. However, objects exhibited have some common features, specific to university museums.

³ Adilson Avancini Abreu is Assistant Rector of USP, responsible for culture and university cultural action. His paper was presented during the II USP Museum Week (August/September 1999).

⁴ According to ABREU (1999: 12) the museums of the 'integration organ' explore their collections giving particular attention to interdisciplinary aspects that improve the educative processes linked with the USP's Units of Teaching and Research. As we will see, USP has more collections.

Selecting USP's museums for research

The selection of museums studied was based on a list informally provided by the USP Cultural Heritage Commission⁵. The list included c. 20 museums related to the biological sciences. Among them, three types of collections were identified: i) reference collections, used exclusively by researchers from the USP research units and departments; ii) didactical collections, used by professors in their classes and usually not open to the general public; and iii) collections organized and exhibited for the general public. Because the main objective of the study was public communication, museums and collections not available to the general public were excluded. Naturally, other museums and collections were excluded for more prosaic reasons, such as limited time or lack of authorization to conduct the research. Another criterion was to approach different types of scientific museums – natural history and science & technology.

Based on these criteria, four museums were selected: i) the Museum of Zoology, ii) the Museum of Veterinary Anatomy; iii) the Oceanography Museum and iv) the Science Station. The main characteristics of these four museums are briefly presented below⁶.

The Museum of Zoology⁷

As mentioned before, the Museum of Zoology has its origins in the Sertório Collection⁸. The permanent

exhibition was conceived in the beginning of the 20th century and reformulated in the 1940s. The Museum includes the most diverse zoological collection of the neo-tropical region, comprising c. 7 million specimens (RODRIGUES, 1999). From the beginning, the Museum's mission comprised the organization of the collections and the promotion of scientific publications in Zoology, as well as related topics. In the 1960s, the Museum initiated post-graduate teaching activities, as a Department of the Agriculture Secretary of State and in collaboration with USP Faculties of Philosophy, Science and Humanities. In 1969 the Department was integrated in USP and the Museum was renamed the Museum of Zoology of the University of São Paulo. In spite all these changes, the permanent exhibition still dates from the 1940s and only minor changes have been made since.

The exhibition of the Museum of Zoology reflects 18th and 19th century natural history museology. Since these museums were from the beginning considered institutes of production and diffusion of scientific knowledge, specimens presented are arranged in a systematic way, gathering in groups examples of the same taxonomic group. There is little information on the specimens, and when there is, this is always related to the systematics or behaviour of the taxon exhibited. Dioramas presenting ecology and biogeography concepts, also common in 19th century natural history museography, can also be found. Currently, the Museum of Zoology develops research in the fields of systematics, ecology and evolution.

⁵ The list was made by the USP Cultural Heritage Commission and constituted an attempt to survey all USP museums. Although it is not an official document, it was used in this research as a guidance list. A more thorough survey was conducted by this Commission and will soon be published.

⁶ All the information presented here is based on official documents, articles written by researchers, as well as data obtained from interviews.

⁷ The exhibition of the Museum of Zoology was closed at the time of the research and could not be visited.

⁸ According to LOPES (1997), the Sertório Collection was part of the Paulista Museum, a São Paulo's State museum, in the 1890s. During the 1920s, the collections of the Paulista Museum were dispersed and it became a museum exclusively devoted to national history, Brazilian ethnography and national numismatics. The Zoology collections formed the Museum of Zoology, which in turn was integrated in USP in the 1960s.

As far as organisation is concerned, the Museum of Zoology is divided into three sections: 1) the Cultural Diffusion Section, with two sub-sections – Education and Museology; 2) the Scientific Section, divided into the Vertebrate and Invertebrate sub-sections; and 3) the Administrative Section. The Museum is located in Ipiranga, a traditional São Paulo middle class neighbourhood outside the university campus.

The Museum of Veterinary Anatomy

The history of this Museum collection is intertwined with the very history of the creation of the Veterinary Anatomy course at USP. At first, students of Veterinary Anatomy courses received training together with students of Human Anatomy. Later, as

a result of a growing interest and practice in teaching and research, several anatomical objects were brought together. In 1969, the Veterinary Medicine Faculty became an autonomous body within USP and it then occupied a few warehouses belonging to the Polytechnic School. The objects were arranged in corridors near the classrooms, so that they could be seen by everyone. Furniture was provided by the Museum of Zoology and a few skeletons were put side by side on shelves. This area was commonly known as 'the museum', meaning that it could be visited by the 'public'⁹. In 1984, the Museum moved to its current building in the Anatomy Veterinary Faculty inside the USP campus.

Ever since its early years, the Museum had strong links with anatomy teaching and it depended

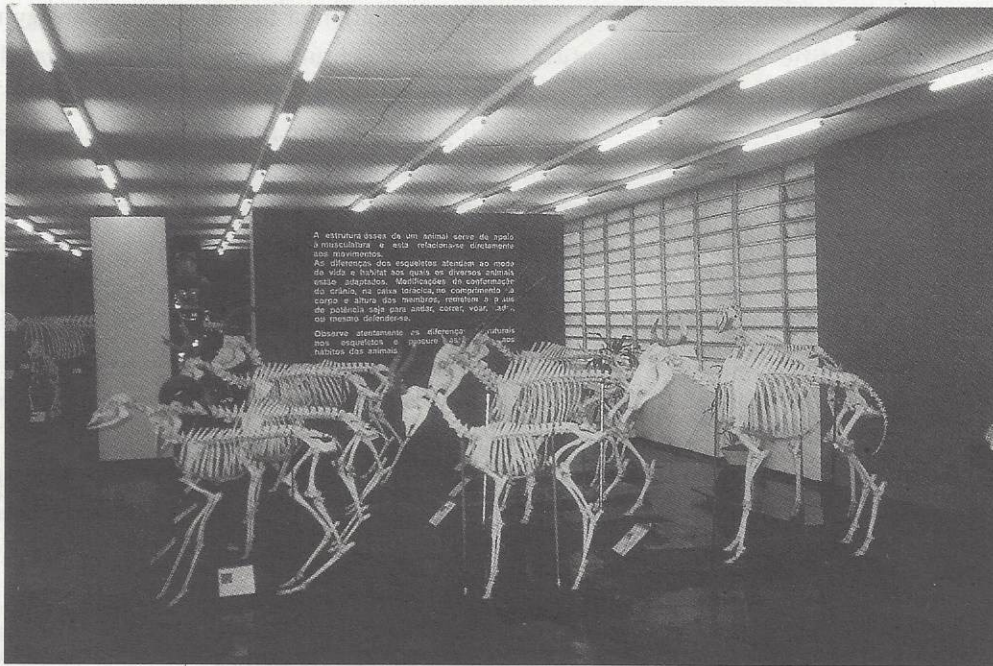


Fig. 1 – The Museum of Veterinary Anatomy, USP (Photo: M. Marandino).

⁹ In fact, 'the museum' was not only available to students. Due to its location, the general public taking pets for veterinarian consult could also visit it.

administratively and financially on the Veterinary Anatomy department. The collection was accumulated through exchange, collecting, donations from São Paulo's Zoo and, especially, from objects prepared by PhD students and researchers.

The exhibition used to be organised according to taxonomic criteria, with an area devoted to birds, another to bovids, to equids and to suids. Each one of these areas was loaded with skeletons and anatomical objects related to a particular animal group. In 1993, the Museum recruited a museologist and some changes were made. With the help of a biologist, the Museum team updated the animal systematics and began the organisation of a collection documentation system. Specimens in the exhibition were re-arranged, although no major changes in the original taxonomic organisation occurred. The clearest changes took

place as far as communication is concerned, with the introduction of colours and an increased value attributed to visual elements. The Museum team included panels with some basic scientific information and the presentation of some particular collections was further developed, such as the 'hearts exhibition'. Moreover, visitors were more explicitly taken into consideration, which created the need for more explanatory elements.

Therefore, the exhibition was developed around the idea of 'look, observe and compare', in order to promote a public awareness of common characteristics among different animals. An introductory area where visitors can manipulate a few anatomical instruments and consequently learn about anatomical techniques also indicates this visitor-oriented approach.

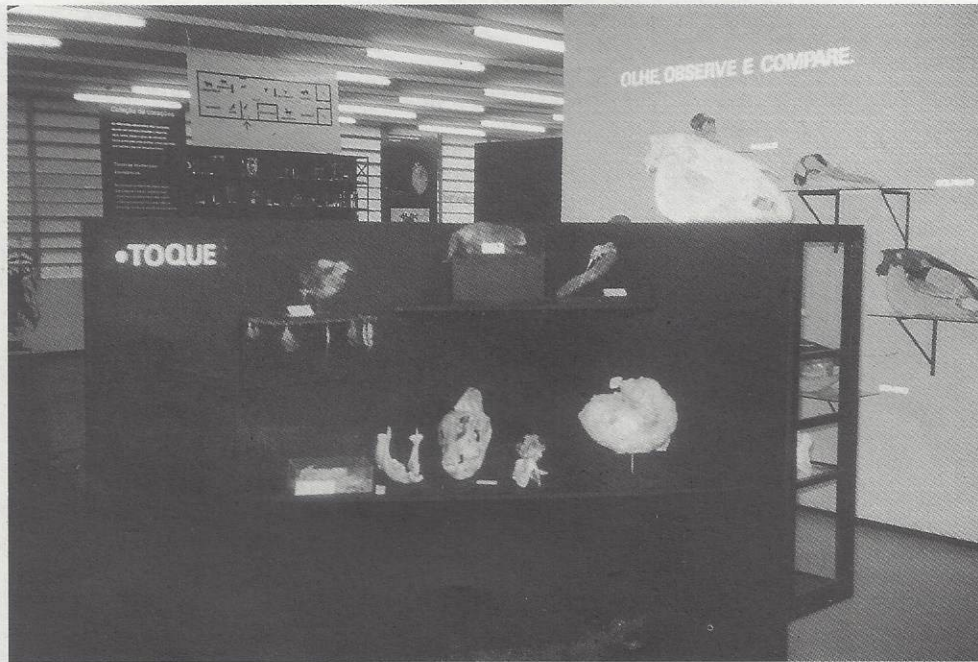


Fig. 2 — Some objects to touch (*Toque*), in the permanent exhibition of the Museum of Veterinary Anatomy. Behind, the label 'Look, observe and compare' (*Olhe, observe e compare*) (Photo: M. Marandino).

The Oceanography Museum

The Oceanography Museum was created as a result of the political will of a few members of the USP Oceanography Institute. In 1986, a committee was formed in order to analyse the viability of creating a museum and, in 1987, this commission issued a proposal that was accepted by the Institute's director. The Oceanography Museum was then officially created and, between 1988 and 1989, three full-time employees were given the task to implement the project. This team later suggested the inclusion of an aquarium. It should be noted that an aquarium was considered right from the start, but separate from the Museum. During planning, the team's choice was to integrate it, corresponding to the idea of integrating 'live' (aquarium) and 'dead' collections (museum). Administratively, the Oceanography Museum was

created as a section of the Oceanography Institute and its collections result from research in the Institute. These include biological specimens, as well as collecting instruments, photographic documents, and equipment from the Antarctic Expedition of 1983. These objects are displayed in the permanent exhibition, along with models and texts produced by the Museum team. The Museum is located in the Oceanography Institute, within the USP campus.

The exhibition aims to explain what Oceanography is, what oceanographers do and what research is done at the Institute. It is divided into three parts, according to a disciplinary approach: 1) Physical Oceanography; 2) Chemical Oceanography and 3) Biological Oceanography. Topics include information from the seas obtained by the Institute and collecting and measuring equipment used in oceanic studies. Visitors



Fig. 3 — An aquarium at the Oceanographic Museum, USP (Photo: M. Marandino).



Fig. 4 — Specimens in flasks and other 'natural' objects at the Oceanography Museum (Photo: M. Marandino).

will also find some explanatory panels with information concerning physical and chemical oceanography, mounted and preserved specimens and aquariums exhibiting marine ecosystems and living marine organisms. Moreover, the museum has an environmental education program, the 'Ecological Expedition — The School goes to the Sea', where secondary school students visit the Oceanography Bases of the Institute in the coastal areas around São Paulo. The main objective of this program is to provide information on marine ecosystems and raise awareness about the importance of the preservation of the seas.

The Science Station

Some members of the scientific community of the State of São Paulo created the Science Station as a

result of a concern for science education. It was established in 1987, in a joint effort by the government and universities¹⁰. At the beginning, the Science Station was administrated by the federal government. However, with the governmental changes of 1990, the Science Station was incorporated in the University of São Paulo and it consequently underwent a re-organization to adapt to the new situation. Nowadays, the Science Station is ruled by the University Council, a body representing most of the University schools and faculties.

Although in appearance similar to a hands-on science centre, the Science Station was from the beginning conceived as a 'museum'¹¹, and its organizational structure reflects this concept. A storage area was constructed and extra or out-of-use participative

¹⁰ E.g. the CNPq — The National Council for Research, the University of São Paulo and the University of Campinas.

¹¹ The Science Station argues that museums establish relations between people and scientific/cultural heritage, mediated by objects or phenomena, laws or principles. In this sense, a science centre is a type of science museum.

objects and experiments were organized and stored, just like artefacts in 'normal' museums. It was a kind of didactic and museographic storage for exhibitions. Other instruments and scientific equipment, obtained by donations, formed the Science Station's collection.

Exhibitions present interactive models covering Physics, Astronomy and, to a lesser extent, Biology and Chemistry. For the purposes of this research only the biological exhibits – three at the time of the visit – were analysed. Although different, all shared the Science Station 'spirit', inspired by the hands-on science museums and centres movement. The exhibits were: 1) 'Urban Birds', presenting birds from the city

of São Paulo, with a computer connected to an electric panel to facilitate identification; b) the Aquarium, formed by a set of three fresh and sea water aquariums containing specimens from Brazil and preserved marine organisms in glass boxes displayed on shelves; and c) the 'Butantã Stop'¹², with 'dioramas' displaying living insects, amphibians and reptiles, together with 'The Drawer' (*Gaveteiro*), an interactive exhibit where some preserved specimens are kept inside drawers and can be manipulated by visitors.

The Science Station is located in an old train station in Lapa, a popular neighbourhood outside the University campus.



Fig. 5 – A living reptile at the Butantã Stop, Science Station, USP (Photo: M. Marandino).

¹² This exhibit was made in collaboration with the Museum of the Butantã Institute. The Butantã Institute is an important research and vaccines production institution in Brazil.

General Characteristics of Objects

The classification system for objects in museums of science and technology developed by M. Lourenço¹³ was used as a basis to compare the collections in these four museums. According to this author, the division 'historical' vs. 'hands-on' objects – widespread among the 'milieu' – ignores the intrinsic functions of objects, making it more difficult to know them and consequently to present them in scientific exhibitions. Moreover, this dichotomy has consequences at the institutional level, reducing a complex and multifaceted institutional panorama to a mere 'museums' vs. 'science centres' viewpoint. Suggesting

a 'back to basics' approach to the classification of objects in 'exact' science museums, Lourenço based her classification system on the purpose of design and construction (a parameter related to the function of objects). Lourenço consequently proposed three types of objects¹⁴: i) objects designed and constructed to teach science – 'pedagogical objects'; ii) objects designed and constructed for research in science – 'scientific objects'; and iii) objects designed and constructed to popularise science – 'popularisation objects'. Pedagogical and popularisation objects are similar because both have principles of simplification of reality underlying their design and construction. On the other hand, pedagogical and scientific objects also share



Fig. 6 – The exhibit 'The Drawer' (*Gaveteiro*), at the Science Station. Visitors are invited to open the different drawers where preserved specimens are kept (Photo: M. Marandino).

¹³ M. LOURENÇO, 2000. *Museus de Ciência e Técnica – Que Objectos?* Unpublished MA thesis, Universidade Nova de Lisboa.

¹⁴ Lourenço excluded technological objects from her study.

similarities because they underwent a contextual and functional disruption upon entering a museum – neither one of them was designed or constructed for exhibition purposes. In these three categories Lourenço found a place for models, scientific instruments, computers, hands-on, replicas, *maquettes*, and a wide range of objects familiar to most museums and science centres.

A particularly interesting feature of Lourenço's system is that it encompasses earlier and simpler systems, such as the one proposed by RIVIÈRE (1970-71). Rivière suggested that there were two types of objects in museums of science and technology: real things and models. Real things are those that we present simply as they are and models are simplified representations of objects, phenomena or concepts. Lourenço suggested that her 'scientific objects' resort in Rivière's category of 'real objects', while 'pedagogical' and 'popularisation objects' resort in his category of 'models'.

Although Lourenço's classification system does not include natural history specimens, her criteria were adapted to study the nature of the objects exhibited in these four museums of USP. These are common objects, present in many natural history or life sciences exhibitions, such as specimens, preserved organisms (or structures) by means of taxidermy, liquid preservation in flasks, complete skeletons or anatomical parts. These types of objects were present in all the exhibitions, with the exception of the exhibition 'Urban Birds' in the Science Station.

Frequently, mounted specimens are represented in dioramas, simulating natural habitats, as in the

Museum of Zoology. The preparation of specimens in natural history museums is a long-standing practice and is usually performed by taxidermists. However, throughout the years new techniques have been developed. Naturalisation processes have the two-fold objective of preserving specimens and making them attractive, especially for exhibition purposes. Dioramas mark a clear disruption between collection and exhibition (VAN-PRÄET, 1995) and is an example of visitor-oriented approaches that started in the 19th century.

Other types of objects are frequent in bioexhibitions¹⁵, such as plaster models of organisms cut into sections that allow the visitor to observe and learn about the internal organs, e.g. models of suids and bovids present at the Museum of Veterinary Anatomy. X-ray plates and slides with images of histological cuttings are also present in this Museum's permanent exhibition. Less common are *maquettes*, 3D structures representing habitats or presenting information. In the Oceanographic Museum, *maquettes* of marine habitats and food chains are on display. In this Museum, another type of objects is exhibited – instruments used in biological research and oceanographic expeditions.

A common feature in three of the exhibitions is the presence of living specimens. In the Oceanographic Museum, living specimens are kept in aquariums, offering an idea of the diversity of marine life. Live specimens are also present at the Science Station, in the exhibit 'Aquários' (one fresh water and two marine) and in the exhibit 'Parada Butantã'. In the latter, living specimens are presented in glass cases simulating their original habitat. However, some

¹⁵ A word suggested by ROBINSON (1997) to designate exhibitions in zoos, aquariums, wildlife parks, marine-lands, botanic gardens, arboretums and natural history and anthropology museums.

remarks on the use of living specimens can be made. From visits and conversations with staff, some of the difficulties that living organisms in exhibitions present became clear. Issues such as the recruitment and formation of specialized staff, costs of necessary equipment, and the organisation of feeding and cleaning schedules represent extra concerns in these exhibitions. Another important aspect is the quality of life of the living organisms. The exhibition of living organisms presents technical, management, financial, and ethical challenges that have to be sensibly met with.

Through time, the nature of objects presented in bioexhibitions evolved towards a more didactical, i.e., visitor-oriented approach. This tendency became more evident with dioramas in the late 19th century. Aesthetical and informative elements on ecology and biogeography grew in importance and consequently exhibition specimens became substantially different from research specimens. The same visitor-oriented tendency can also be detected in the lesser prominence of 'natural' objects. In the Oceanography Museum and the Science Station, 'natural' objects fight for a space in the exhibition, among interactive apparatus, multimedia equipment and hypertext.

Adapting the classification system of Lourenço, some reflections can be made. On the one hand, some of the objects present in these four USP museums could be considered 'pedagogical objects'. Among these are the anatomical parts and the animal plaster models in the Museum of Veterinary Anatomy, especially prepared for teaching purposes. On the other hand, the majority of the objects seen in the Science Station fall under Lourenço's category of 'popularisation objects'. Furthermore, if 'scientific objects' are representative of the subject-based disciplines of museums of science and technology (e.g. Physics,

Chemistry, Astronomy), then the same role is played by 'natural objects' in natural history museums. In all of the four exhibitions, natural objects were present, especially in the Museum of Zoology and the Museum of Veterinary Anatomy. 'Pedagogic objects', although less frequent, were present in the Museum of Veterinary Anatomy and sparsely in the Oceanography Museum – all institutions that incorporated university teaching collections. Finally, 'popularisation objects' were mainly seen at the Science Station and the presence of 'natural objects' and 'pedagogical objects' was minimal there.

Some reflections

Museums of the University of São Paulo are no exception to the statement of WARHURST (1986:138), that the "major impetus for university museum collections was surely to further the teaching and research responsibilities of the university". This role in teaching and research is clearly suggested by the history of the collections of the institutions included in this study.

As mentioned before, the Sertório Collection constituted the nucleus of the Museum of Zoology. On the other hand, the majority of the Oceanography Museum and the Veterinary Anatomy Museum collections were used by professors and researchers before they were incorporated. However, the Science Station is a special case because it does not have a collection in the traditional sense. The considerations explored here raise some interesting issues, particularly the question of 'what is a museum?', especially in the university context. Furthermore, they suggest some degree of subjectivity when the only criterion for the definition of a museum is the possession of collections. What is a collection and to what extent does a collection define a museum?

ABREU (1999: 14) suggested a typology to analyse USP's diversity of collections. From Abreu's point of view, USP has three types of museum collections. The first type, including the four USP major museums joined in the 'integration organ' (the Paulista Museum, the Museum of Zoology, the Archaeological and Ethnological Museum, and the Contemporary Art Museum) "follows a disciplinary model". The second type, directly related to USP Research and Teaching Units, encompasses teaching and research objects and is frequently used in classes and laboratories. The third type, also present in USP Research and Teaching Units, encompasses objects valuable to the history of the Unit itself, such as furniture, laboratory equipment, photographic and artistic documentation, personal objects from professors and researchers. These latter collections have an important role in the preservation of the memory of units and of the USP itself. Abreu also suggests that there are intermediate situations and that the differences and similarities between these collections can shed light on the relationships with the community outside the university. According to the USP assistant rector, these collections are instruments of dialogue between the university and society, and therefore essential to UPS' cultural outreach policies.

However, Abreu's classification might present some problems. First of all, all USP's collections are, in a way, 'disciplinary', reflecting the organisation of the university itself. In general, interdisciplinary museums are perhaps more difficult to find in universities than outside universities. From this point

of view, it is difficult to designate as 'disciplinary' only a few USP museums. For instance, the four museums presented in this text have probably as much 'disciplinary' objects as other types of objects. Furthermore, the 'popularisation objects' predominant in the Science Station not only cannot be considered a 'collection' but neither do they fit into any of Abreu's categories. Finally, it results that if this collection-based classification has the purpose of defining USP cultural policies, then the Science Station should simply be excluded from these policies. It is interesting to note, however, that the Science Station, in the beginning, treated their hands-on objects as 'traditional' museum objects – they were inventoried and stored in specific storages. Although this policy clearly indicated a more general approach to objects, the practice was later abandoned. Regardless of these considerations, it is likely that other elements than the collections must be taken into account when defining these concepts and, consequently, when establishing policies.

This reflects a more general problem of classification that scientific museums have been facing, whether university museums or not. Although some typological proposals were already presented¹⁶, there is no clear consensus on the topic. In the Brazilian context, M. X. Cury discussed differences and similarities between science museums and science centers, concluding that the principal difference lies in collections – they exist in the former and do not exist in the latter¹⁷. However, Cury argued that both share purposes and realms – public communication (and teaching) of science and

¹⁶ BRAGANÇA GIL (1988, 1998) proposed a classification based on a historical approach, and expressed it in three generations. MCMANUS (1992) also identified three generations of scientific museums, according to the themes behind their conception, also based on history. J. Padilla defended the existence of an evolution in the traditional museum concept and proposed a typology based on the communication strategies chosen to approach the public, suggesting four generations for scientific museums [J. PADILLA. *Museos y Centros de Ciencia en México*. Unpublished paper presented at the *50a Reunião Anual da Sociedade Brasileira para o Progresso da Ciência*, Natal, Rio Grande do Norte, 1998].

¹⁷ M. X. CURY. *Estudo sobre Centros e Museus de Ciências – Subsídios para Uma Política de Apoio – Relatório Sintético*. Consulted in www.publicabrasil.com.br, São Paulo, 2000. This report was commissioned by the Vitae Foundation, which was interested in promoting scientific education in Brazil. The document tries to identify and study the principal features of Brazilian science centres and museums.

technology, acting in the informal education field and frequently using similar strategies. Nonetheless, she adds that different working methods, different activities developed, and different approaches mainly derive from the existence or non-existence of collections. This study, which identified the majority of science and technology public communication institutions in Brazil, considered a science centre to be one type of museum.

These concepts have been repeatedly discussed in papers and professional meetings. The question 'what is a museum of science?' was discussed in the 2000 CIMUSET¹⁸ meeting in Paris. Several directors of museums of science and technology were present (mainly from Europe), as well as associations of science museums' professionals from all over the world. In the debate, it was mentioned that current museums' definitions have a strong focus on collections, and often institutions do not want to be designated museums because, for them, museums are 'boring' and unattractive to the public. As could be expected, no consensus was reached.

USP's scientific museums suffer from all these clarification problems as well as from other problems that derive from the fact that they are university museums. The triple crisis – of identity, recognition and resources – identified two decades ago by WARHURST (1986) in the English university context, seems to occur also in Brazil. These problems are perhaps even more acute in the university museum context. Like in many university museums, the collections derive from the use of objects in teaching and research and sometimes only a few people inside the university seem to acknowledge their patrimonial value and the need to make them known to broader audiences. Exhibition

working teams are more and more concerned with museographic aspects such as layout and labels, in order to improve the effectiveness of communication. The increasing number of visitors, especially school groups, creates the necessity of providing more explanations that are simultaneously attractive. For instance, the introduction both of extra information and interactive anatomical objects in the Museum of Veterinary Anatomy are clearly an indication of this trend. Another meaningful example of this effort is the development of activities capable of directly involving audiences, such as the 'Ecological Expeditions' programme offered by the Oceanography Museum to school groups. Initiatives of this sort represent a clear sign of the educational concerns of museum teams, in spite of the lack of financial resources. Furthermore, recent organisational and administrative changes in some institutions also point in the same direction. For instance, the Museum of Zoology recently created the Cultural Diffusion Section, with two sub-sections, Educational Activities and Museology, with the aim of improving educational aspects in the exhibitions. As far as the Science Station is concerned, the fact that its creation was inspired by the science education movement in Brazil inspired from the very beginning a stronger focus on educational aspects. Actually, the mission of the Science Station was to promote science education and its diffusion to the general public through interactive exhibitions.

The scientific museums of the University of São Paulo, although in different ways, are improving their mechanisms of public communication and establishing fruitful dialogues between the university and the public. University museums can be, in a

¹⁸ CIMUSET is the International Council of Museums' Committee for Science and Technology Museums.

unique and fundamental way, instruments to link knowledge and society. In order to establish clearer political and cultural action, universities should take into account the diversity and specificities of their museological collections. Moreover, they should face the challenge of harmoniously associating teaching and research activities with museography and exhibitions. In order to meet this difficult challenge, a closer look of what is already the practice in some

museums is required. An inclusive cultural policy, not excluding those institutions that do not have collections, should therefore be sought. Finally, and although university museums still need to specify their identity – especially in view of ‘the crisis’ – they should also be understood in a broader museological and historical context. On the other hand, universities ought to be more aware of the role their museums can play in bridging knowledge and society.

Received 15 December, 2000

Acknowledgements

I wish to thank the Brazilian Ministry of Education/CAPES for the scholarship that enabled me to undertake this research. I also thank the Directors and staff of the Museums of the University of São Paulo for allowing me inside their doors.

References

- ABREU, A.A., 1999. A tipologia dos acervos da Universidade de São Paulo e seus Problemas. In: *Anais II Semana de Museus da Universidade de São Paulo*, pp. 11-14. Pró-Reitoria de Cultura e Extensão Universitária, São Paulo.
- BRAGANÇA GIL, F., 1988. Museus de ciência – preparação do futuro, memória do passado. *Colóquio/Ciências* (Fundação Calouste Gulbenkian, Lisbon), **3**: 72-89.
- BRAGANÇA GIL, F., 1998. Museums of science and science centers: Two opposite realities? In: M.A.A. FERREIRA & J.F. RODRIGUES (eds.) *Museums of Science and Technology* (Actas do I Encontro Internacional sobre Museus de Ciência e Técnica – Arrábida, Novembro 1997), pp. 21-39. Museu de Ciência da Universidade de Lisboa/Fundação Oriente, Lisbon.
- LOPES, M.M., 1997. *O Brasil Descobre a Pesquisa Científica: os museus e as ciências naturais no século XIX*. Editora Hucitec, São Paulo.
- MCMANUS, P., 1992. Topics in Museums and Science Education Studies. *Science Education*, **20**: 157-182.
- ROBINSON, M.H., 1997. Multimedia in Living Exhibits: now and then. *Museum News*, July/August: 38-44.
- RODRIGUES, M.T.U., 1999. Realidade e Desafios dos Acervos Musealizados da USP – Museu de Zoologia. In: *Anais II Semana de Museus da Universidade de São Paulo*, pp. 31-33. Pró-Reitoria de Cultura e Extensão Universitária, São Paulo.
- RIVIÈRE, G.-H., 1970-71. Éditorial: le modèle et le concret. *Museum*, **23**: 231.
- VAN-PRÆT, M., 1995. Les expositions scientifiques, “miroirs épistémologiques” de l’évolution des idées en sciences de la vie. *Bulletin d’Histoire et d’Epistémologie des Sciences de la Vie*, **2**: 52-69.
- WARHURST, A., 1986. Triple Crisis in University Museums. *Museums Journal*, **86**: 137-140.