

**DUST IN A SUNBEAM.
THE MIND OF THE ARTIST EXPOSED BY DIGITAL PHOTOGRAPHY &
PROCESSING**

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ABSTRACT: Photography has been an indispensable instrument for the record of art and architecture ever since its beginnings. The invention of the negative around mid-19th Century encouraged the launching of several commercial photo archives that specialized in the documentation of cultural heritage, mainly in Spain, Italy and France. Some fifty years later, a number of initiatives resulted in the first photo-libraries, offering “in situ” access to their holdings as a research tool in the field of the history of art. The digital revolution, enabling the digitizing of analogue photographs and of taking new digital images of great quality, coupled with the acceleration of the speeds of large volumes of data and exponential development of web resources, not only has changed the ways art historians work, but is also opening new horizons in this field.

Photography was recognized as an indispensable instrument for the record of art and architecture ever since its very beginnings, quickly substituting the traditional prints, drawings and watercolours. From 1840 onwards, **Eugène Piot** (1812-1890) travelled in Spain with Théophile Gautier, taking daguerreotypes of the most noteworthy monuments. A few years later, between 1851 and 1853, he published *L'Italie monumentale*, a series of albums with paper prints from calotype negatives. 1851 saw also the first systematic photo campaign to document the architectural heritage of a country, the so called *Mission Héliographique*. From July to November, five photographers appointed by the *Comission des Monuments Historiques* of the French ministry of the Interior, covered some 8.200 kilometres to visit a total of 175 monuments and produce 258 paper prints from calotype or from wet collodion negatives.

The initiative had no follow up from the public side, but the private sector, with a keen commercial instinct, was quick to realize the opportunities offered by the reproduction of negatives and took up the challenge. The Welshman **Charles Clifford** (ca. 1820-1863) went to Spain to work, first with daguerreotypes, later, in 1852, with calotype negatives and after 1856 with wet collodion glass plates. In that same year, the Frenchman **Jean Laurent** (1816-1886) opened his photo studio in Madrid and in 1861 started to sell paper prints of the works of the Museo del

Prado. In Italy, **Fratelli Allinari** established their business in 1854, devoted initially to works of art in Florence, Pisa and Siena, but soon extending their activity to Venice and, in 1867 to Rome, with the first comprehensive photographic documentation of the Sistine Chapel. One decade later, in 1877 **Adolphe Giraudon** (1849-1929) set up his *Bibliothèque photographique* in Paris. In Barcelona, Adolf Mas (1860-1936) followed suit with his **Arxiu Mas** around 1900.

Around the beginning of the 20th Century photo-libraries came to be recognized as indispensable tools for art historical research and soon a few specialized organizations offered public access to their holdings. In 1913 Richard Hamann (1879-1961), appointed Art History professor at the Marburg University, founded the **Photographischer Aparat**, a research and educational resource for his Seminar, later to be renamed **Bildarchiv Foto Marburg**. In London, Sir Robert Witt (1872-1952), had been collecting with the help of his wife photographs of paintings and drawings since before 1900; at his death he bequeathed the half a million of prints they had assembled, the **Witt Library**, to the Courtauld Institute. Apparently it was him who gave advice to Miss Helen Clay Frick (1888-1984) on how to arrange a photo archive when she established the **Frick Art Reference Library**, in 1920 in New York. This enterprise became, in its turn, inspirational to Josep Gudiol (1904-1985); returned to Barcelona in 1931 after a six

months spent at the Frick classifying the photographs of Spanish painting, he proposed the creation of a similar organization to Miss Teresa Amatller (1873-1860); unachievable in the post Wall Street Crash times, the project was finally fulfilled two decades later with the constitution of the **Institut Amatller d'Art Hispànic**, incorporating the negatives of **Arxiu Mas** and of Gudiol's own photo archive.

All along the 20th Century, art historians worked with the available photographic technology, which was mainly grey scale images (black & white, as we called them). Colour photography was greatly unreliable, highly laborious, considerably more expensive and less durable than the black & white alternative, especially in the case of paper prints. Slides, of very diverse qualities, were basically for illustrating lectures, whereas large professional transparencies were used essentially for publications. The limitations notwithstanding, analogue photography enabled an outstanding development of art historical research.

In the last decade of the 20th Century the digital revolution began to reach photography. First scanners, which enabled digitizing existing negatives and transparencies at, at least, film resolution (reaching a maximum of some 1.700 grains/inch), a few years later, professional or semi-professional digital cameras progressively offering 8, 12, 25 and now 50 Megapixel CCDs (roughly equivalent to 35x24 mm, 6x4,5 cm, 6x9 cm and 9x12 cm photographic film) and lastly 3D technologies (on which I will not dwell), have opened a whole new world to art historians and researchers. All this, coupled with the growing sophistication of image processing and presentation software, the acceleration of the available speeds of data transfer and the exponential development of web resources, is taking us to new dimensions.

With digital photography, certain of the shortcomings of analogue photography have disappeared or have been greatly reduced. RAW image files facilitate the correct adjustments of colour balance and exposure, among other parameters. Further post production offers a great variety of possibilities to approach image perfection: filters to correct perspective and other optical

lens distortions; superposition of several images to counteract difficult lighting conditions; panorama stitching to overcome limited distance from the subject; and even digital "restoration" or removal of unwanted elements or additions. And all this can be done with a relative ease and immediacy. Another radical difference in the working environment of art historians is the change from paper to computer monitor, with the advantages of the greater dynamic range given by the screen and of the luxury of zooming into the details of the object and out again. With these tools we can study and analyse works of art much better, and advance in the understanding of the processes, ideas and intentions related to the act of artistic creation. On the other hand, the overall view afforded by the spread out of a multitude of photographs over a large table is lost, at least until smart tables become affordable to common researchers.

And PowerPoint is absolutely crucial to adequately present the findings and conclusions of the research to the audience.

To illustrate the concepts indicated above I am presenting several examples of four Spanish painters: Pedro Berruguete (ca. 1440-1503), Francisco Goya (1746-1828), Marià Fortuny (1838-1874) and Bartolomé Bermejo (ca. 1440-1501...). Several grey-scale images from analogue photographs of works by Pedro Berruguete show the level of understanding that can be achieved with that technology.

Focusing on Goya's so called *Italian Sketchbook*, where the artist prepared some of his compositions, will show interesting features of the way he worked. With this precious material it is possible to recompose the creative process of the canvas he sent in 1771 to the competition organized by the Parma Academy, from the first *bozzetto*, through the variations he studied in the sketchbook to the final composition. Digital processing of another page of that same album reveals the existence of an improvised anamorphic experiment that can be linked to the frescoes Goya painted ten years later in the Pilar's basilica in Zaragoza.

In the case of Fortuny, the superposition in PhotoShop of scaled images of some compositions he repeated and of the corresponding copy he had done on tracing

paper to transport the general lines from the first version to the second, brings light to the meticulous personality of the artist; PowerPoint helps display the sequence. Complementarily, images in high detail of certain paintings of his will expose a radical and extremely modern way of working, in total contradiction of the topical, somewhat pejorative, notion of him as a virtuoso artist.

Lastly, the figure of the 15th Century, “proto-hyperrealist” Bermejo profits from the extremely close examination with large format digital photography. In this way he can be shown as an inquisitive mind that explored his immediate surroundings, and brought him to depict, on his panels, atmospheric phenomena unobserved even by his Flemish masters.

To summarize, digital photography is opening new horizons to the history of art, but this also brings new challenges that will have to be met. Issues that come to my mind are
how large images have to be? What is best, one hyper-image or a series of detail images?
how can image banks emulate the organization of traditional photo-libraries? (i.e., in the case of the Institut Amatller, hierarchically by art media - chronological periods - production centres - individual artists - chronologically by individual objects) so as to avoid unwanted search results and/or over-flooding the user
how to bring together the vast numbers of existing images (including IR, UV and X-ray), not only in art historical research institutes and in museums, but also in restoration workshops, art dealers, auctioneers and private collectors.
as a derivative, questions like copyrights, open access, multilingual standardized indexing criteria, structured metadata, etc., will have to be met
consequently, the establishment of a unique **object ID number**, to be used as a universal reference, should be seriously considered.

There are some initiatives in progress addressing several of the topics just mentioned. PHAROS (<http://pharosartresearch.org/>) is an international consortium of photo archives from fourteen research institutes and museums that are exploring ways of working in a common line. Similarly, RIHA (<http://www.riha-institutes.org/>), the international association of Research Institutes in the History of Art, with over thirty members

from Europe, the United States and Australia, is also taking the issue in consideration. In its last general assembly held just a couple of weeks ago, some of the members decided to create a group to investigate the possibilities to collaborate in this area.

The challenge is great and there is a lot of work to get done, but it will be fun and it will be worth it.