# THE YCBA HISTORIC FRAME COLLECTION: USING SEMANTIC WEB TECHNOLOGY TO CONTRIBUTE TO THE SCHOLARSHIP OF BRITISH ART

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## **ABSTRACT**

Following a technical survey of its of historic frame collection, the Yale Center for British Art has catalogued its frames as extensively as its art collection, and now shares it with the world via web pages for human users as well as through machine readable formats (LIDO XML, CIDOC-CRM RDF) for data aggregators. This paper proposes a data management and dissemination strategy model that relies on data exchange protocols and Linked Open Data to ensure that our rich cultural knowledge can be reused by scholars and contributes to the study of frames and the British art in general.

## **KEYWORDS**

Frames | Linked Data | Semantic Web | Cataloguing | Art History

# **RESUMO**

Na sequência de uma avaliação técnica da colecção de molduras históricas, o Yale Center for British Art tem vindo a catalogar as suas molduras tão extensivamente quanto a sua colecção de arte, e agora partilha esse trabalho através de páginas web, quer para utilizadores humanos quer através de formatos específicos (LIDO XML, CIDOC-CRM RDF) para agregadores de dados. Este artigo propõe uma estratégia para a gestão de informação e para um modelo de disseminação que assenta em protocolos de comunicação e no Linked Open Data para assegurar que o rico conteúdo cultural pode ser reutilizado por académicos e contribuir para o estudo das molduras e da arte britânica em geral.

## PALAVRAS-CHAVE

Molduras | Linked Data | Web Semântica | Catalogação | História da Arte

Unlike many other museums, the Yale Center for British Art (YCBA) has extensively catalogued its collection of historic frames, and to explain why the museum did this extensive survey, we will first look at specific frames in the YCBA collection. This will take us through the changing tastes of British collectors from the 18th to the 20th century. The second part of this paper will offer some strategy on how to make frame research relevant in the network environment. I will highlight the innovative data management strategy that the YCBA has adopted to ensure wide dissemination of its research and support its scholarly mission. These two concepts of research and access will be recurring themes to demonstrate that they are particularly important where the study of frames is concerned, be they wood frames or tile frames, because frames have often been left out of the conversation.

The YCBA was founded in 1966 by the American collector Paul Mellon (1907-1999) to house his personal collection. Paul Mellon was the son of Andrew Mellon (1855-1937, an American banker/financier who served as United States Secretary of the Treasury from 1921 to 1932, and of Nora Mary McMullen (1879-1973), an Englishwoman. Paul spent his first seven summers in England and developed a lifelong fondness for English life and aesthetics from an early age. Like his father, Paul was a great philanthropist and distributed his collections to several museums in the US, such as the National Gallery, Washington, DC, the Yale University Art Gallery, and the Virginia Museum of Fine Arts, but having graduated from Yale University in 1929, his largest gift went to his Alma Matter.

Paul Mellon generously gave to Yale University the building (designed by Louis I. Kahn), works of art, and endowment that established the Yale Center for British Art. The museum opened in 1977 and today, with about 35,000 rare books and manuscripts, 50,000 works on paper, 2,000 paintings and 200 sculptures, the YCBA is the museum that holds the largest and most comprehensive collection of British art outside the United Kingdom, presenting the development of British art and culture from the Elizabethan period to the present day. In fact it is critical to know that the museum was intended by its benefactor to offer a survey of the best British Art in the US.

Paul Mellon could have donated his British Art collection to any institution, but he chose to donate it to Yale University, and this speaks directly to the notions of research and access I alluded to earlier. While he was quite clear that he did not mean for the YCBA to become a "vague nexus of "cross-fertilization," rather than a place for the study of British art" (Mellon, 1992: 324), the academic setting of the museum meant that his British art collection was to be actively used by a wide range of scholars from different fields. He was also concerned that his collection was going to be as accessible as possible, and from the beginning this was mostly achieved through free admission to the museum and the generous sponsorship of visiting scholars. His forward thinking motivation still guides the museum today and this paper discusses how today we use Web technology to further this principle of open access today.

Fast forward to 2009, when we started collaborating closely with the frame historians Paul Mitchell and Lynn Roberts<sup>1</sup> on a major project to survey our collection of over two thousand frames. The reasons for undertaking this survey were twofold. First it was necessary to gain a sense of the YCBA's frames, which represent an often-overlooked decorative arts collection. Second, frames themselves have a history, as do the relationships between painted objects and their frames, but those stories cannot be told without access to the frames themselves.

The first three exceptional frames that I propose to start this paper with are critical to understand the story of the paintings they are on. I will also discuss the historical contexts they belong to.

Let's start by looking at a quintessential 18th century British frame, which is the Palladian, 'William Kent' frame<sup>2</sup> designed for the 1782 portrait of *Charles Stanhope*, 3rd Earl of Harrington by Sir Joshua Reynolds (1723-1792, British) [fig.1]. The provenance of this painting is very straightforward: it was commissioned by the sitter and stayed in the family until 1966 when it was sold to Thomas Agnew who then sold it to Paul Mellon in 1967, who in turn gave it to the YCBA in 1977.

The sitter, Charles Stanhope (1753-1829), returned to England in the spring of 1782 from America, where

<sup>1.</sup> http://www.paulmitchell.co.uk

<sup>2.</sup> http://collections.britishart.yale.edu/vufind/Record/3414344





Fig.1 · Frame: Unknown framemaker, British, Palladian, 'William Kent', 18th century, carved wood, later gilding over original gilding, Yale Center for British Art, B1977.14.69FR
 Painting: Sir Joshua Reynolds RA, 1723–1792, British, Charles Stanhope, third Earl of Harrington, and a Servant, 1782, Yale Center for British Art, Paul Mellon Collection, B1977.14.69

he had served in the American Revolutionary War. On his return to England he was promoted to colonel and an aide-de-camp to the king, and it is likely that he commissioned this portrait to commemorate both his rise in military rank and his succession to the earldom, an event that had taken place while he had been in America. The presence of the black slave may allude to the Stanhope's military service in Jamaica but it is first and foremost a direct tribute to seventeenth-century conventions of full-length portraiture, particularly those of van Dyck, who often included black servants in his portraits.

This painting<sup>3</sup> was the only full-length portrait Sir Joshua Reynolds exhibited at the Royal Academy in 1783, a year in which his contribution to the annual exhibition was affected both in size and reception by his having suffered a paralytic stroke in November 1782.



Its framemaker is unknown but with its sophisticated applied flowered guilloche with corner openwork raffle leaf ornaments; ribbon-bound fasces at sight with corner acanthus leaves, it is of exceptional quality. It is of the same period as the painting; however, we can't be sure it is the original.

Palladian frames of course are a most distinctive and quintessentially British design and we have to look at the political changes of the time to understand their rise and importance in England. With the reign of George I (1660-1727, reign 1714-1727), the Hanoverian dynasty was in search of a new artistic style to distinguish itself from the Baroque of France that were adopted by the Stuart regime before it.

This kind of frame is generally called a "Kent" frame after William Kent (1685-1748), painter, furniture designer, landscape gardener and architect, who was the protégé of the patron and high priest of English Palladianism, Lord Burlington (Boyle, Richard, third earl of Burlington and fourth earl of Cork (1694-1753), architect, collector, and patron of the arts). English Palladianism was inspired by the Italian architect Andrea Palladio, who was himself looking at Antiquity. Burlington met Kent while on his Grand Tour in 1714-15. Kent became interested in architecture before 1719, his second Grand Tour and came back at a time of great transformation in British culture. Kent was also influenced by the work of the British architect Inigo Jones (1573-1652). In Italy, Jones was exposed to the buildings of classical Rome and the work of Palladio. When Jones returned to England, he produced designs such as those for the Banqueting House, Whitehall, which are influenced by Palladio's buildings. Kent was greatly influenced by Jones, as his publication in 1727 of The Designs of Inigo Jones demonstrates. William Kent edited "The Designs of Inigo Jones" in 1727 and it inspired him to take up architectural designs, including over mantels and frames.

Kent was the first architect working in Britain to design every detail of a specific interior himself, as in Chiswick House, London and Holkham Hall, Norfolk. This became common practice later and is an essential characteristic of many Rococo interiors. From the architect's point of view, he was designing inward from the architecture of the building. The walls were organized according to the proportions created by the size of the room itself and then by the fixed

furnishings, such as windows, doors and chimney pieces. The paintings were fitted like the pieces of a puzzle into the spaces that were left. The frames were then tied even more closely to the whole by reflecting in their contours and ornaments the fixed fittings, the doors and chimney pieces.

One of the best frames in our collection is this splendid mid-18th century British, Rococo Trophy frame on a marine painting by Samuel Scott<sup>4</sup> depicting Vice Admiral Sir George Anson's Victory off Cape Finisterre (1749)<sup>5</sup> [fig.2]. I am excited about this frame not only because of its exquisite ornaments that reinforce the maritime theme of the painting, but also because it seems to converse quite nicely with Jorge Colaço's work, which I am interested to learn more about. It seems that Colaço's borrowed some ornaments from the Rococo vocabulary, especially with the frieze à la chinois, the pierced and trellised inlay between the sight moulding and the swept sides, with are also visible in the frame. Through the survey we were able to identify that this frame has not been altered and that it is the original because it is typical of the High Rococo style of the 1740s. The painting being from 1749 we can be sure that this frame is original.

Trophy frames of course are the most splendid and luxurious examples of carved giltwood setting. They were the products of the greatest of contemporary carvers and gilders. Extremely skilled répareurs, gilders, carpenter-carvers, and master carvers were necessary to achieve this level of refinement. Only the framemakers of trophy frames might get recorded in inventories, but most are guessed really.

And this framemaker carved some really exquisite ornaments: the corners are great symmetrical swirls of scrolling raffle leaves and rocailles, and the frame is not even symmetrical across its horizontal axis, the top corners having reversed arcs. Further palms or rushes curve across the top, and festoons of roses are threaded around the outer contours.

We think perhaps the Huguenot Isaac Gosset (1713-1799) might have been the framemaker for this exceptional frame. Samuel Scott was working during the flowering of the Rococo style in England. He was also both financially and fashionably successful, which allowed him to call upon the best carvers for the

<sup>4.</sup> http://collections.britishart.yale.edu/vufind/Record/3414391

<sup>5.</sup> http://collections.britishart.yale.edu/vufind/Record/1665227



Fig.2 · Frame: Perhaps Isaac Gosset, 1713–1799, British, Rococo Trophy frame, mid-18th century, carved wood, later gilding over original gilding, Yale Center for British Art, B1981.25.559FR
Painting: Samuel Scott, ca. 1702–1772, British, Vice Admiral Sir George Anson's Victory off Cape Finisterre, 1749, oil on canvas, Yale Center for British Art, Paul Mellon Collection, B1981.25.559

frame of this painting. Additionally Samuel Scott was friend with William Hogarth and some of Hogarth's work is set in striking Rococo trophy frames that are possibly by Gosset. Gosset is known for his work for or in association with leading artists, such William Hogarth, Allan Ramsay, William Hoare and Thomas Gainsborough. In 1774, at the age of 61, he was appointed George II's official framemaker. We know from similar examples that the cost of such exuberant trophy frames could sometimes be as much, or even more, than the paintings they framed, making frames a powerful reminder that concepts of value are not necessarily stable over time. This magnificent frame makes quite a strong statement about the importance of Samuel Scott as an artist.

Such a sophisticated frame also reveals the high social status of the person who commissioned the ensemble. After his victory over the French Vice Admiral Sir George Anson was quite the military hero and this display was appropriate for his status.

It is also interesting to note that the Rococo style was used in France as the new king's artistic style.





Rococo style started in France after Louis XIV's death in 1715, after the Regence period (1715-1723 when Louis XV (1710-1774) was a minor and Duc Philippe d'Orleans was the regent). It might be surprising to find a continental inspired style on such a picture but actually after the Rococo style was introduced in Britain ca. 1721, with the arrival of George Michael Moser, a Swiss silversmith and pioneer of the style, Rococo picture frames slowly infiltrated Britain. The first pattern book of ornaments in the style was published in 1736. Through the 18th century in England the strong allegiance to French taste continued through the influence of Huguenot carvers and gilders who fled France after the Edict of Nantes (signed in 1598 by Henry IV) was revoked in 1685 by Louis XIV and made Protestantism illegal in France. The consequence was catastrophic as hundreds of thousands of Huguenots fled France and took their skills with them.

Not all frames in the YCBA collection are original to the paintings, but regardless they still play the important role of telling us about the changing taste of collectors.

This magnificent Duveen frame is one such example<sup>6</sup> [fig.3]<sup>7</sup>. It surrounds this 1637-38 bigger than life size portrait<sup>8</sup> by Anthony Van Dyck (1599-1641, Flemish, active in Britain in 1620-21; 1632-34; 1635-41) of Mountjoy *Blount, Earl of Newport* (ca. 1597-1666).

The painting has a pristine provenance and came directly from the Earls of Newport and family to Mrs. Anna Thomson Dodge, who sold it to Paul Mellon in 1971 (through John Baskett).

Blount enjoyed great favor with King Charles I throughout the 1620s and was rewarded with an earldom in 1628, taking his title from Newport on the Isle of Wight. He posed for this portrait in his capacity as Master of the Ordinance, a military office the king granted him for life in 1634, and from which Blount extracted a vast fortune.

It is likely that the Earl of Newport and van Dyck were well acquainted, since the earl's wife was the sister-in-law of van Dyck's great friend and patron, Endymion Porter. Van Dyck painted Newport more than once in the late 1630s; there exist two half-length portraits of him with

George, Baron Goring, the noted courtier. One is in the National Portrait Gallery, London<sup>9</sup> and the other in the National Trust<sup>10</sup>. Both are presented unframed online so I have not had the chance yet to see which frames they are in.

Duveen frames were late  $19^{th}$ - early  $20^{th}$  century skillful imitations of frames made in 18th century France and then exported to America by the dealer Joseph Duveen (1869-1939). They may be only loosely based on original French frames but their details are all exactly imitated. Joseph Duveen was b orn in England in 1869. His father and uncle founded the Duveen Brothers firm which traded decorative arts and objects d'art. Joseph took over the family business in 1909 after his father died. His genius was to extend the family business to include fine arts and understand the new demands of the market: people were not interested in buying just a few antiques. They were now interested in contracting out the services of someone with established taste who could coordinate the decoration of entire rooms. This was traditionally the role of architects in the 18th century. The transition was eased by a taste for creating new rooms out of fragments of older ones.

Duveen's ambition to supply his American clients with entire interiors, predominantly French in style, as in the Fragonard room at the Frick collection in New York) (Penny, 2007: 400-406). In 1915 it cost Mr. Frick a few million dollars to outfit it and Duveen oversaw every single detail including the porcelains, sculpture, chimneypiece, furniture and the gilt bronze objects. The room was resized to accommodate the Fragonard panels. The boiseries, or painted wall panels, were designed and executed in Paris by Auguste Decour in the Louis XVI style. Duveen not only designed whole interiors for private American patrons, such as Mrs. Horace Dodge's house in Detroit), he also supplied American museums, such as the National Gallery of Art, Washington, D.C., with many new acquisitions.

Duveen designed 3 standard patterns that he applied to fine British paintings bound for the American market (Penny, 2007: 400-406). He most probably discarded the British frames which were on the British portraits he sold to the American market. He occasionally conceded

<sup>6.</sup> http://collections.britishart.yale.edu/vufind/Record/3414341

<sup>7.</sup> http://collections.britishart.yale.edu/vufind/Record/3414341

<sup>8.</sup> http://collections.britishart.yale.edu/vufind/Record/1669234

<sup>9.</sup> http://www.npg.org.uk/collections/search/portrait/mw02634/Mountjoy-Blount-1 st-Earl-of-Newport-George-Goring-Baron-Goring?sear ch=sp&OConly=true&sText=goring&rNo=0

<sup>10.</sup>http://www.nationaltrustcollections.org.uk/object/486243





Fig.3 · Frame: 19th century French framemaker such as Bourdier, Boullanger, Joubert, Lebrun, or Emile Joseph Remy, born 1868, French, active in London, French Régence 'Duveen' frame, late 19th to early 20th century, carved wood, matt and burnished water gilding over recutting: hatching, fluting, enriched diaper, Yale Center for British Art, B1977.14.52FR
Painting: Anthony Van Dyck, 1599–1641, Flemish, active in Britain (1620–21; 1632–34; 1635–41), Mountjoy Blount, Earl of Newport, 1637 to 1638, Yale Center for British Art, Paul Mellon Collection, B1977.14.52

to keep a fine Carlo Maratta frame but that was rare. Duveen hired very skilled framemakers such as Bourdier, Lebrun, Boullanger and 'Cadres Lebrun' who is still in business today. I found the names of these venerable framemakers in the archives of the Louvre museum when I did research there. All 3 styles were most probably used as early as 1910, and as late as the 1930s.

For full length portraits by Van Dyck measuring about 84 by 48 inches, such as the YCBA portrait, a style known as the 'Sulley full length frame' or 'full length Sulley van Dyck' was favored. The Duveen frame was put on the YCBA Van Dyck painting for its sale to Anna Thomson Dodge, the widow of Horace Dodge, co-founder of Dodge Brothers Company. At the time of her death she was known as one of the richest women in the world and Duveen associated himself with an architect (Horace Trumbauer) to completely



decorate her Detroit house in 18th century French style. The decoration cost twice as much as the price of its construction. Paul Mellon bought the YCBA van Dyck portrait at Christie's in 1971. Two other examples (Penny, 2009: 393) of such Duveen frames on Van Dyck paintings of this size are in the Metropolitan Museum, New York (Robert Rich, 2nd Earl of Warwick)<sup>11</sup>, and the National Gallery, Washington, D.C. (Queen Henrietta Maria with Sir Jeffrey Hudson)<sup>12</sup>, but again unfortunately these museums' online collections catalogues do not share framed images of their paintings.

Clearly our Duveen frame looks nothing like the original historic frame that was put on this Van Dyck painting, but its Duveen frame offers us a fascinating glimpse at the shift in taste throughout the centuries.

With these briefs examples, I wanted to give you a sense of the YCBA collection, and how frames are essential to understanding how the paintings that they are on fit in historical, social and even political contexts.

This next section explains how the YCBA disseminates its knowledge via the network.

Disseminating knowledge has always been on the mind of scholars such as João Castel-Branco Pereira, as his quote from the 1995 catalogue on *Portuguese Tiles from the National Museum of Azulejo* suggests: "[...] turn the National Museum of Azulejos into an effective instrument with which to spread abroad information about this art, to provide for the advancement of knowledge in the subject within the discipline of the history of art[...]" (Pereira, 1995).

What distinguishes the Yale Center for British Art's approach in that regard is that the museum has embraced the opportunities that the web offers today. Indeed, the YCBA is committed to using technology to make its collections as accessible as possible, and that includes not only human users but also machine users. Consequently, our collection data is exposed via the web in both a human and machine readable format and this strategy is supported by 3 critical elements:

Open Access policy, data exchange standards and protocols, Linked Open.

In terms of enabling broad access to human users, it is worth noting that the YCBA features its frames as a full-fledged collection in its online collections catalogue [fig.4a, 4b]. The frame collection can be searched independently from all other collections. Additionally, in contrast with most other museums' online collections catalogues, the YCBA's online collections catalogue shows the framed paintings whenever possible [fig.5a]<sup>13</sup>. In fact it is YCBA policy to photograph our paintings framed recto and verso and unframed recto. Conversely, and whenever possible, it is also policy to digital capture the empty frame, as well as details of the lower right corner and ornaments, as seen in this British Provincial Rococo frame. This digitization policy is somewhat time consuming since some paintings are not available for bringing down to our digital studio but it is fully supported institutionally since studying frames contributes to the history of collecting as well as to our understanding of the paintings they highlight.

To further access even more, under Yale University's Open Access Policy<sup>14</sup>, the images of objects that are believed to be in the public domain can be downloaded for any use without licenses or other restrictions, including for commercial use. This policy applies to photographs of frames as well and the fact that it does clearly conveys the important role of frames in the study of British art [fig.5a].

In terms of data management, we are describing the frames in as much detail as possible, identifying the frame makers, styles, time periods, materials, cross-section, ornaments, features, and also if the frame was altered in some way, if it is original to the painting, and we assign them a quality classification (from exceptional to pastiche). In comparing a full-fledged frame record with a painting record, it is evident that both follow the same metadata standard [fig.5a, 5b]. Indeed we are using an International Council of Museums' International Committee for Documentation (ICOM CIDOC)<sup>15</sup> supported metadata

<sup>11.</sup> http://www.metmuseum.org/collection/the-collectiononline/search/436256?rpp=30&pg=1&ft=Robert+Warwick&pos=2

<sup>12.</sup> http://www.nga.gov/content/ngaweb/Collection/art-object-page.41651.html

<sup>13.</sup> When images of framed paintings are not available it is because the frames are to be re-photographed separately from the paintings since they are color managed differently).

<sup>14.</sup> http://ydc2.yale.edu/open-access-collections

<sup>15.</sup> http://network.icom.museum/cidoc/

YALE CENTER FOR BRITISH ART							Search this site	
Collections Home -> Fra Frames	Exhibitions mes	Calendar	Research	Education	Architecture	Visiting	About Us   No	escs   Get Involved
All Fields:	Searches across all data fields  Italian; "Carlo Maratta"; Recoce  maker:  Bountier; "Thomas Allwood"; Huguenot; Pollack  "16th century"; "17th century"  "original gilding"; oak  "Provincial Rococo"; Neoclassical; "Louis XIV style"			This search limits your results to the Center's historic frame collection. At present, nearly all of the Center's frames are available online. New frame records are added on a regular basis and links between them and the paintings and drawings they frame will be added soon. See Online Collections for more information.  Use Search All Collections to search the entire database.  Please note: Some functionality may not be fully supported by the Internet Explorer browser (IE). If you experience problems please report them to yeba.online@yale.edu.			All Collections Paintings and Sculpture Prints & Drawings Rare Books & Manuscripts Reference Library & Archives Frames	
Framemaker:								
Date: Materials:								
Style: Ornament:								
Accession Number:	acanthus; cartouche; re	ocaille						
Find	B1981.25.299FR							

Fig.4a

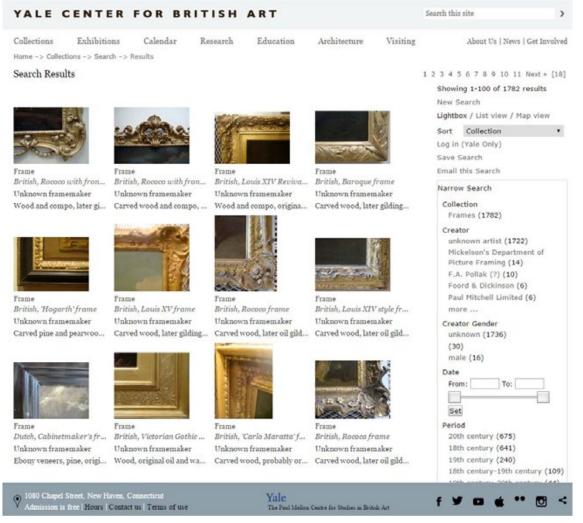


Fig.4b

Fig.4 · YCBA online collections catalog featuring frames as their own collection

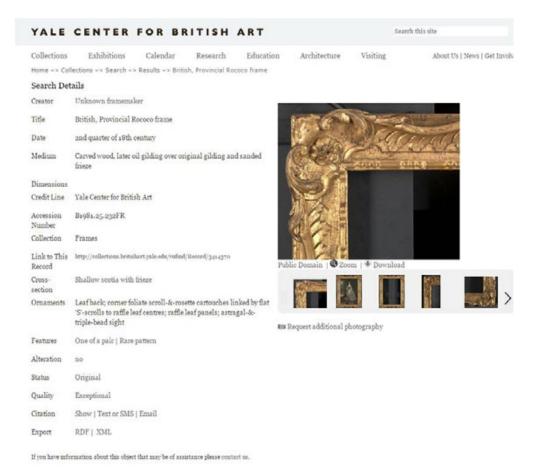


Fig.5a

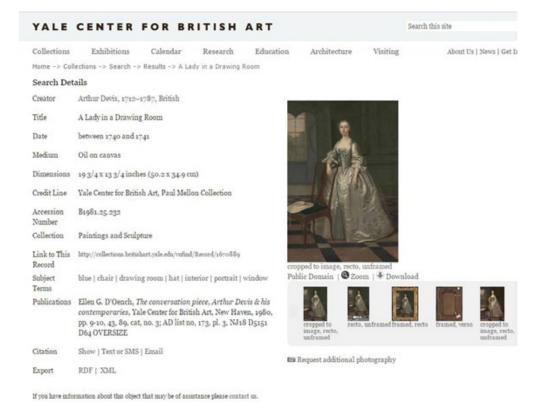


Fig.5b

Fig.5 · YCBA digitization policy: show framed painting in all records with extensive cataloguing of both painting and frame. Generous YCBA Open Access policy positively impacts image download functionality

schema called Lightweight Information for Describing Objects<sup>16</sup> (LIDO) to describe both. LIDO provides our cataloguing framework. This practice extends even to the indexation of subject tags. The subject terms for the painting are borrowed from the thesauri maintained by the Getty Research Institute<sup>17</sup>, which are a great tool to enhance discoverability. Conversely we are using the expert controlled frame vocabulary developed by our frame consultant Paul Mitchell, and we are considering contributing it to the Getty AAT thesaurus. This useful resource would encourage other institutions to use this controlled vocabulary to describe their own frame collections.

In addition to sharing our frame collection through webpages, we use the machine readable data standard LIDO as an XML harvesting schema [fig.6] to programmatically contribute our dataset easily with data aggregators such as Artstor and Google. Because we used data standards and are facile with the OAI-PMH data exchange protocol<sup>18</sup>, we were the museum who contributed the most object records (5,385) to the Google Art Project's second release in 2011<sup>19</sup>. This data sharing process allows data aggregators to harvest directly from our data server without having to check in with us first<sup>20</sup>. This Create Once and Publish Everywhere approach allows us to not treat every bulk data request as an ad hoc project. We are making our standards compliant dataset available through a means with as few as possible barriers to dissemination and we hope that it is being reused actively, even for commercial purpose. We firmly believe that lowering the obstacles to programmatic engagement with our dataset supports the core mission of our institution and benefits the British art community at large.

One important thing to note though is that even though we are leading other museums in terms of data exchange protocol; we are still limited in the stories about our objects that we communicate to the world. Throughout this paper I have tried to present the complex historical, social and political narratives that revolve around the objects, but our online catalogue does not

convey these narratives or of the relationships between objects and people who were the commissioners, dealers, collectors. Such monolithic object records are not adequate to represent networks of people that artists and framemakers belonged to. Another example of the limitations of this knowing representation model is that it excludes the architectural context provided by the estates and rooms the frames and paintings were designed for, which is of critical importance for the study of azulejos. One of the reasons that this type of presentation is limited is that whatever we publish in our online collections catalogue comes directly from our collections management database, which was designed for administrative purposes and not to engage online users.

Contextual relationships and complex stories are better expressed using a Semantic Web technology called Linked Open Data<sup>21</sup>, another machine readable format<sup>22</sup> which uses graphs as a way to represent rich knowledge. This knowledge representation is vastly different from the one imposed on us by our current relational database<sup>23</sup>.

As many other cultural heritage institutions, the YCBA has been digitizing its collections for quite some time (cataloguing and imaging) but unlike many others, at least in the United States, it has taken the additional step to organize its data with an ontology called the Conceptual Reference Model (CRM)<sup>24</sup> [fig.7]. The CRM is also supported by the International Council of Museums' International Committee for Documentation (ICOM CIDOC). The role of this ontology is to express the relationships that exist between things, people, places, events, times, and concepts so that we can tell fuller stories about the objects cultural institutions care for. The CRM creates a framework onto which data from multiple institutions can be harmonized. The YCBA has implemented the CRM because our mission is to contribute the highest quality research data possible to the network, which in turn can support our scholarly projects. Since 2012 the museum has been giving free access to its RDF dataset through it semantic endpoint [fig.8]<sup>25</sup>.

- 16. http://network.icom.museum/cidoc/working-groups/lido/what-is-lido/
- 17. http://www.getty.edu/research/tools/vocabularies/
- 18. http://collections.britishart.yale.edu/oaicatmuseum/
- 19. https://www.google.com/culturalinstitute/collection/yale-center-for-british-art?projectId=art-project
- 20. http://britishart.yale.edu/collections/using-collections/technology/harvest-xml-data
- 21. http://www.ted.com/talks/tim\_berners\_lee\_on\_the\_next\_web?language=en
- 22. http://www.w3.org/RDF/
- 23. For a longer discussion on the inappropriateness of traditional relational databases to represent scholarly research, see Oldman, 2014.
- 24. http://www.cidoc-crm.org/scope.html
- 25. http://britishart.yale.edu/collections/using-collections/technology/linked-open-data

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             conceptID lido:type="URI">http://www.cidoc-crm.org/crm-concepts/#E22</lido:conceptID>conceptID lido:term xml:lang="eng">Man-Made Object</lido:term>
            </lido:category>
          ▼ do:objectWorkTypeWrap>
                ▼ <lido:objectworkType>
  <lido:objectworkType>
  <lido:conceptID lido:source="AAT" lido:type="Object name">300033618</lido:conceptID>

                    do:term>painting</lido:term>
                  </lido:objectWorkType>
                ▼<lido:objectWorkType>
                   <lido:conceptID lido:source="AAT" lido:type="Genre">300015637</lido:conceptID>
                    do:term>portrait</lido:term>
              </lido:objectWorkTypeWrap>
▼<lido:classificationWrap>
                ▼ <lido:classification>
                   <lido:conceptID lido:source="AAT" lido:type="Classification">300033618</lido:conceptID>
                    do:term>Painting</lido:term>
                  </lido:classification>
                </lido:classificationWrap>
              </lido:objectClassificationWrap>
            ▼ (lido:objectIdentificationWrap)
              ▼ <lido:titleWrap>
                ▼do:titleSet lido:type="Repository title">
        <lido:appellationValue lido:pref="preferred" xml:lang="eng">Portrait of a Woman</lido:appellation</li>
                  </lido:titleSet>
                </lido:titleWrap>
</lido:inscriptionsWrap>
                ▼ do:inscriptions lido:type="Inscription">
                 <lido:inscriptionTranscription/>
</lido:inscriptions>
                ▼do:inscriptions lido:type="Marks">
                   <lido:inscriptionTranscription/>
                 </lido:inscriptions>
                ▼do:inscriptions lido:type="Lettering">
                   <lido:inscriptionTranscription/>
```

Fig.6 · Machine readable formats / data exchange protocols

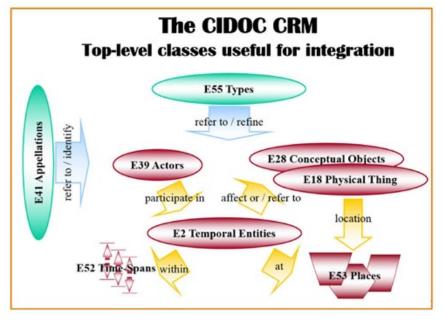


Fig.7 · Conceptual Reference Model (CRM)

collection.britishart.yale.edu/sparql/#

#### YALE CENTER FOR BRITISH ART SPARQL endpoint

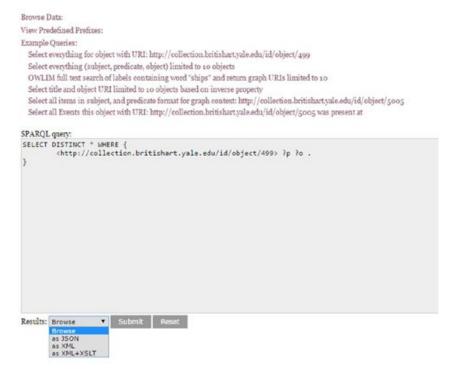


Fig.8 · YCBA semantic endpoint for RDF dataset

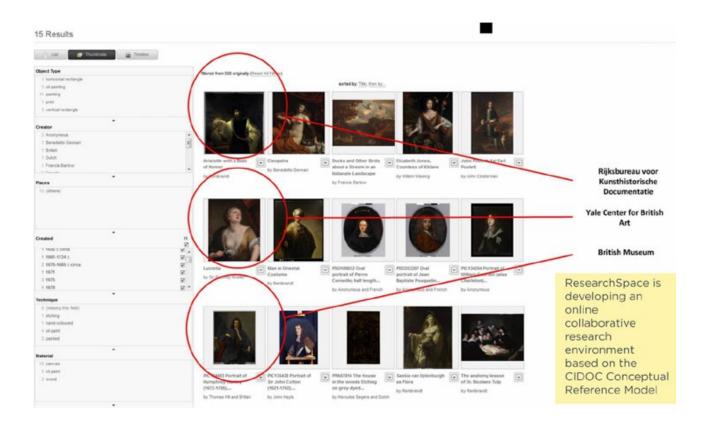


Fig.9 · ResearchSpace

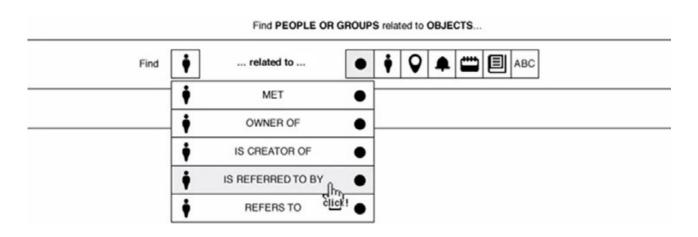


Fig.10 · ResearchSpace: contextual search based on CIDOC-CRM ontology. The CIDOC-CRM uses events and relationships to create a framework onto which data from multiple institutions can be harmonizing. https://www.youtube.com/watch?v=VUGMIDc9B5w and http://www.researchspace.org/

A Mellon Foundation funded project that has started to make use of datasets organized with the CRM is researchSpace<sup>26</sup>, which is testing the power of the ontology by semantically querying on the 3 datasets of the British Museum, the Yale Center for British Art and the Netherlands Institute for Art History [fig. 9]. In this environment, the relationships of people to objects for example [fig.10] are derived from real world practices and vocabularies and then harmonized into a semantic glue to search through various datasets. When represented in a graph mode, these relationships can be quite extensive. Although this knowledge representation means can be a bit dizzying, it is also quite flexible and appropriate to convey rich and complex stories without losing any specificity from the original dataset<sup>27</sup>, unlike when mapping tables from multiple relational databases. So while I realize that this slide is a bit daunting, it is actually great news for scholars and curators because now we finally have a semantic framework that can handle the complexity of the narratives they want to tell.

This transparent and outward approach to data management and sharing is necessary to motivate the contribution of others outside the institution to the broader conversation. As we all know scholarship is built on previous scholarship and we should take advantage of semantic technologies that respect the complex knowledge that we craft. As an example, the YCBA has built a Linked Open Data applicationthat

allows researchers to link frames and paintings. In terms of data flow, this knowledge does not come from the institutional collections database, but rather from a web based application that could potentially be used by anyone (it is currently only for YCBA staff). This type of tools is starting to erode the traditional view that all knowledge should come from the museum that cares for the objects. Instead it is inviting others to contribute their expertise via applications that generate data outside of the central database.

And of course others have already transformed their datasets into Linked Open Data, such as WorldCat<sup>28</sup>), which makes the vision of a Linked Open Data world closer to reality. With such resources available, museums do not have to do all the hard work, but instead can rely on the library community by reusing their LOD resources, especially where name authority files are concerned.

To recap, the YCBA has taken an approach that is radically different from that of most other museums when it comes down to data management and data dissemination strategy. First and foremost, our frame collection exhaustive cataloguing campaign reflects an in-house practice by which frames are not considered accessories to the frames but rather of equal importance. This is very much in line with Nicholas Penny's (former director National Gallery, London) approach who advocates that frames be considered as works of art of

<sup>26.</sup> http://www.researchspace.org/

<sup>27.</sup> http://www.researchspace.org/home/rsandcrm

<sup>28.</sup> http://www.worldcat.org/title/reynolds/oclc/746898&referer=brief\_results

their own rights (Penny et al, 2015). Frames critically contribute to understanding how the paintings were considered throughout their life time. In short, studying both paintings and frames is essential to enrich our knowledge about British taste and art, and even support hypothesis in terms of attributions and this paper has demonstrated this through the analysis of 3 frames in the YCBA collection.

Furthermore, we believe that putting as few obstacles as possible in front of online users in terms of access of images goes a long way to stimulate creative and scholarly reuse of the images and data. This requires us to extract the appropriate data from the silos that are collections databases, and express it in machine readable format for data aggregators and the Semantic Web. Today, the YCBA has found that it is the most efficient way to reach a world-wide audience and support interest in the study of frames more broadly. I hope my talk has inspired you to make sure that your knowledge is managed in such a way that it can be easily reused by others. As the pioneers in a burgeoning research field, it is your responsibility to curate your information for the future.

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