

Surveying and promoting scientific heritage in Portugal: Recent developments

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In the European context, and as far as scientific heritage preservation is concerned, Portugal is still in the infancy of the art.

Portuguese scientific heritage is dispersed geographically - north and south, east and west, in universities, secondary schools, hospitals, research laboratories, museums - and its real dimension is unknown. Like in many other countries, dispersal is one of the reasons for the vulnerability of scientific heritage in Portugal. But scientific heritage is also vulnerable because of its highly volatile nature. Science has nothing to do with permanence or eternity. Its main values are change and innovation. Most institutions with scientific heritage lack the mechanisms, the objectives, the vision, the resources or even the will to preserve it. 'It's not our job', they say. That is why the tangible memory of science is disappearing rapidly and silently and we feel overwhelmed by the task to document it and preserve it.

These are considerable challenges. However, they are not even the most difficult.

First, scientific heritage is a much more complex and fragmented concept than, say, archaeological heritage or natural heritage. We lack a good working definition, a manageable scope and a good set of criteria. We are operating empirically, often intuitively, and adapting standards as we move along. Much more research needs to be done on the fundamentals. Much more theses on scientific heritage studies are needed. This is a scientific but also a political endeavor. If scientific heritage does not emerge as an autonomous entity in the crowded multi-heritage landscape of our present-day, it is difficult, if not impossible, to establish policies and legislation to protect it. What we need is an international movement similar to the one that led to the intangible heritage convention in 2003. That is why trans-national collaborative projects are so important. I think our Spanish and Portuguese research groups are much synchronized in this.

Secondly, the low regard scientific heritage suffers from both scientists and from historians of science is still striking. It is immensely difficult to mobilize them or even convince them of the importance of preserving scientific instruments, anatomical models, machines or natural history collections. Apart from one or two exceptions, scientists are 'hopeless'. As for historians, they recognize it is important but they typically mean it in the antiquarian sense. It is rare to find a historian of science who sees a scientific instrument as a primary source 'at the same level' of

documents. Unlike biologists who mobilized fiercely for the protection of natural heritage worldwide, scientific heritage still lacks a consistent professional group to defend it socially and politically. In Portugal, Spain, the UK, Germany, scientific heritage lacks a credible and solid voice. Again, one of the ways to address this is through high-quality research: to deliver good heritage-based, collections-based and object-based history of science. And again, Spain and Portugal are much synchronized in this and together we could set standards, even for Europe.

Since 2007, we have gradually been addressing some of these issues at the Museum of Science of the University of Lisbon. We have benefited from an encouraging and constant support from the Centre for the History of Science of the University of Lisbon, which has a research line dedicated to heritage and collections. The Centre (recently merged with the Nova Centre) has been an engaged partner of the Museum since the beginning. Together, we have been working on four simultaneous fronts: A) Workable Fundamentals; B) Awareness and Recognition; C) National Survey and D) Emergency Support.

Although we are at early stages and an evaluation is premature, I will briefly discuss these fronts. My aim is to outline common ground so that our two groups can work out future collaborations for the promotion of Iberian scientific heritage.

A) Workable Fundamentals

We have come up with an operational definition of scientific heritage, drawn from heritage studies and from heritage international charters. It has its problems, but it provides a manageable framework in most cases.

We have also been compiling available standards and legislation regarding the curatorship and conservation of scientific collections, mostly through the adaptation of archeological or ethnographic standards. This is an area that needs further development. In particular, we need practical guidelines regarding the inventory and conservation of scientific instruments and natural history collections (mounted specimens, liquid collections).

There are high-quality inventory resources online - such as makers' catalogues - including COMIC's website. We need to complement that by compiling and digitalizing the Portuguese sources and making them available online.

We also need to open a front on 20th century scientific heritage but we feel we have a long way to go before that¹.

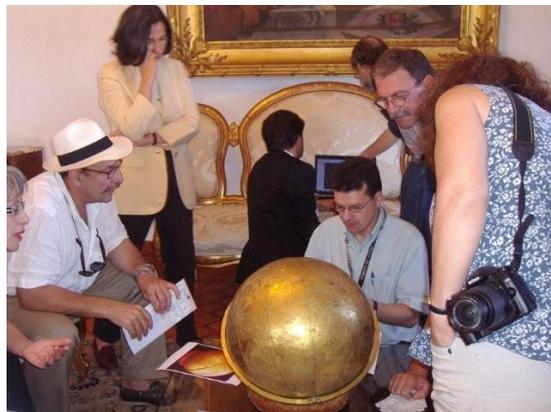
Twice a year, we provide training at the Museum in inventory and conservation of scientific instruments. The next workshop will be in June 2009 and for the first time we will announce it more broadly through the Portuguese museum community.

As for terminology, a field that has lacked consistency for decades in many languages, we have been working since 2006 with 14 museums in Portugal and Brazil to develop a thesaurus of scientific instruments in Portuguese. In 2009 we are planning to merge the two lists from Portugal and Brazil (c. 4,000 terms). After that, data will be organized, historical depth will be introduced through the variation of terms through time and a glossary will be produced. It is a long-term project but it is important both for museum daily work and for a future shared online database.

¹ Portugal and Spain should do this together, perhaps a European project with Regensburg and Roland Wittje.

B) Awareness and Recognition

For the past years, the Museum has been working hard to put scientific heritage in the Portuguese media, political and academic agendas.



SIC participants at the Faculty of Engineering of the University of Porto and observing the 1575 Schissler globe at the National Palace in Sintra (September 2008).

One of the strategies has been to promote Portuguese scientific heritage abroad. In 2007 and 2008, the Museum hosted three major conferences addressing scientific collections and heritage: 19th Century Chemistry: Spaces and Collections (February 2007), Universeum 2007 (July 2007) and the XXVII Symposium of the Scientific Instrument Commission. During these conferences, we have deliberately got out of Lisbon and visited little known, abandoned or endangered collections. High profile collections-oriented historians of science participated and this has partly attracted the attention of the Portuguese community of historians of science as well as the interest of young historians of science. We have also invited high-profile Portuguese personalities (e.g. Mário Soares) and this has also attracted some media coverage. The 'Manifesto' for Portuguese Scientific Heritage, signed in February 2007, has also received media attention and resulted in the public commitment of the Foundation for Science and Technology (FCT) to support a National Survey.



Students from the Masters in History and Philosophy of Science work with scientific instruments at the Museum storage (June 2008).

Another strategy to increase awareness and recognition has been to raise critical mass at three levels: a) training in inventory and preventive conservation of scientific collections; b) recruiting young researchers for collection-based history of science; and c) submitting collection-based research projects to FCT. Although results have been promising so far², raising highly qualified critical mass is a long term and time-consuming aim.

As more PhD students and post-docs become interested in the material culture of science, it is essential to provide them with the conditions to travel and exchange with colleagues abroad. Spanish research groups are a priority destination and we should make an effort to secure some funding for a permanent exchange channel.

C) National Survey

The National Survey is possibly the most important aim of our work and, in many ways, all the rest converges to achieving it. Taken as a whole, Portuguese scientific heritage is of considerable importance in the European context. Possibly given to its isolation and lack of resources during most of the 20th century, Portugal has seen little dispersions. Equipment was used and re-used for decades. It is hard to believe that Coimbra's 18th century *Laboratorio Chimico* was in daily use for chemistry teaching during most of the 1990s. It is even more striking to learn that Lisbon's 19th century *Laboratorio Chimico* and Astronomical Observatory were in use until 2002. The same goes for 19th century scientific instruments still in use today at the majority of secondary schools. This continued use, combined with the lack of resources, has contributed to the preservation of scientific heritage in Portugal.

Like in many European countries, we are going through a turning point. Political reforms initiated in the late 1990s are having considerable impact on institutions with scientific heritage.

The Portuguese higher education system (possibly 80% of Portuguese scientific heritage is in universities) is presently going through its biggest reform since 1976. Two years ago, public universities were given the opportunity to become private foundations and the higher education landscape is likely to change dramatically in the coming 5 to 10 years. There is also great uncertainty regarding the fate of the Polytechnic Institutes, many of which have important scientific heritage. The role of collections and museums in that future landscape is today more vulnerable than ever.

In 2006, the Ministry of Education launched a 940 million euro program to renovate secondary school buildings. Until 2015, 330 Portuguese secondary schools will go through major construction works to renovate their laboratories, equipment, classrooms and facilities, among which the oldest 'liceus', which were basically intact since the late 19th century and early 20th century. The impact on secondary school collections is still unknown but likely to be not good. In schools presently under renovation in Lisbon, collections have been transferred to a large Ministry's warehouse in the suburbs³, but these transfers raise concerns as they do not seem to

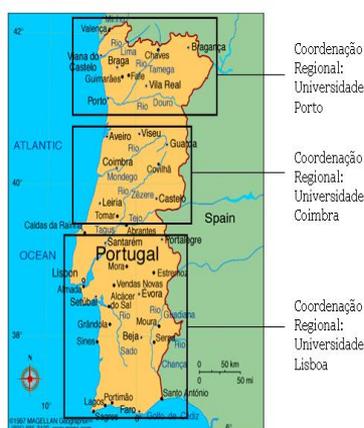
² A 40-hour course on scientific collections at the Masters in History and Philosophy of Science of the University of Lisbon; one FCT project approved on material culture of science; 2 post-docs and 2 PhDs in History of Science working on scientific heritage and material culture (Inês Gomes is one of them) plus 3 other PhDs and one Masters in preparation.

³ Ca. 800 items from the oldest 'liceu' in Portugal (Escola Secundária Passos Manuel) were transferred to the Museum of Science on long-term loan during renovation works.

be supervised by qualified staff. Moreover and most likely, the collections will remain in the warehouse indefinitely.

Reform has also affected other public institutions, e.g. hospitals, research laboratories and national institutes. Some were closed, others were merged and re-merged, and the fate of staff, facilities and heritage is uncertain.

In short, that pristine and well-preserved state that scientific heritage enjoyed in Portugal may be coming to an end. It is thus urgent to know what exists and where and document it as thoroughly as possible before it disappears - first at the level of clusters (collections and buildings) and later at the level of objects. We normally designate the former National Survey (*Levantamento Nacional*) and the latter National Inventory (*Inventário Nacional*)⁴.



Since Portugal is a relatively small country (92,000 km² including Azores and Madeira, roughly a fifth of Spain), for the National Survey we aim at dividing the country into three parts: North, Centre and South and allocate them to the Universities of Porto, Coimbra and Lisbon respectively. For that purpose, a consortium between the three universities will be established. The consortium has been orally agreed upon in a couple of meetings but its formal establishment has been delayed due to the current institutional and political instability of universities.

Meanwhile, the recruitment in September 2008 of a post-doc dedicated full-time to the National Survey - Teresa Salomé Mota - will enable the development of methodologies and instruments, which are fundamental to the field work. Teresa Salomé Mota has also organized a monthly cycle of seminars ('Ciclo de Seminários do Património Científico Português').

D) Emergency Support

Recently, the Museum has been contacted by several institutions to assist in the preservation of their scientific heritage.

This is natural and likely to increase as the Museum's engagement in the promotion of scientific heritage in Portugal becomes better known. Our degree of responsibility and commitment is therefore likely to increase. However, this may be a problem as the Museum does not have resources to provide assistance to all institutions and Portugal does not have a national museum of science and technology. Moreover, assistance can be counterproductive as it can provide institutions a false sense of stability and stimulate the proliferation of unsustainable 'museums'. Therefore,

⁴ We do not have the minimum requirements for a National Inventory of Scientific Heritage in Portugal yet. Object level requires much more critical mass than we presently have. It requires standards we presently have not developed. It requires well conceived thesauri and glossaries. It requires legal frameworks that can enable institutions to provide for the maintenance, preservation and accessibility of their heritage. It requires much more training. This does not exist today.

assistance needs to be carefully pondered. At this stage, we are only assisting cases of risk or emergency.



Museum staff selecting and packing instruments at the Instituto Bacteriológico Câmara Pestana (November 2008).

The nature of the assistance changes significantly from one institution to another. Some are still at a selection stage while others have already produced some form of inventory or list. The conservation state is generally bad (woodworms, poor conservation facilities, extreme environmental conditions such as outdoor storages, etc). Typically, the Museum performs a diagnosis of the collection, works with the institution on a realistic inventory and conservation plan and provides staff training. We are presently working with the following institutions, all in Lisbon:

- Academia das Ciências de Lisboa
- Instituto Bacteriológico Câmara Pestana, Universidade de Lisboa
- Instituto Nacional Inovação Tecnológica e Industrial (INETI)
- Laboratório Nacional de Engenharia Civil (LNEC)
- Hospitais de Lisboa Central

Despite all the risks, assistance in the preservation of specific cases of scientific heritage is providing us with useful information and expertise for the National Survey.

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