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# **VERGILIUS: A Collaborative Platform for Studying and Promoting the Heritage of the University Paris 1 Panthéon-Sorbonne\***

## **Introduction**

The Department of Art History and Archaeology of the University Paris 1 Panthéon-Sorbonne has a rich heritage, which has long remained largely unknown.<sup>1</sup> In addition to the Greek antiquities and the model of ancient Rome, the department also holds a rich collection of pottery sherds from the Near East, a corpus of stamp seals from ancient Iran, several thousand slides and photographs, the archives of former professors, and a collection of plaster casts,<sup>2</sup> as well as a film library.<sup>3</sup> Since October 2011, these collections have been placed at the core of an important project aiming to inventory, study, valorise and disseminate these collections.<sup>4</sup> A pivotal point was the September 2015 opening of an e-Centre for digital tools (*Pôle images et technologies numériques*), whose aims include the promotion of digital approaches to the teaching of art history and archaeology, and the study and dissemination of the heritage collections held by our department.<sup>5</sup>

Within this framework, two main issues arose: Firstly, how should we transform the university heritage into a heuristic and teaching instrument through new technologies? Secondly, who should be the protagonists of this operation?

The following case studies will show that the digital dissemination of heritage, in all its forms, is actually a multi-layered process requiring the definition and follow up of a precise working protocol.

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\* The video of the talk, presented at the online conference *Teaching Classics in the Digital Age* on June 15-16, 2020, is available at <https://doi.org/10.5446/51974>.

1 For a general overview: Tosti, Duploux 2018.

2 Martinez 2005.

3 This film library is actually the third largest in France, and is a joint collection of both Paris 1 Panthéon-Sorbonne and Paris 3 Sorbonne Nouvelle.

4 The first step was the inventory and study produced under the supervision of Alain Duploux of the Greek antiquities, achieved through the elaboration of a relational database, which is already accessible online: <http://agias.huma-num.fr> (last accessed May 27, 2021). See also: Duploux, Asselineau, 2016; Duploux, Asselineau 2017; Asselineau 2017; Duploux, Bruschini- Chaumet 2019.

5 <https://www.pantheonsorbonne.fr/ufr/ufr03/ufr-presentation/pole-images-et-technologies-numeriques/> (last accessed May 27, 2021). This e-Centre, built to replace the old photo lab, is part of the digital turn that has taken over many universities and research institutions in the last two decades, with particularly promising results in the field of archeology.

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## Methodology and working protocol

Moving from the materiality of the objects to their digitisation and dissemination, the following steps have been implemented:

<b>Materiality of the collections</b>	<b>Digitisation and dissemination of the data</b>
Conservation	Data structuring and processing: 2D and 3D scanning
Understanding and contextualising	Data entry, uploading and storage: metadata and online collections
Analysing and describing	Data visualisation: virtual exhibitions

Our collections have long been completely neglected, left unmaintained and in some cases damaged. The first tasks were to sort and clean the objects, to reconstruct the context in which they were collected, and to evaluate their scientific interest and pedagogical value. This was achieved with the collaboration of a few department members, but was mostly carried out by students, who were absolutely central of the project. BA and MA students from our department (as well as *Erasmus+* students) were the true protagonists of the project, dedicating many hours of their internship to the various steps of the *chaîne opératoire*.

Students immediately realized that the university collections were not only ‘anti-quarian’ objects to be passively admired, but also active agents of their own training. However, it should be pointed out that our students have no specific IT skills. In fact, if GIS and database training are usually part of an archaeology curriculum, the digital turn in the humanities still requires the implementation of many other skills within their academic training. The active involvement of students in our project was therefore meant, on the one hand, to develop their ability to deal with an archaeological artefact, an archive, or a whole collection in terms of description, analysis, interpretation, and conservation. On the other hand it was also intended to strengthen their digital skills by leading them to seek out solutions to the various technical or documentary issues they faced in the process.

To fulfil the requirements linked to the digital teaching and dissemination of our particular heritage to our students and to a wider community, a user-friendly digital architecture was sought. The idea was to focus on content and methodology, rather than on technology. Very often, the choice of a complex digital solution not only

makes us, as scholars in the humanities, dependent on the help of IT specialists, but it also prevents us from understanding the logic and rules of knowledge production. Conversely, I wanted to place my project in a 'win-win' logic: while the university acquires data and enriches its digital archive, the students also develop their skills for the job market. Accordingly, I chose Omeka Classic, a quite simple and modular open access CMS. Eventually, in November 2016, I launched *VERGILIUS*, the portal dedicated to the heritage of the Department of Art History and Archaeology of Paris 1. Before illustrating the main features of this portal and the way I adapted the structure of Omeka to our pedagogical needs, I will start with an overview of the project, focusing on the main issues and solutions.

## **Before *VERGILIUS*: surfing between data and metadata**

### **Slides and photos from former professors and researchers**

One of the most important collections held by our department consists of thousands of slides and photographs for teaching and research. Some are images taken from books, others are original photographs taken by researchers and academics throughout the 20<sup>th</sup> century.

In the case of images from books, it seemed useless to digitize these slides or photos for which we have no copyright ownership; they can be accessed directly in the original publications they were taken from or in the large iconographic online databases made available by well-known repositories of archaeological iconography, like the Perseus Project, Arachne, the digital LIMC, the Beazley Archive, etc. For this series, we established a global inventory in order to identify the subjects and understand the teaching methods in the department before the advent of new technologies.

The slides of images taken by former researchers and academics are of course much more interesting. They offer unpublished images of archaeological sites that may have completely changed over the years, either because of the progress of excavations or, in the case of the Near East, due to their destruction during conflicts, or by ISIS. The department also owns a significant series of slides belonging to one of its former professors, Ernest Will.<sup>6</sup> Having travelled extensively between the 30s and 70s, he left an impressive number of photographs. Thanks to his pictures, it is now possible, for example, to visually travel along the Nile river as it was during the 1950s<sup>7</sup> or to discover a forgotten, and now almost completely inaccessible Syria.<sup>8</sup>

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6 For more information about Ernest Will, see also: <https://nordoc.hypotheses.org/1163> (last accessed May 27, 2021).

7 <https://vergilius.pantheonsorbonne.fr/items/show/52#c=&m=&s=&cv=&xywh=-56%2C-491%2C2772%2C3501> (last accessed May 27, 2021).

8 <https://vergilius.pantheonsorbonne.fr/collections/show/111> (last accessed May 27, 2021).

Large parts of these collections were inventoried, digitised and referenced. During these operations, special attention was given to metadata, which presented a real challenge for students. We chose two open-sourced pieces of software, XnView and Geosetter, which allow users to modify the textual and geographic metadata embedded in image files. These indexing and referencing operations are now necessary to ensure that our resources will not become ‘lost in translation’ in the world wide web. In the long run, a precise indexation will allow researchers to find them in national and international research platforms (such as *Isidore* in France), which are based on sophisticated queries of metadata. Working on these old pictures requires a detailed workflow and therefore allows for specific training. Students should deal with scanning and image processing issues: in doing so, they are forced to transform the photograph into an agent of their training, both digital and archaeological. Through this process they learn how to describe an archaeological artefact using metadata. Sometimes a careful analysis even allowed students to date images. For example, while no information is available on the date of Will’s travels up and down the Nile, Will’s photographs of Abu Simbel temples in Upper Egypt, near the border with Sudan, correspond to the situation before the construction of the Aswan Dam, allowing the students to date Will’s travel to before 1965–1966, when the temples were dismantled and reassembled in a location uphill.<sup>9</sup>

### **The collection of pottery sherds from the Near East**

Another interesting case study is represented by the – still unpublished – collection of pottery sherds from the Near East, whose creation dates back to the 1970s. This collection is made up of about 1500 fragments, mainly collected on the surface by former academics and researchers from Paris 1 during site tours, except for a small set coming from a systematic excavation on an Iranian site, Tureng Tepe. The pieces are largely Mesopotamian in origin, with a distinct series from Arabia. Chronologically, most of the sherds date to the Neolithic and Bronze Ages. The objective of this study collection is to establish, through the technological study of a wide spectrum of pottery productions, a reference atlas for students and pottery specialists.<sup>10</sup>

For the technological processing of each sherd, students worked under the supervision of pottery specialists François Gilligny and Sophie Meri, and produced descriptive cards to be filled manually. For the database – that represents the digital translation of these cards –, I chose the FileMaker Pro proprietary solution, which allowed in few weeks to come up with a very user-friendly and powerful tool. Even if the interface has still to be improved, the data entry has already started. Thanks to a FileMaker Server provided free of charge by the Huma-Num national research infrastructure, the

<sup>9</sup> <https://vergilius.pantheonsorbonne.fr/collections/show/129> (last accessed May 27, 2021).

<sup>10</sup> For a similar French university project, already available online and based on the CMS Omeka S, see <https://teknotek.pretech.cnrs.fr/s/fr/page/accueil> (last accessed May 27, 2021).

database (named ‘TEchSSON’) is already accessible online to the project managers and to Paris 1 students.<sup>11</sup> Once completed, it will be open to the general public, which will make it a broadly accessible teaching and a research tool that can demonstrate the potential of a relational database for the analysis and understanding of ancient pottery technologies. A few 3D models of the most interesting sherds were also produced, introducing students to photogrammetry. We chose the proprietary software PhotoScan (now Metashape) for the first steps (point and dense cloud) and the open source software Meshlab and Cloud Compare for further processing.<sup>12</sup> By training students to photogrammetry, we initiated the production of 3D models, which are now used in our pottery courses, while allowing the dissemination of the data beyond our university. Here, we see how training, teaching and heritage dissemination can merge into a win-win logic.<sup>13</sup>

### **The assemblage of seal impressions from Ancient Iran**

The last case study presented here is the assemblage of 495 modern impressions of ancient Iranian seals created during the 1950s and the 1960s and related to the work of Jean Deshayes, then a professor at the University of Paris.<sup>14</sup> During this period Deshayes was involved in various projects led by French archaeologist Jean-Claude Gardin – one of the founders of archaeological computing – on the development of automatic data recording in archaeology.<sup>15</sup> The assemblage of seal impressions could be traced back to these years and related to this epistemological framework, which is in turn part of the foundation of modern digital archaeology. In order to inventory and study this assemblage we produced a relational database (CESIA id. *Corpus des empreintes des sceaux de l’Iran Ancien*), once again using FileMaker Pro.<sup>16</sup> This tool, already available online to the project managers thanks to the FileMaker Server provided by Huma-Num,<sup>17</sup> is aimed at describing all relevant features of a cylinder or stamp seal, including its size, shape and form (material data) and its iconography (immaterial data). It combines scientific needs with patrimonial ones, while introducing our students to the principles of relational databases, as well as allowing us to communicate our university heritage (and scientific production) to a wider audience.

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11 <https://fm01.db.huma-num.fr/fmi/webd/TEchSSON> (last accessed May 27, 2021).

12 Some of these 3D models are already available on the Sketchfab account of the University: <https://sketchfab.com/Sorbonne-university-Paris1> (last accessed May 27, 2021).

13 For a first overview, combining 3D and RTI techniques, see Ferrari, Giligny 2019.

14 Huot 1980.

15 See Gardin 1991.

16 A MA-thesis was dedicated to this topic: Antinori 2018.

17 <https://fm01.db.huma-num.fr/fmi/webd/CESIA> (last accessed May 27, 2021).

## **VERGILIUS: From data processing to data sharing**

In 2016, *VERGILIUS* was launched as a unified access portal, gathering all the department's iconographic and heritage resources. The tool is based on Omeka Classic (version 2.4.1), a free and user-friendly CMS developed by the Roy Rosenzweig Center for History and New Media.<sup>18</sup> Operating at the crossroad of web content management systems, archive management systems and museum management systems, it allows users to create or collaborate on a website to display collections and to build virtual exhibitions. It also offers a series of themes and plugins that can extend its functionalities.<sup>19</sup> Omeka uses the Dublin Core metadata standard to manage metadata,<sup>20</sup> as do French national libraries or the national scientific search engine Isidore.<sup>21</sup> Omeka therefore fits the pedagogical and institutional needs of both our department and this particular pedagogical project very well. It also manages users according to various access privileges: a super-user, who has all privileges of administration and management (members of our IT System department); various administrators (professors and researchers of our Department), who have the right to access and modify documents, collections and tags; and contributors (students), who have the right to add and edit the documents they have created. *VERGILIUS* is the result of this network operation, moving from the server configuration and the back-office set-up (installation of several plugins and metadata specification) to data entry of university collections. Although the layout is still a work in progress with some technical issues that need to be fixed, large parts of our collections are already available. The core of the portal is the panel 'Images & Archives', which includes all the image libraries already processed.<sup>22</sup>

1. Digitised images, mostly from personal slides or pictures shared by professors and researchers from the department.
2. Digitised Archives.
3. Virtual exhibitions.

Hierarchisation of the collections was also an important part of the project. Materials are organised in sub-categories, each one including one or more items (the item representing the primary entity of the Omeka structure). Except for the archive collection, all collections are organised by topographical order. A special attention was given to the geolocation of each item, i.e. each image or archive. The idea was to digitally and virtually reconstruct the original context of these objects, which were once stored in boxes

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18 <https://omeka.org/classic> (last accessed May 27, 2021).

19 For a short overview on this tool, Leblanc 2019.

20 <https://archivengines.wordpress.com/2011/09/24/dublin-core/> (last accessed May 27, 2021). Cf. Morel-Pair 2005.

21 <https://isidore.science/> (last accessed May 27, 2021). See also <https://www.huma-num.fr/sites/default/files/guide-isidore.pdf> (last accessed May 27, 2021).

22 <https://vergilius.pantheonsorbonne.fr/collection-tree> (last accessed May 27, 2021).

or on shelves, and were thus alienated from their unique location in time and space. An important feature of our portal is the wide chronological and cultural span of its content. Through a simple search bar, it nevertheless allows users to identify aggregations which cut across space and time, creating connections between materials from a wide variety of locations and periods, as well as from different collections.

In *VERGILIUS* metadata can be filled in using free text, but in most cases, we implemented lists of values or codes from a controlled vocabulary. Especially for the archives folder, we decided to add specific metadata in addition to those inherent to Dublin Core, trying to digitally reproduce the archives' materiality. The archives of Bohumil Soudský – a former professor who introduced European Bronze and Iron age archaeology into Paris 1 teaching in the early 1970s<sup>23</sup> – are a good example in this respect.<sup>24</sup> They consist of personal notes, drawings, press clippings, excavation files, and a large number of student homeworks and exams. We followed a precise protocol: from sorting and ranking to inventory, then from scanning to uploading a selection of the more interesting pieces. Through data uploading we created a detailed hierarchical tree, which corresponds accurately to the physical organisation of the archives in the shelves of our department. In order to further exploit these resources, we used the Neatline plugin<sup>25</sup> to create a virtual exhibition showing the main stages of Soudský's education and scientific career on an interactive map.<sup>26</sup> This is a good example of Omeka's flexibility, which not only allows users to store and manage data, but also to produce new data. In other words, after data collecting and data processing, we finally reach real data visualisation: a completely new resource with a great heuristic potential, produced by students for both students and scholars alike.

## Conclusion

Even if various technical issues and textual or iconographical errors will still need require attention during the coming months, we are proud of this experiment, through which we have been able to combine materiality and virtuality, traditional approaches and digital humanities, 2D and 3D, description and visualisation, and teaching and dissemination. Thanks to the involvement of students, our department is promoting its material heritage, while creating a new and unique digital heritage. But the students themselves have also been able to profit greatly from this project in their academic training, especially in light of a job market whose credo is, now more than ever before, 'Think Digital'.

<sup>23</sup> Demoule 1989.

<sup>24</sup> <https://vergilius.pantheonsorbonne.fr/collections/show/101> (last accessed May 27, 2021).

<sup>25</sup> This plugin, released by the University of Virginia (<https://neatline.org/>), (last accessed May 27, 2021) is an interactive tool for telling stories using maps, timelines, and exhibition resources. Like the Story Maps developed by ESRI, it allows to the general public to maps with various kinds of spatial data.

<sup>26</sup> <https://vergilius.pantheonsorbonne.fr/neatline/show/bohumil-soudsky-innovations-archeologiques-entre-prague-et-paris> (last accessed May 27, 2021).



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