

img journal

interdisciplinary journal  
on image, imagery  
and imagination

04  
APR 2021

ISSUE 04  
04/2021  
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Manuela Ghizzoni, Elena Musiani

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ISSN 2724-2463  
ISBN 9788899586195  
DOI 10.6092/issn.2724-2463/v-n4-2021

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# EDITORIAL

ISSUE 04 APRIL 2021 Copy / False / Fake

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Accepting, as historians, the challenge of editing a monographic issue of a journal like *IMG journal* seemed, initially, to be a gamble. In our disciplinary area, we routinely apply methodologies and practices, perfected over the centuries, to analyse the authenticity of documents and testimonies, and to assess the degree of reliability and authoritativeness (Gazzini, 2020). But our procedures lack any apologetic intent for ‘trueness’, since every trace of the past is a representation to be interpreted with intelligence, even when the intention of the author or of the testimony is clearly fraudulent or manipulative, because it could, in any case, reinstate the deep sense of history (Bloch, 1969).

The historian is, then, aware of the narrow ridge upon which he/she sets his/her narration, whose 'scientificity', according to the long constructivist debate, could be invalidated by his/her own subjectivity: even though today the theme is less discussed, it nevertheless orients our work (Ginzburg, 2006). These references to our specific relation with authenticity and with the false—in particular when it becomes an ideological tool for revisionism and negationism (Veray, 1999)—are sufficient to understand the misgivings we felt in launching a call on the theme and addressed to a wide audience, but oriented in particular towards the investigation of the cognitive and interpretative value of the image.

However, the teamwork with colleagues of other disciplines and the responses that arrived reassured us in our choice, in which intersectoriality had and has an intrinsic role. Nothing, in fact, is more interdisciplinary than a research dedicated to defining what is false in history, as well as in art, in political discourse or, moreover, in economic activity. Everything, especially in digital society, can be copied, imitated, artifacted, simulated... Precisely on account of this inevitability, it was and is necessary to qualify the 'false', aside from perhaps bringing it before justice or rejecting it with disdain, in order to prove that a reality exists whose authenticity, the truth, can be transformed into consent and can consolidate the relations between individuals. Even more so in a society, like ours, which surely fosters knowledge, but intermediated by means of communication that are increasingly more rapid, widespread and liable to interpolation.

In 2018 a video appeared on the internet in which president Barack Obama uttered phrases that were highly un-



likely: it was the outcome of the application of ‘deepfake’, a new frontier of digital communication based on GAN neural networks, already known in the 1990s and used in the cinema (Bregler et al., 1997) and today so widespread that many smartphone applications allow users to see themselves as the protagonists, for example, of scenes of famous movies. It is well known that falsification in visual communication in politics is neither a recent invention, nor even an exclusively digital practice. Nonetheless, the episode cited above is the demonstration –and at the same time a warning– of the capacity of Artificial Intelligence technology to create *ex novo*, and in real time, a dynamic and realistic image starting from an audio track. An image equally false as it is realistic and powerful in its possibility to condition public opinion, thanks also to the rapid speed of transmission.

The fake may affect and has affected, over the centuries, the sphere of politics, since in the hands of authority it can become an easy tool, a powerful weapon able to deceive an entire society. The French *État-Major* of the 1890s, respectable and respected, was at the source of one of the most celebrated historical falsehoods, the one that sent captain Dreyfus to the *Île du Diable*, even though he was innocent of the crime of treason. The establishment of Stalinism was promoted by the ‘creation’ of numerous false official photos, in which the political figures that were no longer to appear among the founders of the regime, vanished (King, 1997).

On the other hand, the distinction between true and false has long been guaranteed by the authority of governments, such as when the forgers of the officially minted coins were

subjected to cruel penalties because they were undermining the authority of the prince himself (Béaur et al., 2007). Such an interpretation of the false was nevertheless complex, given that the rulers themselves ended up by altering the quantity of gold or silver in the coins, then legalising the counterfeit thanks to the power of their own authority. The concept of the false runs through society and the arts, and not always for the sake of subverting their certainties; on the contrary, it sometimes happened that it innovated the aesthetic canons and the representation of modernity: for example, the period of eclectic revival in the second half of the 19th century produced celebrated works of architecture, such as the façade of Santa Maria del Fiore in Florence, created in a neo-gothic style in the wake of the Unification of Italy, or the still more mimetic remanagements of the historic centre of Bologna, carried out by Alfonso Rubbiani in *Di Bologna riabbellita* (1913). The false could also be displayed in private homes, without undermining social consent: in 19th century Paris, the manufacture of *bijoux en faux*, a flourishing economic activity, contributed to choosing the false that imitated the true as a symbol of social rise among the petty bourgeoisie, who at a low cost were thus able to enhance their own role (Gaillard, 2000). Furthermore, the theory of the false also comprehends the eternal debate sealed by the motto *dov'era, com'era* (where it was, how it was), coined to sustain Pietro Bon's reconstruction of the bell tower in Mark's Square in Venice, consolidated in the wake of the devastations of World War II and still current today in the critical discourse on post-seismic reconstructions or the preservation of cultural heritage following deliberate actions of destruction (Cormier & Thom, 2016; Ciccopiedi, 2018).

The call launched through *IMG journal* was an invitation to reflect, in theoretical terms or related to the results of specific research experiences, upon the broad conceptual space that lies between the true and the false. As already mentioned, as historians we were (and are) particularly interested in the gradation and the scale of values that separates the two terms: we endorse our interpretative hypotheses based on the findings supplied by documents and sources –of diverse kinds– and the sense we assign to our research depends on their reliability or the awareness of their mendacity. We therefore routinely deal with the cognitive value that can be attributed to a copy (irrespective of whether made by an amanuensis or a mimeograph) and to a false, and we are particularly sensitive to the intention of the author, declared or not, that may also have been the trigger for a social and/or judicial sanction.

With this in mind, we decided to focus our interest, within the visual dimension undertaken by the respondents to the call, less on what is false and/or falsified (and its theoretical classification) and more on the stress placed on the study and categorisation of the reproduction and replica (that today can easily reach an infinite number of examples), which digital technologies make simple and cheap. This is a disciplinary area of great interest, from an ontological and gnoseological perspective, because it allows us, on the one hand, to assess the contribution of both the ‘identical reproduction’, also dimensional, of different objects (from works of art to the typical artifacts of scientific research), and their re-materialisation, that is to say their digital and vectorial reproduction, to the lines of investigation and, on the other, to determine whether they open up new directions.

We should admit: our viewpoint is conditioned by the experience –pioneering– gained in the modelling of the virtual environments for the history of Bologna (we refer to the project Nu.M.E., Nuovo Museo Elettronico of the city of Bologna. In Bocchi, 1999). As historians of the city, the reconstruction of the model was confined to the information provided by the sources (which, for the medieval era, consist of descriptive, non-geometrical documents and other rare material vestiges still *in situ*), understood as the only reliable sources, without conceding anything to the hypotheses of reconstruction based on the concept of likelihood (Musiani, 2010). Also with regards the representations of the city, our emphasis was placed on the reliability of the iconographic rendering with respect to the object depicted (Ghizzoni, 2003). However, we are also aware –for example– of the intrinsic, positive and fruitful value of the copy, identical to the original also in the material aspect (with the aid of scanning and 3D printing on sheets of acetate and plaster) of the largest existing perspective view of Bologna, made in 1575 in the Palace of Gregory XIII in the Vatican, which is now on display at Palazzo Pepoli in Bologna for the appreciation of the public at large (Lowe, 2010).

Besides, at the root of the false lies the act of copying which, especially in the history of the visual arts, assumes conflicting and changing values that may have virtuous sides, if one considers that the masterpieces of Greek sculpture are known only thanks to the copies made in the Roman era (Barbanera, 2011), as well as more ambiguous aspects, if one takes into account the artistic debate that still revolves around the distinction between fake and authentic (Casarin, 2015; Charney, 2020). And precisely on the designifica-

tion of the authentic, it is possible to turn to the *précession du simulacre* theorised by Jean Baudrillard (1981): the simulacrum renounces any pretence of objectivity and substitutes its real counterpart, taking on a completely autonomous value. The copy nevertheless has an irreplaceable role in the didactics of the arts: Cennino Cennini in his book *Libro dell'Arte* –written in the early 15th century and one of the most important treatises of modern art criticism– praises the practice of reproducing the works of the masters, while acknowledging the necessity to concentrate on just one author in order to avoid any risk of cultural dispersion because, in this way, copying is never a mechanical action and becomes an archeological reading of the poietic action of the author, carried out by retracing the phases of ideation and realisation of the works.

Potentially everything can be copied, falsified or faked, perhaps in a conforming manner but still distinct from the factual reality. A qualification of the triad copy/false/fake is therefore necessary, whether to pursue it or reject it, but in any case, to seek out the existence of the real, of the authentic, the true, which can foster consent and consolidate the relations between individuals (Veray, 1999). Besides, judicial evidence is also undergoing a profound upheaval as a result of the proliferation of copies, false and fakes (Maras & Alexandrou, 2018).

The essays contained in this monographic issue are an attempt to build a 'sense' to the above-mentioned questions and reinstate the complexity of the theme of the false as a critical subject, rich in stratified meanings and, in some cases, also surprising. As in each issue of *IMG journal*, the reading path is extremely free (as the essays are in alpha-

betical order of the authors' names): without any intention to address the reader's curiosity and interest towards one direction rather than another, we limit ourselves here to presenting the selected texts according to a thread of coherence determined by the key words chosen by the authors. From a 'fake' 10 Pound coin one can draw not only the provocative idea of the artist, but also read a political message. In diverse historical periods and for differing reasons, works of art have been the object of "attacks". In 1914 Mary Richardson, in the name of female suffrage, slashed Velázquez's *Rokeby Venus* and justified her action with these words: "I tried to destroy the picture of the most beautiful woman in mythological history as a protest against the Government destroying Mrs Pankhurst, the most beautiful character in modern history". More recently, Goya's *Maja Desnuda* was 'used' by the Guerrilla Girls to denounce the scarce attention of the art world to female artists. Fakes, slashes, provocations... All these examples show how wide the spectrum of analysis can be when dealing with cultural spheres: the essays of Marinella Arena and Federico Rebecchini highlight this perspective. But the theme of the copy is also linked inevitably with that of education and teaching, as emerges from the essay of Antonella Poce, Maria Rosaria Re, Mara Valente and Carlo De Medio, and in that of Monica Salvadori, Monica Baggio and Luca Zamparo. The reproduction of works of art, of design or of high craftsmanship –from sculptures to models of architectonic works or to antique ceramics (topics covered in the essays of Elena Merino Gomez, Fernando Moral Andrés and Chiara Casarin, but also of Michael Renner and Kambiz Shafei, as well as in that of

Aimee Murphy)– has always been a matter of study in artistic circles, in the academies and schools of art, ancient, modern and contemporary, but the contribution of modern techniques has certainly broadened the dimensions of the relation between original work, ‘replicator’ and final work, giving rise to a leap in conceptual scale perhaps never before so evident. Between 1848 and 1851, Charles Blanc, director of Fine Arts in the Second French Republic, put forward the idea of creating a *Musée Européen des copies*, a project then taken up by Adolphe Thiers in 1873, at a moment when France needed to ‘reconstruct’ itself after the defeat in the Franco-Prussian war. The Museum was to have become a ‘universal’ place able to preserve copies of the greatest works of art, also for the purpose of promoting the artistic formation of artists, as well as of the public at large. On the one hand this resumed the habit of the great painters who, in their studios, signed the works of their pupils, who thanks to this intercession could sell and earn some economic profit, and on the other it was an attempt to find a way to ‘preserve’ a European and universal legacy (Rodríguez Castresana, 2017).

The didactic scope, to launch the profession as well as to protect and enjoy the works of genius and creativity that had accompanied the French experience, can still be traced, on close inspection, in the project for copies of works of art kept in the plaster cast collection of the “Pietro Vannucci” Academy of Fine Arts in Perugia –starting from Ercole Farnese (“one of the most famous statues of antiquity”). But the proposal put forward in the essay of Paolo Belardi invites a cultural challenge that represents a paradigm shift: to overcome, in the age in which the



reproducibility of objects is at its height, the diffidence towards the intrinsic artistic value of the multimedia replica, which substantiates in the successive, and numerous, passages from copy to copy and from material to material (from bronze to marble, from plaster to bioplastic).

The cinema or photography then take up and broaden the theme by raising, as mentioned, the question of the difference between copy or 'homage' and, differently but not on this account less interesting, modification for public/political 'use'. If there is a sector in which the line between quotation, tribute and remake is particularly tenuous it is perhaps that of the cinema, as highlighted in the essay of Stefano Colistra: is repeating a scene from a great classic a tribute or plagiarism? As historians we could say that the image in this case makes the definition much more complex: hence the interest in a definition of the terms in an interdisciplinary field.

The theme of the reproduction of the image, as pointed out in the essay of Edoardo Maggi, is then of great interest. In the archives we find postcards with reproductions of the cities that were the destination of the 18th/19th century *Grand Tour* and we grasp their meaning as testimonies of a moment in history, without dwelling upon the fact that the image is, for an art historian, a reproduction.

The more broadly cultural significance of digital artifacts and of virtual reconstructions is investigated by Massimiliano Lo Turco, Elisabetta Caterina Giovannini and Andrea Tomalini. Starting from a historical perspective of the techniques and applications –passing through a proposal for a taxonomic classification of the types of reproduction in the age of the fourth industrial



revolution— the authors assess the educational and communicative impact of the virtual simulations of reality offered by the institutions of preservation and protection of cultural heritage, quite numerous in the period of lockdown imposed by the Covid-19 pandemic. In this perspective, the copy (in particular digital) assumes an augmented cultural and ‘glocal’ value, which combines the transmission of specific histories and areas of knowledge with a very wide accessibility to the fruition, allowed by the (almost) obliterated physical distance between the observer and the place of preservation. Further reflection on the gnoseological impact and dissemination of ideas determined by digital reproduction is offered by Paola Puma and Giovanni Anzani, who confront digital mapping as a scientific field in which the pair of opposites authentic-false loses its meaning, since the artifact, thanks to technology, is always more precise and reliable, and acquires its own autonomous dimension of state and place. With the aid of algorithms currently under development applied to certain study cases, the authors also propose a theoretical framework for the triad “copy, false and simulation” by means of the correspondence with the applicative phases of the mapping: acquisition, elaboration, modellisation of the data. The analysis then moves on, in conclusion, to the relation between the model that is ‘simulated’ with respect to the real, but the expression of new data, and the context it could be inserted in, which, especially for architectonic legacy historicised as “art for public use”, will constitute the added value to strive towards for the “auralization” of the information artifact.

The call also attracted authors who extended their personal research on the concept of false, copy and imitation to the realisation of architectonic interventions: two investigations were accepted, geographically distant and also based on different forms of analysis, but both yielding theoretical results, as well as linking the Old Continent and the New World.

Fabio Colonnese, Maria Grazia D'Amelio and Lorenzo Grieco based their investigation on what happened in the Cistercian monastery of Santa Maria la Real in Sacramenia, in Segovia (Spain), which in 1925 was purchased, dismantled stone by stone and sent to Miami in Florida (USA) where it was rebuilt, ten years later, as in the original. 'Violently' decontextualised, albeit in the continuity of religious use and materials, has the monastery remained faithful to itself as an architectonic work? Assigning the new American phase of life of the artifact to the category of authentic or false is no simple task from the gnoseological and theoretical point of view: a case study calling to reconsider the borders of the original and its capacity to 'authenticate' artifacts realised with overtly imitative intentions.

The other case takes us to Macedonia and, again, to the USA: Giuseppe Resta and John Gatip tackle a theme widely investigated by the specialised critique –architecture as a political manifesto– but present it in a contemporary key, contextualised to the increasingly widespread affirmation of cultural phenomena aimed at casting doubt on factual truth. In particular, the authors consider the neoclassical style –adopted by the project Skopje 2014 to give a new aspect to public buildings, by

means of fake structures made of plasterboard and polystyrene, and invoked by president Trump in the planning of federal buildings— as a means to impose a “deceptive” nationalist narration.

The theme of the ‘image’ and the resignification of the object represented is taken up in the essay of Fabio Colonnese, who analyses the innovative renderings carried out by Alberto Campo Baeza and Raphaël Gabrion, in 2015, for the competition to plan a conservation and storage facility for the Louvre Museum in Liévin: although belonging to the tradition of photomontage and collage, the communication carried out on that occasion is paradigmatic, in the vast field of digital media, of evolution visual models for the communication of architectural planning. The author offers an analysis and an interpretation of the stratified meanings in the images, interconnected and intertextual, realised by the two architects, who are able to put under discussion the status of representation between false and true in the present age of copy-and-paste.

Finally, the path of theoretical reflection offered by Stefano Chiarenza and Barbara Messina, who systemise the main fundamentals for the distinction between real and representation, and between authentic object and copy, updating them in the light of the extraordinary opportunities for artistic and visual reproduction offered by new technologies; the article opens with a reflection on the image seen as the visual translation of concrete or mental realities, then focusing, in particular, on the dichotomy between imitative function and intrinsic artistic expression.

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# BEYOND THE TRUTH

## Copy/False/Fake

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In the literature, the distinction between ‘copy’, ‘false’ and ‘fake’ goes beyond the simple linguistic connotation: some of the most interesting work in this regard is the research in the field of computer science aimed at creating applications that can classify news as true or false, distinguishing a mere ‘false’ from a ‘fake’ (Molina et al., 2021). A ‘false’ is certainly not a ‘fake’: for it to be a ‘fake’, it must be founded on the intention to affect mass opinion in relation to specific topics and often with very precise intentions. According to the Cambridge Dictionary, ‘fake news’ are “false stories that appear to be news, spread on the internet or using other media, usually created to influence political views or as a joke” (Cambridge Dictionary, 2018).



The intention is always to replace factual reality with an artificial reality, designed to appear true or plausible to the eye of the user. In particular, the use of fake news in politics is a symptom of the ability (or desire) to intercept masses with limited critical capacity, whereas the use of the false –for example the historical “normalisation” narrated in *Di Bologna riabbellita* (Rubbiani, 1913) or e-games– expects users to be aware that the event or object before them is not real, not true, without however diminishing its value-bearing qualities. Just as false works produced to deceive the observer, especially in the world of art, have a complex history (e.g. Arnau, 1960): from Winkelmann (*Jupiter kissing Ganymede* painted by Mengs and Casanova in 1758) to Argan (sculpted heads attributed to Modigliani in 1984), works that later turned out to be patently false were considered to be true – i.e. to carry the aesthetic values of the reference model or author.

The value-bearing qualities remain unchanged even in the case of different copies of the same original, as James Elkins (2019) pointed out in his contribution to the *IMG journal Manifesto*, when he drew attention to the lack of interest in details shown by some scholars of visual sciences and art history. Elkins discusses this theme by presenting a plurality of versions of a 19th-century etching copy of Rembrandt’s painting *Portrait of Jan Six* (1654): the succession of these copies –the copy published in an art history textbook, the best copy available on the internet, the copy simulating the projection during an art lecture, etc.– leads to the realisation that even in the case of copies –in this case digital copies of analogue copies– the disparity between the original and the copy is one of the parameters used to define



the value of the copy, and although it is possible to obtain identical copies in the transition from digital to digital, if only one of the steps leading from the work to its copy takes place in an analogue context, there is always a possibility of losing detail, but this does not necessarily entail a loss in the image's value.

Although the current democratisation and accessibility of digital editing applications have exponentially increased the production of fake images, there is no shortage of significant historical precedents: it is well known that the regimes of the first half of the 20th century made extensive use of images that were manipulated or merely presented in a fraudulent manner for propaganda purposes. An emblematic case is that of the Stalinist regime, which went so far as to retouch the portraits of the dictator to remove unsightly details such as his smallpox-scarred skin, and even altered photographs of events, as in the notorious case of Minister Nikolaj Ivanovič Ežov, whose image was systematically erased from official photographs following his dismissal. A *damnatio memoriae* that relies on the manipulation of a photographic image, perceived as 'true' by statute at the time (and in part still today) because it is capable of immortalising the reality framed by the lens through a process that is the result of optical technique and not the author's hand. Although the practice of propaganda did not necessarily make use of photography (by way of example, one might recall how Napoleon could hardly have crossed the Great St. Bernard pass while taming a rearing horse, as portrayed in the famous painting by Jacques-Louis David), it is evident that the advent of photography, by technically allowing the reproduction of reality, accentuated the credibility of image manipulations.

Considering these precedents, it is clear that the deepfake phenomenon made possible by GAN neural networks makes the meaning of 'fake' particularly complex to interpret, when the verisimilitude of images (see also the application [thispersondoesnotexist.com](http://thispersondoesnotexist.com), which generates an extremely and disturbingly realistic portrait "Imagined by a GAN" at each refresh) is combined with that of voices and gestures. In 2019, an Italian satirical show broadcast a deepfake video in which the main character Matteo Renzi, who was the leader of a governing political party at the time, appeared to refer disrespectfully to the then head of government and his coalition colleagues. Despite the authors' statement that the video was a deepfake, this information was eclipsed by its widespread circulation on social media and the involvement of hundreds of thousands of users convinced that the video was true.

The distinction between reality and mediated reality and between mediated reality and fake is increasingly subtle, and often becomes irrelevant in practice even before its implications are understood and absorbed by society.

While television, thanks to the act of copying, allowed distant realities to become present in the private domestic sphere, television today is increasingly digitised and thus incorporated into the computer unimedia, in Pierre Lévy's definition according to which digital technologies have engulfed all media, configuring the concept of "unimedia" rather than "multimedia" (Lévy, 1999). The distinction between a real-time sporting event with interactive multi-camera systems and an e-sports session is a purely generational issue because, though the revenue it generates is still relatively modest (about 1 billion out of the 175 bil-

lion generated by the gaming industry), the Worlds, Riot Games' Moba League of Legends World Championship, captured the interest in 2019 of over 100 million viewers, in the same year that the most watched real sporting event in the world (the Super Bowl) reached 98 million. A fake, admittedly fake, capable of intercepting real users and economic interests.

The continuous remediation of experiences, not only in sporting events but in everyday life as well (Treleani & Zucconi, 2020), has recently been accelerated and exacerbated by the effects of the pandemic, which has forced us to live, work and relate in a manner completely dependent on mediating devices connected to the Internet. Every individual has been increasingly confined (imprisoned?) within the filter bubble (Pariser, 2011) tailor-made for him by the recommendation systems of social networks and e-commerce sites which orient his choices through the continuous confirmation of his preferences, catapulting him into the heart of the 'great deception' (as the title of issue 97 of *Wired* magazine states), and preventing him from shaping the independent critical opinion that should be the result of complete and not manipulated information. The distinction between images produced and enjoyed through devices –*technische Bilder*– and traditional images –*traditionelle Bilder*–, which according to Flusser (2006) those techniques resembled, and which allowed a clear distinction between the experience mediated by the device and the real experience, was instantly broken. Flusser's position seems pertinent, because unlike the ubiquitous allegory of the Platonic cave, in which the device stands as a barrier between man and truth, in Flusser

what we experience today as a form of latent discomfort is considered an epistemological subservience to the technical medium.

Everything since the early months of 2020 has been engulfed by the mediating device, increasingly blurring the boundary between real and digital, natural and artificial, true and false.

The theme of the artificial construction of reality, of a scenario sweetened or in some way altered by those same technological tools whose potential has proved so indispensable in the contemporary world, a scenario that emerged as early as the late 19th century, now appears particularly urgent. In the age of internet and the social networks, the very concept of truth seems to have been undermined at its base: emblematic is the Oxford Dictionary's choice of the phrase 'post-truth' as word of the year 2016 (Steinmetz, 2016), which comes to mean a truth 'beyond the truth', highlighting that the barrier of truth has been broken to the point that it has lost its importance (Biffi, 2016) in the face of common and shared opinion. We speak of an "echo chamber" (Cinelli et al., 2021), i.e. a distorted information environment in which the user receives information selected by algorithms to reflect his usual point of view without providing the possibility of accessing other information that would guarantee a broader view, seen perhaps from a different perspective. This algorithmic context produces a reduction in the complexity of reality, a homogenisation of information that seems to disregard the very meaning of true and false, and whose drift converges in the dimension of fake reality. An integral part of the consensus mechanism expressed through so-

cial platforms is the phenomenon of emulation, emblematised by a language made up of likes, hearts and memes, which in part carries the risk of standardising opinions and emotions. Copying involves behaviour, accompanying the individual from challenge to challenge, from reproduction to reproduction, towards the promise of social acceptance that is never completely real and concrete. The recent stigmatisation of the use of filters available on social networks, tools for altering a person's image to align it with aesthetic models that are as questionable as they are distant from reality, and the consequent social campaign *#filterdrop*, seem to express a demand for truth, the effects of which will have to be evaluated in the long term.

Although there have been many reasons for man to make copies of reality –and then copies of copies, as for example in Greek statuary, which we know almost exclusively from copies from the Roman era (Barbanera, 2011)– copying has become increasingly important in human activities, with an acceleration over the past two centuries when reproducibility entered a new era with the advent of phonographic recordings, daguerreotypes and later filming. A further impetus was given by the availability of digital technologies –the previously-mentioned unimedia– capable of providing identical copies of sounds, images and films, to the point that it now appears senseless to even ask if and where there is an original.

When Walter Benjamin wrote his famous essay on the technical reproducibility of the artwork in the 1930s (Benjamin, 1936/1966), he intuited many of the themes that would develop over the following decades. What Benjamin could not foresee, however, was that certain developments

in copying within the digital environment would not only radically change the idea of authorship and aura (Luigini, 2019) but would also undermine the very idea of the original. Beginning with the works of generative art –*in fieri* in the programmed art of the T Group (Luigini, 2016)– up to video art and digital art, the distinction between original and copy waned until it finally disappeared for good. Just think of the new economic and cultural scenarios opened by the recent blockchain technology for recording and storing data, which prefigure unexplored frontiers. It is precisely in this frontier territory that a revolution in the digital art sector has come to life, represented by the introduction and dissemination of Non-Fungible Tokens or NFTs as certificates of ownership of a digital work. NFTs redefine the very concepts of ownership, authenticity and value of artwork. Supported by the blockchain structure, which is in fact permanent and unchangeable, these certificates are inviolable, unassailable and indestructible, offering a type of guarantee never experienced before and a de facto ironclad security device (Spagnuolo, 2021). The appeal of NFTs has overwhelmed the art market, generating a speculative bubble of global proportions, which, moreover, is destined to grow exponentially (Signorelli, 2021). Take the case of the NFT of Beeple’s *Everydays: The First 5000 Days*, which fetched more than \$69 million at Christie’s in March 2021, one of the highest prices ever for a work by a living artist, second only to works by Jeff Koons and David Hockney. From a classical phenomenological perspective, it is clear that the *Bildobjekt* of Beeple’s work is a digital collage composed of scans of hand drawings, that the *Bildsujet* is the multitude of subjects portrayed daily

by the author, and that the “iconic thing” (the *Bildding*) is a digital code.

The debate on the reproducibility of the work of art, on the loss of the aura, on the intrinsic value of the work and its copies (Belardi, 2017) seems to have reached a radical turning point today and the subversion of its very status. If, in the digital era, the path towards the loss of the original already seems well defined, with ethical implications for the definition of the work’s value and authenticity and raising questions about its preservation (Menchetelli, 2019), the NFT tool definitively sanctions this loss, not only by elevating the status of the copy to that of original (to the point that we can speak of an ‘original copy’) but, above all, assigning a value of uniqueness to the work in the absence of the work itself. In fact, whoever buys an NFT does not so much own the file containing the work (be it a video, a code, a gif, an image or a piece of music) but rather the metadata stored on the blockchain that attest to the ownership of the work (Signorelli, 2021). The iconic thing, the work of the artist’s original ingenuity and creativity, is no longer the object of exchange.

The fields of action in the NFT market are currently being explored: certainly, all sectors of culture, from the mainstream to the exclusive niche, are tapping into (and investing heavily in) this resource. If, as mentioned above, the most prestigious auction houses are awarding digital works for staggering amounts of money (Soldavini, 2021; [christies.com/auctions/christies-encrypted](https://www.christies.com/auctions/christies-encrypted)) and even the worlds of business (Meo, 2021), sports ([nbatopshot.com/challenges](https://www.nbatopshot.com/challenges)) and music (Ermisino, 2021) are offering new experiences of proprietary fruition through NFTs, the ex-



tent of the phenomenon appears evident. And in fact the art market is opening up to the creation of new proprietary originals, to which emerging start-ups (e.g. cinello.com) are dedicating their activities: one example is the case of the Tondo Doni which, digitally reproduced in HD at full scale, replicating the original frame and location and associated with an NFT, constitutes the first Daw (digital art work), a collector's item that mixes material and digital (Francescangeli, 2021) sold to a private individual.

The pervasive dimension of the act of copying has invaded our daily lives and has become part of the general culture. Sometimes not in a fully conscious manner. A significant example is the ease with which every day we make and use screenshots, an agile tool to store and instantly share content, such that the term "screenshot culture" (Thompson, 2015; Ciaponi, 2021) has been recently coined to define the mass phenomenon by which it is customary to take snapshots of the screen of one's personal devices to store information, document events or witness situations. Whether it serves to memorise a shopping list, the time of an appointment, directions or to preserve the instant in which a certain event is witnessed on the screen, the screenshot is in fact indispensable and its diffusion even has legal implications because the screen 'capture' (a term that seems to accentuate its forbidden character), which makes it possible to expand the value of "virtual witnessing" (Shapin, 1984, p. 491), assumes value as evidence in judicial contexts. Similarly, the possibility of reproducing not only the still image but also the moving image, by making video recordings of sequences of interaction with the devices, further opens up the range of technical potential and possible applica-



tions of this practice. In some contexts, however, for the sake of security and privacy protection, there is a need to inform the sender/interlocutor that the screen has been recorded, as introduced, for instance, in the Snapchat platform, which was created precisely to share contents that are scheduled for deletion after 24 hours and, by their very nature, cannot be 'screenshotted'.

It is clear that the digital revolution has also irreversibly affected the field of reproduction –authorised or not– and the circulation of works of art and images, and it is clear that this ontological variation has as yet unpredictable economic implications, but above all that it presents itself as a complete reconsideration of the relationship between us and the artefacts we encounter in our daily experience, be they images, works of art, chat room screens or webcam shots of our interlocutor. All this can be interpreted negatively, underlining the disorientation produced by the loss of references to uniqueness and materiality or the risks of image manipulation now within the reach of any individual with even modest computer literacy, but also positively, highlighting the possibilities of new and unexplored scenarios in which copies of our world –think of *Google Earth* or the emerging theme of the digital twin– allow us to enjoy otherwise inaccessible experiences or to safeguard our tangible heritage, necessarily subject to deterioration. Images and models that always speak of their originals but only sometimes reveal the truth and reveal themselves as copies, as false or as fakes. This issue aims to provide an interdisciplinary contribution that can guide us in our discernment when we are faced with an image in the visual whirlwind in which we live every day.

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# THE 'ORIGINAL' FAKE

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## ESSAY 67/04

COLLECTIVE IMAGERY

CREATIVE POTENTIAL

*LAS MAJAS AL BALCÓN*

The images that populate our memory, even those that belong to the personal sphere, have been filtered and manipulated by the process of reproduction. They are copies, in some cases copies of copies. Our collective imagination is based on the vision of fakes: multimedia, three-dimensional, virtual reproductions, augmented reality.

The course of the research, initially, envisages the description of a theoretical reference framework that includes the declina-

tions of the notion of copy and the related fruition rituals. In the second part the research exemplifies the theoretical framework, through one emblematic and iconic case study: *Las Majas al Balcón*. The case shares the notion of copying, in fact it has entered the collective imagination thanks to its reproductions and/or falsifications. It is now virtually invisible, because it belongs to a private collection, and it is one of Goya's best known paintings.

In principle, the work of art has always been reproducible. [...] On the other hand, technical reproduction is something new, which is affirmed intermittently in history, [...] with increasing intensity.

(Benjamin, 1936, p. 20)

#### COPY, FAKE OR REPLICA?

We are used to seeing through the eyes of others. Since the phenomenon of the Grand Tour, that brought back the wonders of classical Italian and French art to the Nordic peoples through sketches, watercolours, engravings, to the present day where 3D sharing sites deliver virtual copies of distant, unreachable, architectural and natural artefacts. Has the work of art, invisible to most because it is unreproducible, lost its *aura*? Have the veils that enveloped it been torn from the continuous reproductions, and so it is now naked?

The images that populate our memory, even those that belong to the personal sphere, have been filtered and manipulated by the process of reproduction. They are copies, in some cases copies of copies. Our collective imagination is based on the vision of fakes: multimedia, three-dimensional, virtual reproductions, augmented reality. Often, even when we are in direct contact with the work of art, the eye is filtered by the digital tool. We are so worried of no longer knowing how to keep images in our memory that we archive them before we have even enjoyed them (Figure 1).

#### THE NOTION OF 'COPY'

The theme of the reproduction of the work of art has been debated for a long time in the past but now, in the civility of images, it is very central. The cornerstones to which almost all studies, even the most recent, refer are obviously: *The Work of Art in the Age of Mechanical Reproduction* by Ben-

**Fig. 1** Leonardo da Vinci, *Madonna Litta*, 1490. Ph. Arena M., Hermitage Museum, Saint Petersburg, 2018.



jamin (1935/1936) and the *Understanding media: the extensions of man* of McLuhan (1964). The multiplication and fragmentation of contemporary critical thinking around the notion of communication is, in some ways, symbolic of our age: it reaffirms the non-linearity of the diffusion of culture. In fact, media of the past offered pre-established channels for the diffusion of the 'message' and the users, selected by 'degrees of competence' (Eco 1964, p. 51) had access to organized and homogeneous information. The explosion of the new media has made the 'communication process' fragmented, uncontrollable and multifaceted.

Closely connected to the cultural and technical mediums of the era to which it belongs is the notion of 'copy'. The latter, expressed in multiple synonyms, lends itself to different interpretations.

Baudrillard's theories on some aspects of the 'copy' in modernity support the 'categories of copies' identified in this paper. For Baudrillard, in fact, modernity has produced three types of simulacra (Copies). The "mimetic simulacrum", based on the image and on counterfeiting, was used from the Renaissance to the Industrial Revolution, in the paper it is represented by: Copy and Copy of copy. The "simulacrum of reality", in fact during the Industrial Revolution the copy

is the expression of technology, in accordance with the theories of Benjamin and McLuhan (Mechanical Copies). In the contemporary era, the “simulacrum of simulation” defines hyper-reality. A real object is no longer required, its simulation is sufficient (Random Copies; Commercial Copies) (Baudrillard 1976).

### LAS MAJAS AL BALCÓN

If all we observe is a copy, investigating the process of production and use of the copy itself becomes central. In this regard, it might be interesting to follow the parallel ‘destinies’ of copies in the world of art to retrace the creative potential in their different mutations. The copying process, entrusted to an operational concatenation, has changed over time, adding subsequent specifications; we pass from the *handcrafted* copy, carried out for study or for mere imitative pleasure without the aid of tools, to the automatic copy, in which the work is reproduced not only thanks to digital systems but also in the absence of a specific intention, therefore in a fully automated mode. As Benjamin reminds us, the work of art, and so its copies, are linked to the ritual with which they are enjoyed. The changes in use, and therefore also the use of copies, develop a real ‘secularization of art’ that changes its meaning according to the context and, obviously, the ‘medium’. The fate of the copies will be analysed in the figurative, two-dimensional and light culture. The case shares the notion of copying, in fact it has entered the collective imagination thanks to its reproductions and/or falsifications. It is virtually invisible, belongs to a private collection, and it is one of Goya's best known paintings: *Las Majas al Balcón*<sup>1</sup>. *Las Majas al Balcón*<sup>2</sup> is a work by Francisco Goya, created between 1808 and 1812, owned by Baron Edmond de Rothschild, and kept in his private collection in Switzerland. For a long time, a homonymous work<sup>3</sup>, exhibited at the Met in New York, was believed to be an authentic variant of the



first<sup>4</sup>. In 1989 the painting was compared with the Swiss version and was recognized as a copy.

How is it possible that such a famous work was recognized as a fake only in 1989? To understand this, it is necessary to analyse the cultural and social conditions that have made it successful and encouraged fraudulent and legitimate reproductions.

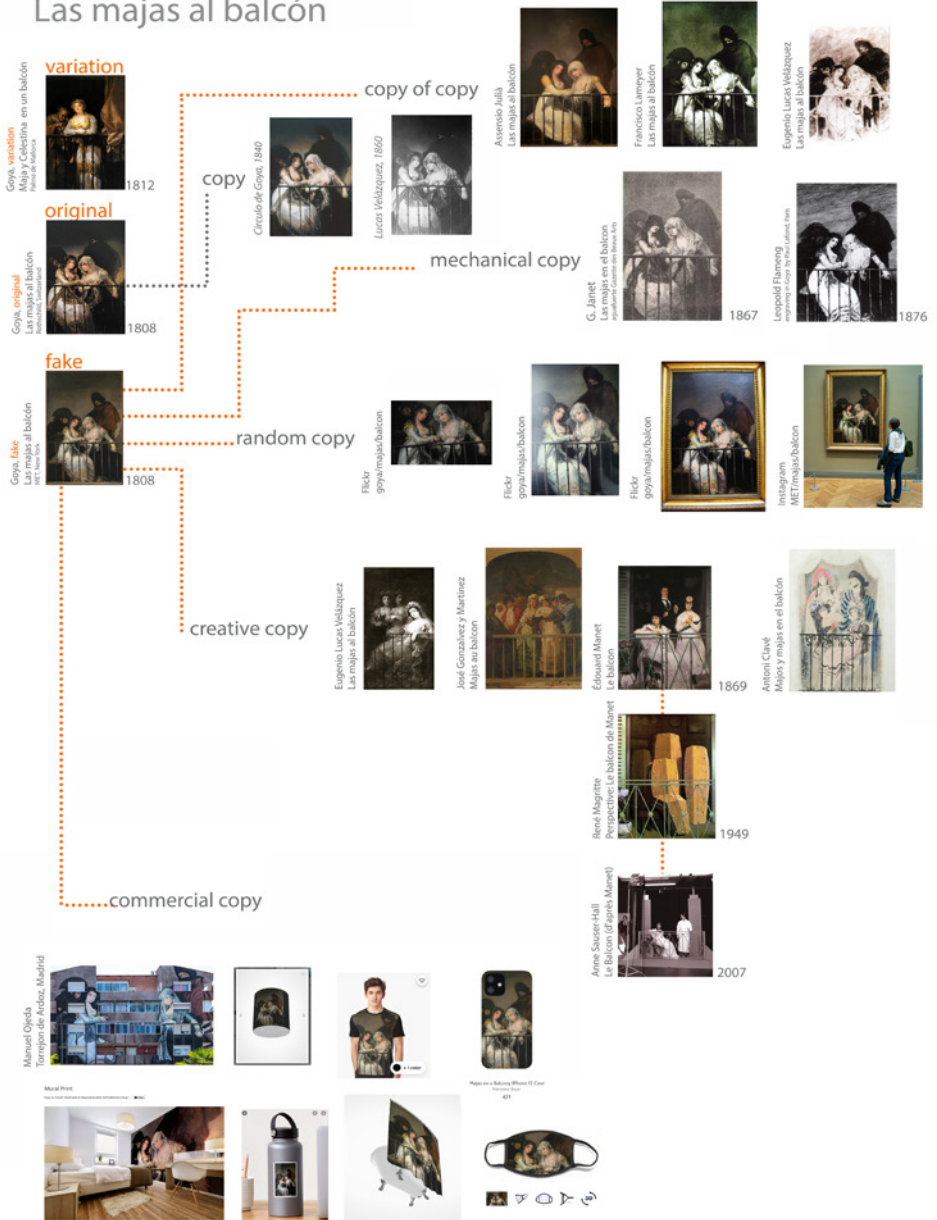
In France, during the mid-19th century, the interest in Spain stemmed from the numerous travel stories undertaken by soldiers and officers following the brief, and disastrous, invasion of Spain led by Napoleon starting in 1808. The Spanish School, to which Goya belongs, it is in fact sanctioned with the exhibition in the rooms of the Louvre, 1838-1848, of the 438 works purchased by Taylor in Spain on behalf of King Louis Philippe.

The fashion of the time, fuelled by French scholars and academics, configures the identity of the Spaniards around a few but robust stereotypes: poverty, religiosity, fallen aristocracy, bullfights. Painting, and consequently what will, since then, be defined as the Spanish School, must illustrate the social conditions and the context in which it developed. In a short time, the themes of the Spanish School, stereotyped and vaguely folkloric, denigrated by the school of Voltaire, are reinterpreted in the light of Naturalism and rise to ideals to be assimilated to raise the quality of French culture flattened on the stereotyped repetition of examples of the past. Many painters of the time copied the works of Velázquez, Murillo and Ribera. In this scenario, the closure of the Spanish Gallery in 1848 on the one hand crystallizes the idea of 'Spanish' and on the other opens the way to the recognition of non-original works.

In the mid-nineteenth century, three works responded to the name *Las Majas al Balcón*: the original, exhibited in the *Spanish Gallery* of King Louis-Philippe, sold, along with all the other works, by *Christie's* in 1853; the version exhibited at the *Salamanca Gallery*<sup>5</sup>, whose attribution was immediately questioned by Yriarte, however sold as an original; the copy

# Goya

## Las majas al balcón



**Fig. 2** Arena M., *Goya. Las Majas al Balcón*. Authors elaboration, 2021.

belonging to Infante Sebastian, believed to be authentic, sold to the Duke of Marchena, now kept at the Met.

The latter painting was considered authentic because it fell within the canons of the Spanish School drawn up by the first Goya estimators: Gautier, Viardot, Yriarte<sup>6</sup>.

The reproducibility of a work is central to its identification. The inventories of the time, drawn up on the occasion of the death of the artist or his relatives<sup>7</sup>, reported the list of works identified by the size and name of the painting itself. The version of the Infante Sebastian was believed to be authentic because it was confused with *Maja and Celestina on a Balcony*. Immediately after Goya's death, the lack of automatic systems for reproducing the paintings allowed the proliferation of copies and imitations. The texts that first commented on Goya's work, made almost fifty years after his death, unequivocally designated the identity of the works. The latter were shown to the general public through mechanical reproductions, etchings and woodcuts, often taken from photographs<sup>8</sup>.

The research tries to build a visual map (Figure 2), certainly not exhaustive, of the collective imagination linked to this work by Goya and, with ad hoc graphic analyses, tries to identify the intensity of technical innovation, and its perceptible effects, in the copies that originated from this painting.

#### THE 'ORIGINAL' FAKE

The painting deals with compositional and visual themes that will be taken up in many later works. The *Majas*, provocative young women, dressed in bright clothes, are apparently the centre of the work. But when the eye recovers from the glare of the sun, it is possible to see the shadowy figures looming over the scene and giving a dramatic tone to the painting.

The balcony, the place of seeing unseen is, in Goya's work, the object of observation; the gaze of the young wom-

**original**  
Rothschild, Switzerland, 1808

117 cm



162 cm

**composition**



**figure / background**




# The original fake

## Las majas al balcón


**fake**  
MET, New York, 1835

125,5 cm




195 cm

**composition**



**figure / background**



**overlap**



**differences**



**Fig. 3** Arena M., *The Original Fake*.  
Author's elaboration, 2021.

en guides the observer into the private space to discover dark and distressing aspects.

The graphic analysis of the two paintings was carried out by identifying the different depth planes and the relative shapes useful for graphically quantifying the differences (Figure 3). The copy of the Infante Sebastian apparently reproduces the original faithfully. The background figures, however, are very different in position and mass, but what appears profoundly different is the attitude of the two women in the foreground. In the original, the two Majas seem to exchange a confidence while continuing to look outwards. The Maja with the white veil has her chin high and her head upright. The same can be said of the hieratic figure on the right: with her face hidden by her cloak, she observes, with her head held high, what is happening outside the painting and intercepts the viewer's gaze.

In the Met version, the woman with the white veil seems to want to touch her neighbour with the tip of her head, she lowers her chin and tilt her face. The figure behind her, hunched over on itself, seems in pain and looks down. It should also be emphasized that the two paintings do not have the same proportions: the copy looks like an enlargement of the original: as if the author felt the need to complete the figure on the left and at the same time wanted to better centre the two Majas.

It follows that the balcony railing, probably a box at the Plaza de Toros, in this work has ten uprights, the first from the left completely smooth. In the original the uprights, eight, are more irregular both in the step and in the inclination, not perfectly vertical<sup>9</sup>. Another not negligible detail is the folding fan. In the original, the Maja with the black veil holds it in an almost vertical position in her left hand. In the copy of the Met the folding fan is in the right hand of the Maja with the white veil, and is visibly tilted. The widening at the bottom of the field of the painting reveals, in the Met version, the threshold of the balcony on which the right foot of the Maja with the white veil peeps.

## FROM COPY TO COPY

In France, during the mid-nineteenth century, the theme of the diffusion of art led to the design of a museum of copies. The *Musée des Copies*<sup>10</sup>, closed in controversy the same year of its inauguration on 1873, does not contain the works of Goya but is indicative of the feeling of the time and the custom of making copies, suitable for the dissemination of art. *Las Majas al Balcón* by Goya and what is now considered a real fake<sup>11</sup>, have long been considered a replica of the other.

Therefore, copied both by the artists of the time, to refine the style and to study the masters of the Spanish School, and by professionals who reproduced the works of art on behalf of third parties. Many of the copies of the time are kept in the archives of museums and are a precious testimony to the spread of these works.

One of the leading scholars of the time, Yriarte, while appreciating Goya's art, advised young artists not to copy<sup>12</sup> his works<sup>13</sup>. The genre paintings are an exception, such as *Les Majas*, "*œuvres éparpillées un peu partout*"<sup>14</sup> copied for the apparent lightness of the theme and because they embody the taste for the picturesque of the time.

The handcrafted copies, as it were, that we find are mostly referred to the version of the Met, while the original painting is perfectly reproduced by a copy of 1840 attributed to the *Circulo del Goya* and by one of Eugenio Lucas Velasquez of 1862. The copies of the version of the Met by Leonardo Alenza, and Francisco Lemeyer are faithful, and reproduce correctly the number of uprights in the railing and the position of the folding fan.

The work of Alenza, perhaps due to the particularly delicate and nuanced technique, does not make the position of the right foot of the Maja with the black veil evident.

The copies tend to modify the edges of the scene by focusing more on the subjects, in a curious process of progressive 'regularization' of the geometric elements of the painting (Figure 4).

**Fig. 4** Arena M., *Copy of Copy*.  
Author's elaboration, 2021.



# Copy of *copy* Las majas al balcón

Goya, **original**  
Las majas al balcón  
Rothschild, Switzerland



**copy**

Círculo de Goya, 1840



Eugenio Lucas Velázquez, 1860



Goya, **fake**  
Las majas al balcón  
MET, New York



**copy of copy**

Leonardo Alenza, 1834



Francisco Lameyer



Eugenio Lucas Velázquez, 35 cm



Anonymous amateur, 1990



## MECHANICAL COPIES

In the mid-nineteenth century, Goya was popular in France thanks to the *Caprichos*, a series of 80 etchings with unusual and burning themes, published in print for the first time in Spain in 1799 and immediately withdrawn due to the scandal that ensued. Goya's paintings, initially little appreciated, were not available to the general public, especially after the closure of the Spanish Gallery. The first texts that tell the work of Goya have the task of collecting the iconographic material, now dispersed in national and particular collections, throughout Europe. The reproduction techniques of the time made use of engravings made with the etching or woodcut technique. It is interesting to briefly retrace the history of the practically contemporary print reproductions of the two versions of the *Majas*. The first, in chronological order, reproduces the version of Duc de Montpensier (now Rothschild) and was drawn from a photo<sup>15</sup> by G. Janet for the 1867 text by Yriarte<sup>16</sup>; the second, which reproduces the version that belonged to the Infante Don Sebastian (now Met), was developed<sup>17</sup> by M.L. Flameng for the *Gazette des beaux-arts*, in 1876.

The graphic analysis that compares the pictorial works with the photographic reproductions found in the Vernacci archive and the corresponding engravings show some anomalies. In the first case, the Rothschild version, the *Manolas* are well represented while the figures in the background differ from the photographic reproduction. Probably the background, particularly dark and difficult to photograph with the techniques of the time, prevented proper reproduction; the background figures are similar to those present in the version of the Met.

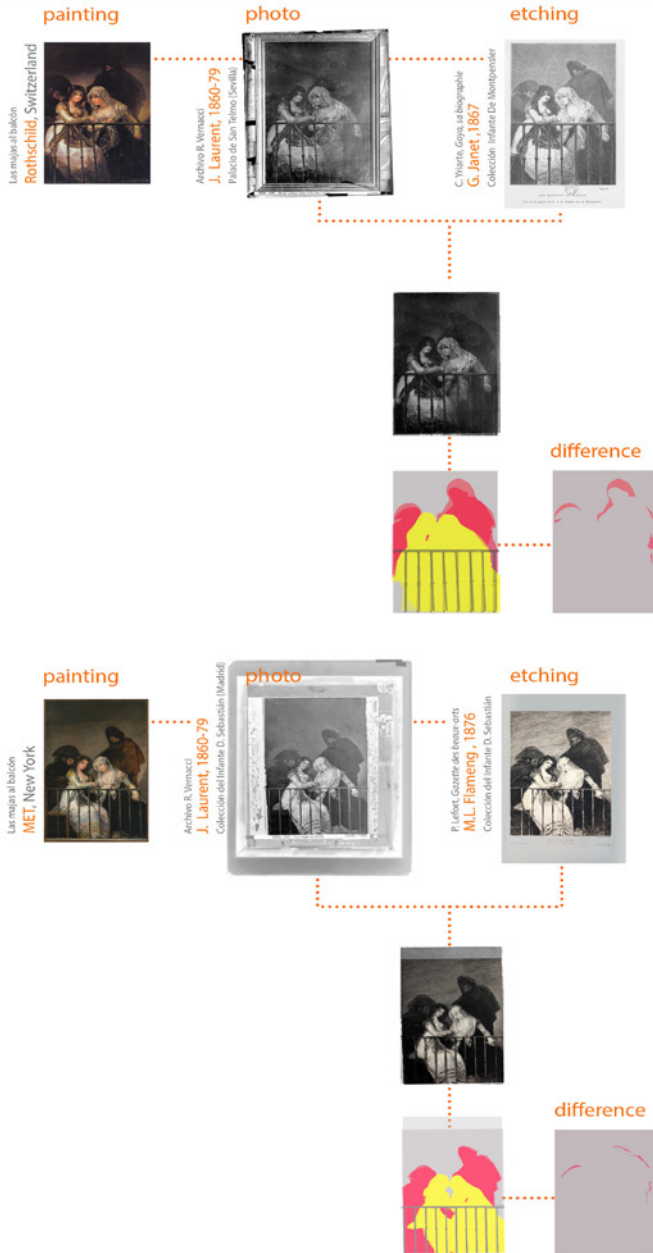
In the second case, the photo also shows the edges of the painting and the traces of the cuts that the photographer made in the reproduction. The painting and the engraving do not have the same proportions, the latter in fact appears as a cut-out with the upper part missing (Figure 5).

**Fig. 5** Arena M., *Mechanical Copies*.  
Author's elaboration, 2021.



# Mechanical copies

## Las majas al balcón



## RANDOM COPIES

Our everyday life is richer in images every day. Everything is filtered by sight, by the devices that support our memory and which, at the same time, build the daily palimpsest of our large or small community. In the past, museums defended, albeit with a layer of dust, their 'allure' of cultural institutions, keeping due distance from economic troubles and maintaining an inflexible attitude in safeguarding knowledge. The new course, along with the dust, has eliminated that 'sacredness' that Benjamin speaks of. The work of art preserved in museums is at the mercy of users in various ways: in presence and remotely, for a souvenir or for a tease. If it is true, as Balzac argued, that:

Each body is composed of a series of spectra, in layers superimposed on infinity [...] it derives for said body (photographed), with each repeated operation, the evident loss of one of its spectra, that is a fundamental part of its constitutive essence. (Nadar, 1899/2010, p. 14)

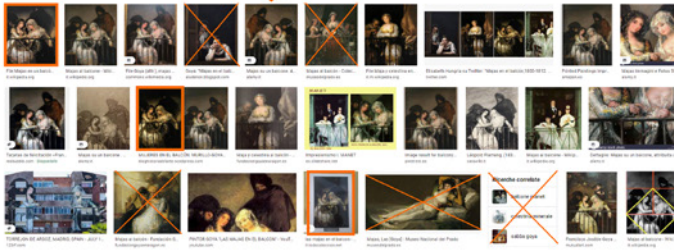
The work of art reproduced countless times, casually, without a specific intention, loses its 'constitutive essence', is desacralized because it is too accessible, deprived of all its ghosts, it appears 'naked'. The digital reproduction<sup>18</sup> of the *Majas* is no exception and sports thousands of images. Some are repetitions of those offered, with an open access policy, by museum institutions, as is the case with the Met. Others are in turn copies of copies from various sources (Figure 6). In search engines, fake dominates the scene and in fact obscures the original. Few sites report the difference between the two works, some like the Met, leave the user in ambiguity. The caption of *Las Majas on Balcony* del Met reads: "Attributed to Goya (Francisco de Goya y Lucientes) Spanish". It is necessary to get to the middle of the notes to understand what is meant by attributed: "Attribution to Goya was consistently accepted until the 1989 exhibition [...] When it was compared unfavourably with the Rothschild example and identified by some authorities as a later copy or even a fal-

**Fig. 6** Arena M., *Random Copies*.  
Author's elaboration, 2021.

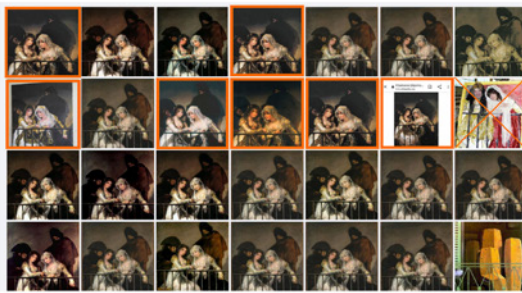
# Random copies

## Las majas al balcón

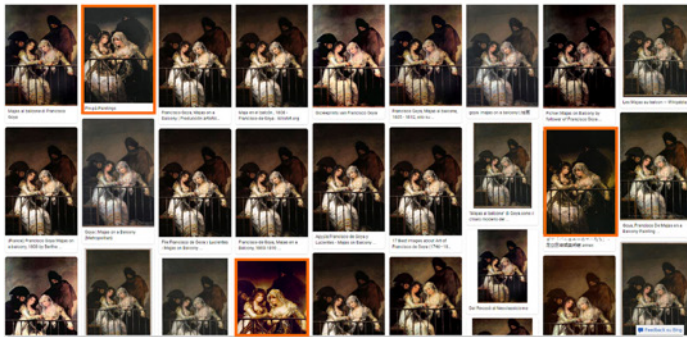
google  
Goya, Las majas al balcón



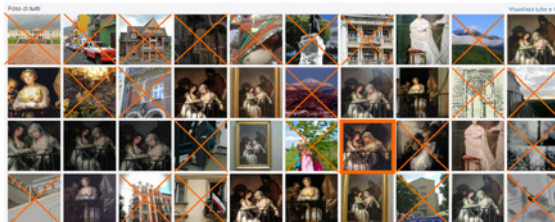
facebook  
Goya, Las majas al balcón



bing  
Goya, Las majas al balcón



flickr  
Goya, Las majas al balcón



sification"<sup>19</sup>. There are many so-called souvenir images captured in the presence. The latter are often partial, deformed by the view or the wide angle. The digital *Majas* have dull or gaudy colours, they are blinded by flashes, out of focus, often scratched and, in rare cases, mirrored (Figure 7).

### CREATIVE COPIES

From the compositional point of view, the theme of *Le Majas al Balcón* is very simple: it polarizes the space around the notion of boundary between inside and outside. The barrier between public space and private space is double: in the foreground is symbolized by rigid and geometric shapes: the railing; in the background it is made up of shadow: a shapeless and dark mass of colour. The protagonists, poised between light and shadow, with a game of glances, involve the viewer who, at the same time, observes and is observed.

The compositional theme of *Le Majas al Balcón* has always had a certain popularity but starting from Goya's painting we can retrace many creative copies that take up some of its themes.

Goya himself, in 1812, created a new version of the *Majas*, *Maja et Célestine au Balcón*, taking up the overall proportions of the original painting, the size and morphology of the railing, the strong light / shadow contrast. The most acclaimed version of the *Majas* is Manet's *Le Balcón*. It is not known for certain which of the two *Majas* he was inspired by since, if it is true that he visited Spain in 1865, this does not exclude that he may have seen the *Majas*, or copies, in the *Spanish Gallery* of the Louvre or in the Gallery of Salamanca.

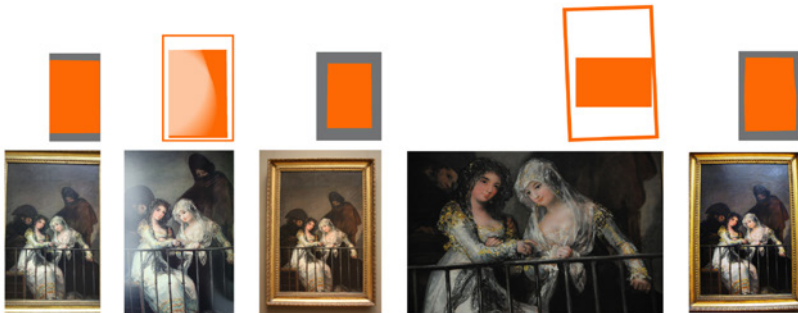
In turn, Manet's version gives life to a new series in which the theme of the Balcón is taken up again this time as a real quote by Magritte, in 1948, and by the artist Anne Sauser-Hall in 2007. In the painting *Perspective: Le Balcón de Manet* the exact re-proposition of the railing, of the light and of the context of the original painting creates the perfect backdrop

**Fig. 7** Arena M., *Souvenir Copies*.  
Author's elaboration, 2021.

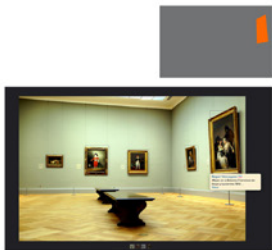
# Souvenir copies

## Las majas al balcón

MET social  
Flickr



MET social  
Flickr



MET social  
Facebook



MET social  
Instagram



# Creative copies

## Las majas al balcón





**Fig. 8** Arena M., *Creative Copies*.  
Author's elaboration, 2021.

to stage that quiet sabotage that Magritte, as a surrealist, usually puts in place in his paintings. In the work of the Sauser-Hall, *Le Balcón d'après Manet*, the quotation goes further by recreating the three-dimensional scene in the spaces of the *Musée d'Orsay*. The creative copy triggers a dizzying process in which the connection with the original becomes more and more feeble until it is entrusted to a curve (the black hat of *Las Majas*, 1958) or to an attitude of the head (*A Balcony at Bullfight*, 1907).

### COMMERCIAL COPIES

The commercial copies of the *Majas* are part of that phenomenon of 'desacralization' of the image that began years ago in an attempt to bring an increasing portion of the population closer to art. The theme of merchandising within museum institutions has encouraged the use of copies for commercial purposes. The image<sup>20</sup> of the *Las Majas al Balcón* offered by the Met in New York is in high resolution and Open Access<sup>21</sup> and therefore widely used for the decoration of the most diverse objects. But what happens to an image when it is freely permitted to be manipulated for commercial uses? The case of the *Majas* is once again emblematic (Figure 9). On the facade of a building they appear enlarged, separated by the balconies, mutilated by the openings. Tiny, in the very small surface of a Bulgarian postage stamp published for the 250th anniversary of Goya's birth.

They are curved over American coffee mugs or wrinkled on the surface of shower curtains, handbags and face masks. They are cut out and pierced to decorate mobile phone covers. The manipulation of images is, in most cases, left to chance. The sites sell on demand, there is no human filter that controls the images and so you choose the brand and model of the mobile phone, the graphic theme to be inserted and the system creates and sends the finished product. There are no stocks and no waste. But be careful! The system is not without risks (Figure 10).

**Fig. 9** Arena M., *Commercial Copies*.  
Author's elaboration, 2021.

### crop



# Commercial copies

Las majas al balcón

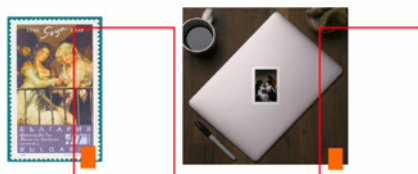
### break



### bend



### miniaturize



### twist



### drill







**Fig. 10** Cover Iphone 12, Goya, *The Clothed Maja*; Cover Huawei Mate 30 PRO, Goya, *Manuel Osorio Manrique de Zuñiga*, 2021.

## NOTES

**1** *Majas on a balcony*, hold by Rothschild family, has only twice been shown publicly in recent years, at The Hague and Paris in 1970, and at Martigny 1982 (Wilson-Bareau, 1996, p. 95).

**2** The *Majas* was one of eight paintings sold by Goya's son to Baron Isidore Justin Séverin Taylor in 1836, and it was displayed at the Louvre in Louis Philippe's Spanish Gallery from 1838 to 1848. It was held by Antoine, Duke of Montpensier and his son Infante Antonio. The Duke of Galliera sold it to Paul Durand-Ruel around 1911, who sold it to the Rothschild family.

**3** The painting was held by Infante Sebastián María Gabriel de Borbón y Braganza, Madrid (by 1835) then, under state of sequestration, was exposed at the Museo Nacional de la Trinidad, Madrid, (1835-1860). It was restored to Infante Sebastián (1860-68 Madrid, 1868- 1875 Pau); the son, Francisco de Borbón y Borbón, first duke of Marchena (1887–1904), sold to Havemeyer family in 1904 and they held the picture till it is being donated to Met in 1929.

**4** Jeannine Baticle states that the Met picture was long assumed to be an authentic Goya because the Rothschild version was not widely known until after 1970 (Baticle, 1996).

**5** "Salamanca Collection, which had many Goya's paintings, contain a "repetition or possibly a copy with variations" by Alenza but nevertheless it was listed, and sold, as Goya and it is now in a private collection (Pezzoli)" (Tomlinson, 1996, p. 197).

**6** Yriarte's description illustrates the thought of the time on the three copies of the same subject: "Les Manolas ont fait partie de la galerie espagnole du roi Louis-Philippe, et par conséquent sont connues en France. Cette toile, de grandeur nature, figure aujour d'hui dans la collection du duc de Montpensier. On connaît trois originaux du même sujet; deux complètement authentiques; quant au troisième, il a probablement été exécuté par Alemsa. Le duc de Montpensier et l'infant don Sébastien possèdent les deux premiers, M. de Salamanca possède le troisième. Les Manolas au balcon sont de la belle période de Goya; c'est franchement peint, et d'une grande audace d'effet; le sujet est un de ceux qui ont rendu l'artiste

populaire; il est presque symbolique; rien de plus espagnol que ces deux physiognomies provocantes sous leur mantille. Toute l'Espagne est là; un balcon, deux jolies filles la Heur au chignon, des mantilles noires et des galants embossés dans leur cape. Goya faisait grand cas de cette toile, dont il parle avec complaisance dans une de ses lettres" (Yriarte, 1867, p. 90).

**7** "As we now know, the Infante Sebastian got the wrong pictures. He acquired [...] the Metropolitan's *Majas on a Balcony* [...] This means that the Metropolitan's version of the *Majas on a Balcony* was already in the collection of the Infante Sebastian before Javier [...] Given the now widely accepted view that the Metropolitan's picture is not by Goya, this implies that the non-autograph version was made with Javier's knowledge if not his active participation and raises the question of the son's activities in the exploitation of his father's estate. Who was copying or making variants or pastiches of Goya's work such an early date? The 1812 inventory included the magnificent group of genre subjects [...] the *Majas on a Balcony* and *Maja and Celestina on a Balcony* still show their inventory marks: X 23 and X 24 on both the balcony pictures" (Wilson-Bareau, 1996b, p. 162).

**8** "CXXVIII. *Manolas asomadas á un balcón*. (Alto, 1,60; ancho, 1,07. Lienzo). Detrás de ellas se ven dos embozados.

Propiedad del Srmo. Sr. Duque de Montpensier, palacio de San Telmo, Sevilla. Otro original del pincel de Goya se encuentra en la galería del Srmo. Sr. Infante D. Sebastián. El Marqués de Salamanca poseía una reproducción, pero apócrifa. Ha sido grabado al agua fuerte por M. L. Flameng para la *Gazette de Beaux Arts*, l.º Febrero 1876; y en madera por Verdeil para la obra *Goya, savie, ses ceuvres, etc.*" (Muñoz y Manzano, 1887, pp. 297, 298).

**9** Some scholars point out that in the version of the Met the railing was painted before the robes of the *Majas*, this would support the thesis that the painting is a copy.

**10** The museum was created on a suggestion of Charles Blanc, from an idea of Adolphe Thiers. In order to "est de réunir et de Mettre sous les yeux, dans un même local, les copies des tableaux des grands maîtres disséminés, soit dans les départements, soit à l'étranger, soit dans les galeries particulières", to educate young people and allow the public to form their taste correctly. Le Musée des Copies, was inaugurated in 1873 al Palais de l'Industrie et des Beaux-arts, Champs-Élysées, Paris and closed at the end of the same year (Delaborde, 1873, pp. 2, 3).

**11** The copy was probably made by Goya's son, Javier, or by the Infante Sebastian who restored the painting when it was in possession (Wilson-Bareau, 1996b, p. 162).

**12** In fact, Goya was considered a revolutionary both in the pictorial technique: he used unorthodox tools spatulas, pens or random tools; as in the chosen subjects: many of his works in fact invited the revolution or depicted uncomfortable aspects of Spanish society.

**13** "Je ne conseille point aux jeunes artistes de prendre le Goya de San-Antonio pour leur maître; il est dangereux à regarder, il prêche la révolte; mais ceux qui ont trouvé leur voie et qui ne craignent pas de se laisser influencer peuvent venir méditer devant ces fresques" (Dal Falco, 2006, p. 54).

- 14** "Des sujets anecdotiques ou familiers, placés le plus souvent dans des paysages délicieux, des scènes de mœurs locales, des motifs pittoresques, forment la plus large part de ces amusantes compositions" (Lefort, 1876, p. 343).
- 15** Photo n° vn-04647, archive Ruiz Vernacci, photographed by Laurent, J. (1816-1886), between 1860 and 1886, glass support, Palacio de San Telmo (Sevilla).
- 16** "Les Manolas au balcon, gravure de Verdeil, (d'après un dessin de G. Janet réalisé à partir d'une photographie)" (Yriarte, 1867, p. 90).
- 17** Probably from this Photo n° vn-06350, archive Ruiz Vernacci, photographed by Laurent, J. (1816-1886) in 1868 Colección del Infante D. Sebastián, present in the catalogue of 1879, page 191. It must be emphasized that, as indicates the note of the Met, that despite Laurent's caption probably the subject of the photo was an anonymous copy of the painting by the infant Sebastián. <https://www.Metmuseum.org/art/collection/search/436548>.
- 18** The images present on the search engines are sensitive to the name of the paintings which oscillates, on the specialized texts and in the archives between: Dos Majas con dos majos, aquellas asomadas a un balcón; Las Majas en el Balcón; Majas on a Balcony; Manolas en al Balcón.
- 19** <https://www.Metmuseum.org/art/collection/search/436548>.
- 20** The recent policy of access to images of the Met is functional to new strategies for cognitive research developed with AI techniques.
- 21** As part of the Met's open access policy you can freely copy, modify, and distribute this image, even for commercial purposes.

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**Article available at**

DOI: 10.6092/issn.2724-2463/12692

**How to cite**

**as article**

Arena, M. (2021). The original fake. *img journal*, 4, 36-61.

**as contribution in book**

Arena, M. (2021). The original fake. In M. Ghizzoni, Musiani, E. (Eds.), *img journal 04/2021 Copy/False/Fake* (pp. 36-61). Alghero, IT: Publica. ISBN 9788899586195



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# ***ERCOLE FARNESE 4.0***

## COPY OF COPY OF COPY (ALMOST ORIGINAL)

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## ESSAY 68/04

*ERCOLE FARNESE*

FINE ARTS ACADEMY

PLASTER CAST

COPY

ORIGINAL

The essay reconstructs the initiatives promoted in the field of art copies from the Fine Arts Academy "Pietro Vannucci" of Perugia: an artistic cenacle founded in 1573 that, even today, boasts a plaster cast gallery in which hundreds of plaster casts of author statues are exhibited –from Michelangelo Buonarroti to Antonio Canova. In recent years these initiatives were sealed by the idea of designing the concept of a multimedia replica of its own plaster cast gallery and, moreover, by the idea of placing at the entrance to the headquarters, between the façade of the

Oratory of San Bernardino and the façade of the church of San Francesco al Prato, a one-to-one scale copy of the plaster cast of the *Ercole Farnese* –one of the most famous statues of antiquity– made by 3D printing with polylactic acid filaments: a bold hypothesis, not only from an environmental point of view, because it has an undoubted visual impact, but also and above all from a cultural perspective, because mistrust of the artistic value of copies continues to persist even in an era, such as the present, characterised by maximum technical reproducibility.

In the project for the municipal center at Florence, I imagined restored statues in the piazzas, like the alabaster Davids for tourists, thinking all the while that the copy is never entirely dissociated from the original, that in the plastic paintings of Venice with their ever-present lightbulb, hung in poor but decent kitchens among the family portraits, the mystery of the theater, whose performance is so important for us, is evoked again. (Rossi, 1981, p. 54)

#### BEYOND MIMESIS

Copying or interpreting? Reproducing or reinventing? Transcribing or transfiguring? For centuries, Western art has found itself at a crossroads, the redefinitions of which have followed one after the other incessantly, without interruption, until Walter Benjamin's famous vaticinium –only apparently definitive– on the death of the aura. But today, the aura has come back to life in other forms and, above all, the world of art, bringing with it the world of architecture, have been checked by the advent of new possibilities of mimesis granted by technological and cultural evolution, which have in themselves revitalised the copy-original dichotomy. It reopens the wound that was never really healed, inflicted at the end of the sixteenth century by the birth of art academies and, with them, the proliferation of plaster cast galleries: that is, since “the teachability of art is based on the formula ‘drawing from drawings, drawing from casts, drawing from life’” (Cassese, 2013, p. 32).

#### THE ACCADEMIA DEL DISEGNO PLASTER CAST GALLERY IN PERUGIA

In the late spring of 1573, ten years after the establishment in Florence of the *Accademia e Compagnia dell'Arte del Disegno*, instituted by Cosimo I dei Medici by borrowing from the *Compagnia del glorioso messer Santo Luca Evangelista* thirteenth



century, was founded in Perugia the *Accademia del Disegno* (Belardi, 2012): a cenacle entirely similar to the Florentine precedent in that it too aimed to cultivate the reproductive-didactic practice of drawing from plaster casts, but above all, it also aimed to integrate the pragmatic character of the craft, handed down in a private workshop with the doctrinal character of the lessons given in public classrooms. All this was not without pressing cultural claims, since the birth of the sixteenth century academies also stemmed from the aspiration of younger artists to achieve “a valid theoretical preparation” (Boco, 1989, p. 15), and not without intricate social implications, as the success of the academies also stemmed from the interest of older artists in confirming “their membership in the restricted world of the cultured” (Irace, 1993, p. 481). This was an epoch-making achievement that promoted the artist from ‘artifex’ to ‘inventor’, marking a precise “watershed between the medieval guilds and the conception of art as a fusion between Art and University” (Castagnaro, 2003, p. 57), but above all, it codified a new type of building, that of the Fine Arts Academy, which was mostly housed in pre-existing buildings, but

**Fig. 1** Plaster cast gallery of the Fine Arts Academy “Pietro Vannucci”, Perugia.



**Fig. 2** *Ercole Farnese, aula magna of the Fine Arts Academy “Pietro Vannucci”, Perugia, nineteenth century.*



within which, the plaster cast gallery took on a fundamental role: a place devoted to the assimilation of the aesthetic and proportional canons that mark the idealised human figure through the exercise of drawing from actual plaster casts of classical statues. As recommended by Leon Battista Alberti (1464/1998, p. 6) for didactic purposes –“*Quando igitur similitudines sectantur, a similitudine ipsa ordiendum est*”– and by Giovanni Battista Armenini (1587, p. 49) for practical purposes –“*haverne copia per poter servirene poi ne' loro bisogni*”. But above all, as theorised by Giorgio Vasari, according to whom

whomever therefore wishes to learn to express the concepts of the mind and any other thing by drawing, needs, after his hand has become somewhat accustomed to it, in order to become more intelligent in the arts, to practice drawing relief figures, either of marble or stone, or of plaster figures made on the spot, or on some beautiful ancient statue, or indeed reliefs of models made of earth, or naked, or with rags buried on them, which serve as clothing; for this reason, all these things, being motionless and without feeling, are very easy for the one who draws them, which is not the case with living things, which move. (1550/2004, p. 74)



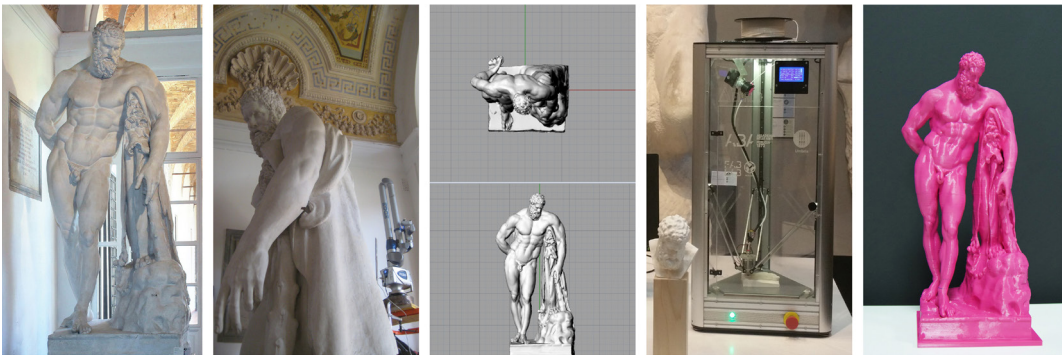
**Fig. 3** Glycon, *Ercole Farnese*, National Archaeological Museum, Naples, third century AD.

Hence the reasons why plaster cast galleries, precisely because they were a place devoted to the practice of 'drawing from casts', were the driving force behind the knowledge of antiquity and the spread of classical taste. So much so that they still represent a fundamental component of the identity heritage of the main Italian academies: Bologna, Brera, Carrara, Florence, Genoa, Macerata, Naples, Palermo, Perugia, Ravenna, Reggio Calabria, Rome, Turin and Venice. Notwithstanding, the plaster cast gallery at the ancient *Accademia del Disegno* in Perugia is unique: both in terms of its past and its future. In fact, the lack of an adequate civic statuary patrimony, together with the lack of artists expert in plaster cast composition, forced its founders, the painter Orazio Alfani and the architect-mathematician Raffaello Sozi, to resort to the mediation of Vincenzo Danti—member of the *Accademia e Compagnia dell'Arte del Disegno*, but above all a native of Perugia—to purchase four Michelangelo plaster casts (Mancini, 2011) made entirely or perhaps only partially (Belardi et al., 2015) on the *Tempio del Giorno* that seal the Medici tombs of Giuliano, Duke of Nemours, and Lorenzo, Duke of Urbino, in the New Sacristy of the Basilica of San Lorenzo in Florence: *Giorno*, *Notte*, *Aurora*, *Crepuscolo*. However, this first acquisition was not followed by other acquisitions, presumably also due to the small size of the first academic building in the church of Sant'Angelo della Pace. The endowment of the Perugian plaster cast gallery was in fact limited to the four Michelangelo plaster casts until, after the transfer of the Fine Arts Academy to the former monastery of the Olivetans in Montemorcinio at the beginning of the nineteenth century and then to the former convent of San Francesco al Prato at the beginning of the twentieth century, it was continuously implemented not only by direct acquisitions, stimulated by the activism of the directors of the biggest European museums on the antiquities market for art copies, among whom Wilhelm Bode, director of the Kaiser-Friedrich Museum in Berlin, stands out (Galli, 2003, p. 159), but also by donations received from great artists, such as Antonio Canova and Bertel Thorvaldsen, as well as from public institutions, such as the Kensington Museum in London and the Municipality of Perugia.

## ERCOLE FARNESE 4.0

It was also the Municipality of Perugia itself, in 1818, that donated to the Fine Arts Academy “Pietro Vannucci” of Perugia the *Ercole Farnese*, a monumental plaster cast made in the Neoclassical period by an unknown artist on the marble copy –found in 1546 during the archaeological excavations commissioned by Pope Paul III at the Caracalla thermal baths in Rome– made in turn in the Hellenistic period by Glycon on the bronze original cast in the Alexandrian period by Lysippos, in which the son of Jupiter is portrayed leaning sideways on his club covered by lion’s skin while he rests after exertion. The copy, which is characterised by its considerable size –it is 317 centimetres high– and which is currently kept in the vestibule of the *aula magna* in the former convent of San Francesco al Prato, is a real landmark, celebrating in itself the capacity of the *Accademia del Disegno* –transformed in the neoclassical period into the Fine Arts Academy– to preserve the plaster casts acquired in five hundred years of history, without neglecting to enhance them and, therefore, bring them into the future. As early as 2013, twenty-four bronze copies of the four Michelangelo plaster casts, made using the lost wax technique in the laboratories of the Massimo Del Chiaro Art Foundry in Pietrasanta, were the protagonists of an extraordinary travelling cultural event, entitled *Michelangelo in Cina*, which started from Beijing and ended up in Shanghai: an initiative of great resonance, organised

**Fig. 4** Paolo Belardi, Valeria Menchetelli, consequential phases of the digital replication process of the *Ercole Farnese*, 2016.





**Fig. 5** Relevo, digital model of the *Ercole Farnese*, 2016.

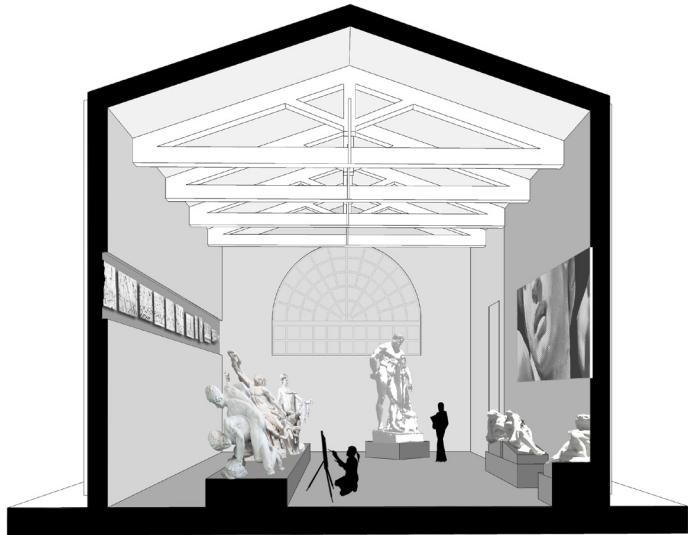


by virtue of a special framework agreement stipulated by the Fine Arts Academy with the Heng Yuan Xiang Museum, as well as the Italian Cultural Institute in Shanghai (Belardi & Menchetelli, 2018a). Subsequently, in 2015, a marble copy of Antonio Canova's *Tre Grazie*, made by sculptor Massimo Galleni using the traditional technique of dots on the plaster cast donated by the same artist to the Fine Arts Academy in 1822, became part of the artistic collection of the *Fondazione Cassa di Risparmio di Perugia*. Finally, in 2016, in collaboration with the Department of Civil and Environmental Engineering of the University of Perugia, as well as the XiangShan Centre for Cultural and Artistic Exchange in Shanghai, the Fine Arts Academy promoted applied research aimed at designing the concept of *4DGypsoteca* (Belardi & Menchetelli, 2018b): a multimedia replica of its own plaster cast gallery, conceived along the lines of the Victoria & Albert Museum in London – where there is a section of plaster casts dedicated to drawing enthusiasts – and intended for the Chinese academy market – which, due to a lack of plaster cast galleries, are forced to omit drawing from plaster casts from their teaching programmes – in which the cultural values of the concept of

**Fig. 6** ABA FabLab, 3D printing of the anatomical parts of the *Ercole Farnese*, 2016.



**Fig. 7** Paolo Belardi, Simone Bori, Paul Henry Robb, *4DGypsoteca*, perspective section, 2016.



copying were amplified and elevated to power. *4DGypsoteca* in fact, while presenting a selection of the approximately 120 plaster casts conserved in the plaster cast gallery of the Fine Arts Academy, proposed the same interior setting as the original—but with a layout inspired by the one designed by the Futurist painter Gerardo Dottori in the 1940s—while on the outside it presented a basilica-like form punctuated by the sequence of frames and made even more abstract by the white colour. The initiative was not followed up, but the digital clones of the planned plaster casts exhibited in *4DGypsoteca* were nonetheless acquired by laser scanning techniques and underwent a process of double optimisation: on the one hand, for the purpose of making material copies

**Fig. 8** *Oltre la mimesis. Dalla copia della realtà alla realtà della copia*, banner.





**Fig. 9** From left: Aldo Rossi, *project for the Municipal Center at Florence*, axonometry, 1974; Carlo Aymonino, *project for the completion of St Mark's Basin in Venice*, perspective, 1985; Vittorio De Feo, *project for the Monument to the Resistance in Fidenza*, elevation, 1987.

by 3D printing –emulating the scanning activities of the British Museum in London– and on the other hand, for the immersive visualisation of immaterial copies that can be experienced by VR viewers –emulating the virtual reality activities of the Museum of Modern Art in New York. On the strength of this unusual heritage, the Fine Arts Academy wanted to qualify its commercial activity with the surplus of cultural value. First, it promoted the conference *Oltre la mimesis. Dalla copia della realtà alla realtà della copia –Beyond mimesis. From the copy of reality to the reality of the copy–* which took place in Perugia from 19 to 21 May 2016 under the care of Paolo Belardi and Gian Luca Grassigli and which was attended by illustrious speakers including Marcello Barbanera, Chiara

**Fig. 10** Paolo Belardi, Matteo Scoccia, Felice Lombardi, renovation project for the entrance to the Fine Arts Academy “Pietro Vannucci”, plan, 2016.





**Fig. 11** Paolo Belardi, Matteo Scoccia, Felice Lombardi, renovation project for the entrance to the Fine Arts Academy "Pietro Vannucci" of Perugia, elevation, 2016.



**Fig. 12** Paolo Belardi, Matteo Scoccia, Felice Lombardi, renovation project for the entrance to the Fine Arts Academy "Pietro Vannucci", alternative hypotheses, render, 2016.





**Fig. 13** Paolo Belardi, Matteo Scoccia, Felice Lombardi, renovation project for the entrance to the Fine Arts Academy “Pietro Vannucci”, render, 2016.

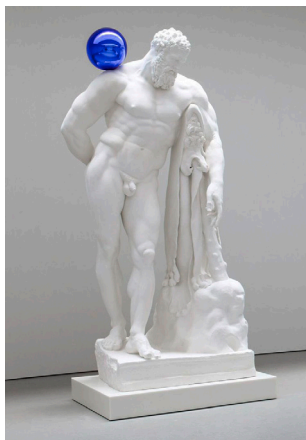


Casarin, Flavio Piero Cuniberto, Pietro Carlo Pellegrini, Gianluca Peluffo, Giuseppe Pucci and Franco Purini. Then, it advanced the idea of taking advantage from the digital clone of the plaster cast of the *Ercole Farnese*, both because it is one of the most famous statues of antiquity and because “in the course of contemporary age, replicas, copies, reproductions of all kinds have made [it] a ‘daily meal’ able to reflect changes in aesthetic tastes and convey new meanings that the ancient statuary conjures up in the contemporary world” (Foresta, 2016, p. 1): from Jason Seley to James Perkins and Jeff Koons. In particular the Fine Arts Academy considered the *Ercole Farnese* useful for its reproduction by 3D printing, not only on a small scale for merchandising purposes, but also on a one-to-one scale for artistic anatomy lessons and for communication purposes (Belardi et al., p. 759). Hence the idea of placing at the entrance to the headquarters, between the bas-reliefs by Agostino di Duccio on the façade of the Oratory of San Bernardino and the polychrome marbles recomposed by Pietro Angelini on the façade of the church of San Francesco al Prato, a one-to-one scale copy of the plaster cast of the *Ercole Farnese* made by 3D printing with purple polylactic acid filaments.

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This is a bold hypothesis, not only from an environmental point of view, because it has an undoubted visual impact, but also and above all from a cultural perspective, because mistrust of the artistic value of copies continues to persist even in an era, such as the present, characterised by maximum technical reproducibility. Despite the fact that many of the works of art that stand out in our historic centres are now copies –from the sculptural group of St. Mark's Horses in Venice to the equestrian statue of Marcus Aurelius in Rome– and despite the fact that there is no lack of illustrious precedents for the use of copies of author statues, especially in the post-modern age –Aldo Rossi, in 1974, with the project for the Municipal Center at Florence, Carlo Aymonino, in 1985, with the project for the completion of St Mark's Basin in Venice, and Vittorio De Feo, in 1987, with the project for the Monument to the Resistance in Fidenza– and despite the fact that the twenty-first century bioplastic copy of a nineteenth century plaster copy of a third century AD marble copy of a bronze statue from the fourth century BC can be reasonably interpreted as a genuine original. This is what Peter Greenaway claimed in an interview with Pierluigi Panza in response to criticism of the installation of a facsimile of Paolo Veronese's painting in the Cenacolo Palladiano on the Island of San Giorgio Maggiore *Le Nozze di Cana*.

**Fig. 14** Jeff Koons, *Gazing Ball*, Ercole Farnese, 2013.



Since the invention of photography, we should have appropriated the idea of mass reproduction of the image. Otherwise, wouldn't we have to ask ourselves where, for example, the original of *Gone with the Wind* is? However, those who are attached to the idea of the aura of the work should also be satisfied with our work, because we make the object eternal by placing it in a spiritual space. Today it can be said, almost without irony, that a well reproduced image can be better than the original. (Panza, 2009)

As demonstrated by the long series of Hercules lined up as part of the exhibition *Portable Classic*, set up in 2015 in Venice in the Ca' Corner della Regina palace on the initiative of the *Fondazione Prada* (Settis et al., 2015).



**Fig. 15** *Portable Classic*, Ca' Corner della Regina palace, Venice, 2015.

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**Article available at**

DOI: 10.6092/issn.2724-2463/12642

**How to cite**

**as article**

Belardi, P. (2021). *ERCOLE FARNESE* 4.0. Copy of copy of copy (almost original). *img journal*, 4, 62-77.

**as contribution in book**

Belardi, P. (2021). *ERCOLE FARNESE* 4.0. Copy of copy of copy (almost original). In M. Ghizzoni, E. Musiani (Eds.), *img journal 04/2021 Copy / False / Fake* (pp. 62-77). Alghero, IT: Publica. ISBN 9788899586195



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# REPRESENTATION BETWEEN ART AND IMITATIVE STRUCTURE

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## ESSAY 69/04

IMAGE

ARTWORK

FALSE

REPRESENTATION

PERCEPTION

The present paper investigates the role of the image as a visual translation of concrete or mental realities, focusing in particular on the dichotomy between imitative function and intrinsic artistic expression. Since the image can be both a copy of a model and a representation with its own autonomy, it is therefore configured in some cases as a subordinate product to the original, in others as a work of art in itself. The representation then oscillates between true and false, translating into images quotes and

references to concrete reality and –at the same time– to other images, which in turn become a source of inspiration. Retracing this dual nature through emblematic examples, the authors highlight the close integration of imitative and artistic functions of the image focusing on the different meaning connected to them. Attention also comes to the multiplicity that derives from the close relationship between reality and the image of reality that only the observer is able to recompose.

## INTRODUCTION

The enchanting power of mimesis has long characterized philosophical speculation linked to images. In particular, the so-called figurative representation has been considered as a mental category based on concepts of belonging, similarity, imitation, image, simulacrum outlined in opposition to the real. The theme of the false falls therefore implicitly in the concept of representation, it interpreted as a mirror of reality. When Gottfried Wilhelm Leibniz (1646-1716) advances the ontological Principle of Indiscernibles "*Eadem sunt, quorum unum potest substitui alteri salva veritate*" (Erdmann, 1840, p. 94) (that is: if, for every property F, object x has F if and only if object y has F, then x is identical to y) in some way influences the concepts of copy and true, putting them together. Reality dematerializes itself in the representation but at the same time the representation hyperrealizes reality making it more true than truth. The representation's ethos –if it can be defined as such– therefore oscillates between true and false, absorbing languages, quotations, repetitions, echoes and interferences not only from reality but also from other images and –to put it in Barthes' expression– only the observer is able to recompose this multiplicity. The truth then is not so much in the original model or in its representative emulation but in its destination, that is, the observer. And if sometimes the copy is indistinguishable from the original, this is not only because it perfectly imitates the model but also because the model does not exist in many cases. Assonances and aesthetic differences, however, may not imply perceptual differences in the same way that artwork and false are not always translatable into perceptual predicates.

On these premises, this article seeks to investigate images intended both as imitative structures and as artistic representations, highlighting similarities and dissonances between an artwork and a copy. From the vast philosophi-



cal literature underlying the study of the image and its theories, the guiding thread of an original reflection by the authors on figurative representation and its contents is drawn, considering not only those properties detectable by the eye, but also those characters that, despite the graphic indiscernibility, characterize the works. The intent is not to make a contribution to the ontology of art but to highlight, through some indicative examples, the meanings of model and imitation and the multiple original and copy relationships regardless of the retinal indistinguishability of their controls. And therefore, not only the images but also the way in which they are presented and viewed are the object of exploration, thus separating the concepts of optical truth and perceptual truth, because –paraphrasing Frank Stella– not always “what you see is what you see” (Rosenberg, 1972, p. 125) (Figure 1).

**Figure 1** John Dysktra, *Penalty Box*, 2016, photography, 40.6x40.6 cm. Retrieved March, 31, 2021 from <<https://www.johndykstra.us/penalty-box>>.



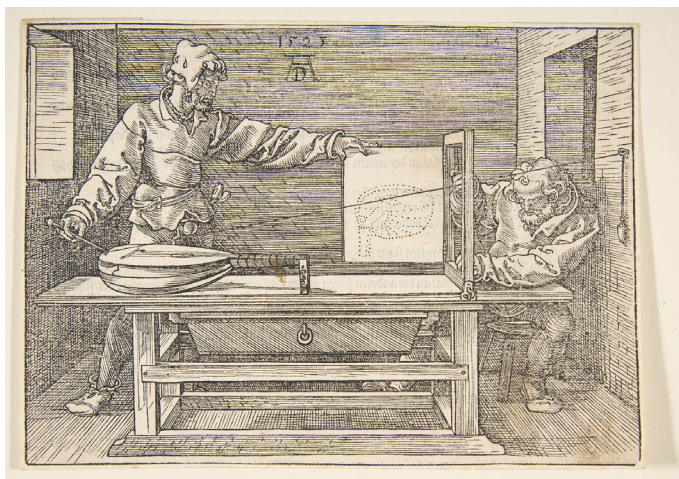
## ART AND IMITATION

The image has always been a central theme in aesthetic reflection. If philosophy has neglected representation due to its proximity to *logos*, the aesthetic doctrine has focused its attention on it at various moments in history, often examining the anthropological role of representation and its function. Although related considerations are neither permanent nor universal, they presuppose the delineation of the concepts of imitation, appearance, likeness and image in their mutual relations and to reality (Vernant, 2010). In particular, the interactions between representation and image, when the latter is brought back to the field of mimetic activity, appear to establish a link between art, understood in its figurative meaning, and imitation. What Plato already identified as *mimesis* (imitation) and *eidolon* (mimetic artifice) actually appear as two closely related but ambivalent activities: on the one hand, the image can be read as a form of a model imitation (properly *mimesis*), on the other mimetic activity can be considered a producer of artifices (*eidola*) or images that are not bound to relationships of external resemblance with the imitated thing but represent it, implementing and realizing it in a concrete form (Figure 2).

In other words, there is a dialectic, in figurative representations, between the real form and the figuration, such that the second, although it recalls the exact appearance of the first, departs from it as its evocation, assuming an autonomous ontological dignity.

Therefore, in investigating the relationship between art and imitation, it appears essential to reflect on the similarity between image and model and the underlying concepts. In figurative artistic production, representation by images constitutes a form of expression even when all aspects of the real subject are meticulously reproduced. However, it seems acceptable to consider that pictorial imitative virtuosity does not in itself constitute an artistic value. For example, the works of Dürer, Leonardo da Vinci, Canaletto or Van Wittel

**Figure 2** Albrecht Dürer,  
*Man Drawing a Lute*, 1525,  
 woodcut, 13x18,2 cm, New York,  
 Metropolitan Museum of Art.  
 Retrieved March, 31, 2021 from  
 <[https://www.metmuseum.org/  
 art/collection/search/387741](https://www.metmuseum.org/art/collection/search/387741)>.



do not belong to the category of artworks for the sole fact of presenting realistic investigations of the painted subjects.

Indeed, they not only intimately represent the observed reality but reveal hidden aspects of it. They make what is not actually there appear, oscillating between presence and appearance. These are certainly imitations, but they do not simply bring back a copy of an original. Between subject, representation and observation, the emphasis is on the last two: in fact, the representation (or image) does not deceive the observer but makes a subject present, it simulates it. And, as the French historian and anthropologist Jean-Pierre Vernant (1914-2007) notes,

simulating is not yet producing a work that is a copy of a model, but it is exhibiting a way of being that replaces the other, showing oneself as this or that, assuming its ways. The act of *mimēstai*, rather than a representation, is an effective action, a manifestation. (Vernant, 2010, p. 25) (Figure 3).

To the detriment of being, its apparent representation acts on the observer with a greater impact than the model. In terms of figurative arts, imitation can then be placed on the same level as illusion. The artifices capable of moving the image in the field of simulation (think for example of the

**Figure 3** Canaletto, *Veduta di Palazzo Ducale e piazza San Marco a Venezia*, 1735, oil on canvas, 51x83 cm, Firenze, Galleria degli Uffizi. Retrieved March, 31, 2021 from <[https://it.m.wikipedia.org/wiki/File:Canaletto,\\_Veduta\\_del\\_Palazzo\\_Ducale.jpg](https://it.m.wikipedia.org/wiki/File:Canaletto,_Veduta_del_Palazzo_Ducale.jpg)>, CC BY-SA 3.0.



proportional corrections for optical purposes in ancient art or the perspective expedients for the evocation of space in Western perspective culture) offer the possibility of recalling reality or the model without reproducing its exact likeness. Error or falsity become intellectually valid acts that through similarities, comparisons and analogies allow us to see what is not evident or immediately visible (Rivier, 1956). The role of the observer is equally significant. Representation presupposes the viewer and therefore interpretation. The latter manipulates the image on different levels, generating the construction of meaning. We can say that vision and the visible refer in artistic figuration to the ability to see what is invisible (Merleau-Ponty, 2007). The expressive essence of an image, therefore, has a dual nature: on the one hand, it is the aesthetic vision of the artist it represents; on the other hand, that of the observer who interprets. This somehow excludes the search for simple visual truth.

The intrinsic link between image and thought, therefore, appears evident. The philosopher Elio Franzini writes that the visible, in the image, always refers to the invisible, permitting, however, that the concepts of 'image' and 'representation', albeit analogous, cannot be superimposed. It allows, at the same time, that an ontological difference does not occur between the image in general and the artistic image: the distinction is only 'regional', and derives

from the difference of qualitative layers that settle in the images and not from a different descriptive and conceptual approach. (Franzini, 2011, p. 43)

The antithesis between model (and therefore reality) and phenomenal appearance (and therefore representation) is crumbling. As the French philosopher Gilles Deleuze (1925-1995) has rightly noted, if sometimes the copy is indistinguishable from the original this is not only because it perfectly imitates the model but also because the model does not exist in many cases (Deleuze, 2014).

The debate on the mimetic image remains an open point in the philosophical discussion. But Platonism in the distinction between an ideal image that allows us to see beyond its canonical codification and an illusory image, which as a fictitious representation of reality is in itself false, leads, in any case, to emphasize the duplicity of seeing.

Images have a formative sense for thought only when the sensitive side moves away from them, leading them to another form of vision, that is on an eidetic level, which saves their symbolic value by depriving them of aesthetic-sensitive illusionism. (Franzini, 2011, p. 47) (Figure 4)

The productions of so-called representative images that make up the set of artworks, therefore, rest their assumption on imitation through which it is possible to construct at times symbols, at times appearances, or illusory replicas that have no other reality than that of being similar to what they are not. On the other hand, it unleashes a real revolution in the visual arts.

## AUTHENTIC AND FORGERY

Investigating artworks by considering them as imitative structures allows us to move from speculation between model and imitation to a more careful reflection on the concepts of original, or authentic, and copy or false in the visual arts. However, this reflection cannot disregard some considerations related to the temporal evolution of artistic expres-





**Fig. 4** Andrea Pozzo, *Gloria di S. Francesco Saverio*, 1676, fresco, Mondovì (Italy), Church of San Francesco Saverio.

Retrieved March, 31, 2021 from <[https://it.wikipedia.org/wiki/Andrea\\_Pozzo](https://it.wikipedia.org/wiki/Andrea_Pozzo)>. Photo by: by Di Mattis - Opera propria, CC BY-SA 4.0, <httpscommons.wikimedia.org/w/index.php?curid=41764585>.

sion and that of technologies and techniques of representation that allow the creation of a work. In particular, speaking about authenticity and copy implies the need to examine not only the time elapsed between the two artefacts but also the technique's mutation. As the art historian Ernest Gombrich (1909-2001) notes "Giotto's painting may have struck his contemporaries but his stroke appears rudimentary when compared with the image of a bowl of cereals drawn with an airbrush by a modern-day advertiser" (Gombrich, 2002, p. 21) (Figures 5, 6).

In other words, the technical possibilities and the means available involve the production capacity of artwork and as much of its copy. And if both are located on distinct temporal levels, the meaning of the copy takes on a completely different character. Indeed, the singular value of an authentic work of art lies in what the German philosopher, cultural critic and essayist Walter Benjamin (1892-1940) defined the *hic et nunc*,

**Figure 5** Raffaello Sanzio, *Ritratto di Baldassarre Castiglione*, 1514–1515, oil on canvas, 82x67 cm, Paris, Louvre. Retrieved March, 31, 2021 from <[https://en.wikipedia.org/wiki/Portrait\\_of\\_Baldassarre\\_Castiglione](https://en.wikipedia.org/wiki/Portrait_of_Baldassarre_Castiglione)>. Photo by: by Elsa Lambert of C2RMF on 2010-06-23, Galerie de tableaux en très haute définition: image page, Public Domain, <<https://commons.wikimedia.org/w/index.php?curid=15716848>>.



**Figure 6** Pieter Paul Rubens, *Portrait of Baldassarre Castiglione, after Raphael*, 1625–28, oil on wood, 90.2x67.5 cm, London, The National Gallery. Retrieved March, 31, 2021 from <<https://www.nationalgallery.org.uk/paintings/peter-paul-rubens-portrait-of-baldassarre-castiglione-after-raphael>>.

the *aura*, the here and now which constitutes the concept of its authenticity on which the “idea of a tradition who has transmitted this object to the present day as something of the same and identical” (Benjamin, 2019, p. 108). However, it is clear that the copy of a 16th century artwork made in the 20th century, even though technically indistinguishable, is easily branded as a fake. As it has been correctly pointed out, “whoever painted like Leonardo today could not claim that the meanings of their works were the same as those ‘incorporated’ in Leonardo’s works” (Velotti, 2011, p. XVII). In this case, we can say, taking up Benjamin’s words, that authenticity is denied to any reproduction. In fact, for the German philosopher,

the authenticity of a thing is by definition everything that can be passed on in it, from its origin, from its material duration to its historical testimony. Since the latter is based on the first, in reproduction, since the first is removed from man, the latter also ends up wavering as a result: the historical testimony of the thing. (Benjamin, 2019, p. 205)

However, the issue appears much more complex with historical progress and with the evolution of expression and artistic culture, especially when attention is focused on the retinal indistinguishability of two contemporary works.

The advent of photography –the ‘pencil of nature’ as William Henry Fox Talbot defined it– on the one hand, contributes to crumbling the idea of art as a perfect imitation and the ‘Al-

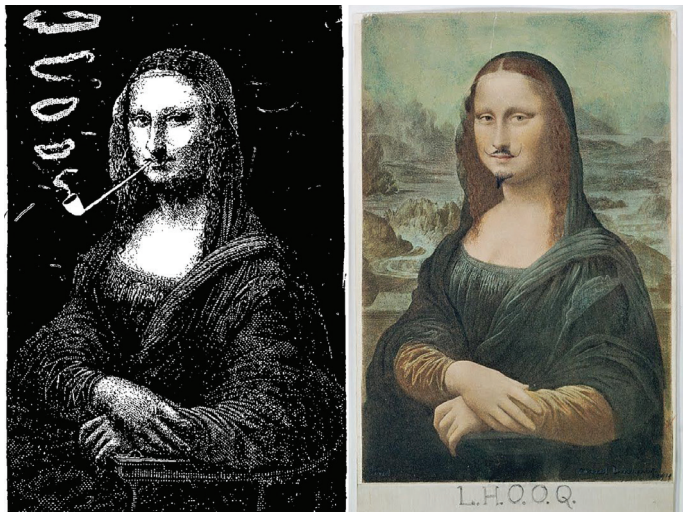
bertian' conception that sees it as a search for visual truth. On the other hand, it unleashes a real revolution in the visual arts. In a progressive path of abstraction, the works of the artists are also populated with subjects that do not resemble anything recognizable, however rising to the dignity of art (Figure 7).

From the Impressionists to Cézanne, from Cubism to the Fauves to abstract painting, the Renaissance 'window to the world' closes its doors, revealing only images that can be traced back to visual stimuli, to actions that progressively break the connection between pictorial surface and reality. Up to even arriving at a surreality, which goes beyond reality itself, placing psychology of reality at the basis of art, hidden from the conscious mind. Surrealism, Dada, Suprematism, Geometric Abstraction, Abstract Expressionism, Pop Art, Minimalism, Conceptual Art, are just some of the many artistic movements that in the twentieth century, while still exploiting consolidated means and techniques, abandon the imitative-descriptive representation; but we also witness the artistic production with the use of material things from the world of life (*Lebenswelt*), from everyday experiences, so that the artistic object and the real object appear substantially indistinguishable (Figure 8).

**Figure 7** Eugène Bataille, *La Joconde fumant la pipe*, 1887, illustration.

Gallica Digital Library, id: bpt6k2412478/f9., Public domain, Retrieved March, 31, 2021 from <<https://commons.wikimedia.org/w/index.php?curid=6492753>>.

Marcel Duchamp, *L.H.O.O.Q.*, 1919, illustration, 19.7×12.4 cm, New York, MoMA. Public Domain, Retrieved March, 31, 2021 from <<https://it.wikipedia.org/w/index.php?curid=5027867>>.







**Figure 8** Robert Rauschenberg, *Bed*, 1955, oil and pencil on pillow, quilt, and sheet on wood supports, 191.1x80x20.3 cm, New York, MoMA. Retrieved March, 31, 2021 from <<https://www.moma.org/collection/works/78712>>.

The discrimination between Authentic and False then takes on a completely different character from Benjamin's speculations and affects the philosophical themes of being an image or artistic object and of recognizing the image or object as such; or rather of the ontology and epistemology of art.

In the era in which an original and a fake could turn out to be completely free of perceptual differences upon observation, it is the observer's ability to establish the difference that determines the logical requirement of the distinction between the two. In the same way that in the consideration of art as mimesis of reality, the distinction between the real and its representation lies in the interpretation of the beholder. The art dealer Nelson Goodman, in one of his writings on the *Languages of Art* says: "The hardheaded question why there is any aesthetic difference between a deceptive forgery and an original work challenges a basic premiss on which the very function of collector, museum, and art-historian depend" (Goodman, 1998, p. 91). In analysing the problem, however, Goodman excludes the condition of indiscernibility, possibly considering it only transitory, and believes that perceptual discrimination is always identifiable. That is, any aesthetic difference would imply a perceptual difference. The American philosopher and critic Arthur Danto, on the other hand, admitting the indiscernibility of two works (in our research the authentic work and the copy) argues that the distinction may not necessarily be traced back to a perceptive or in any case sensitive property (Danto, 2011, p. 53). In fact, he writes that

it is not clear if concepts like 'work of art' and 'forgery' are translatable into sets of simple perceptual predicates. We may in some cases be able to tell forgeries by inspection without its following that 'forgery' is a perceptual concept. Its being a forgery, one would think, has something to do with its history, with the way in which it arrived in the world. [...] but objects do not wear their histories on their surfaces. (Danto, 2011, p. 54)

A significant example brought by the American philosopher, and which eloquently falls within this discussion, re-

lates to the work of Andy Warhol, the iconic artist exponent of Pop Art. In particular, the reference is to the famous creation known as the *Brillo Box* (Figure 9).

When in 1964 at the Stable Gallery in New York, Warhol presented, along with other works, a series of boxes that perfectly simulated those designed by the graphic designer James Harvey of the then marketed Brillo soap pads, effectively eliminated the perceptible differences between art and reality. Danto even considers Warhol's boxes as a philosophical 'Rosetta stone' as they allow us to decipher two languages, that of art and that of reality and, we could extend this comparison to the reflection between authentic and copy (Danto, 2014, pp. 34-35). The boxes, perfectly identical in appearance, were distinguished by a substantial aspect: the originals contained the soap pads, while those made by the Pittsburgh artist certainly did not. In the absence of visible differences, therefore, what distinguished the original boxes from those of the artist could not therefore lie in the characteristics of visual perception but in not exactly visible ones.

**Figure 9** Andy Warhol, *Brillo Box (Soap Pads)*, 1964, synthetic polymer paint and silkscreen ink on wood, 43.3x43.2x36.5 cm, New York, MoMA. Retrieved March, 31, 2021 from <<https://www.moma.org/collection/works/81384>>.



And for Danto, an invisible characteristic in a work is the presence of a meaning (works of art are about something). He writes

the meanings are the result of inference or intuition, but they are never something material, moreover, instead of in a sentence with subject and predicate, in the case of an artwork the meaning takes shape in the object that transmits it. (Danto, 2014, p. 39)

It then comes back to the observer to interpret what are the aspects that bear meaning. Between authentic and forgery, therefore, the distinctions must be sought primarily between the non-visible properties (although they could be both in the object and in the meaning) and are the same that allow us to recognize a work of art from one that is not (Figure 10). The examples could be many, but in the economy of the present discussion, we seem to have reconstructed, on the basis of some significant philosophical orientations related to the study of the image, the distinctive character that today, more than ever, separates the authentic from the copy in the visual art production.

## CONCLUSION

The concepts of Art and Imitation, Original and False in visual representation constitute aspects that have been investigated unevenly but whose contours have often been touched by philosophy since ancient times and more specifically by aesthetic doctrine starting from the modern age. However, the strong implications of mass culture, from the twentieth century to today, on the world of visual and artistic production, have offered philosophical thought and art criticism new and significant insights that have allowed us to redefine some assumptions on ontology and the epistemology of art. This research, in retracing some significant orientations, has intended to bring some fundamental principles back to the theme of the distinction between real and rep-

**Figure 10** Joseph Kosuth, *One and Three Chairs*, 1965, wood folding chair, mounted photograph of a chair, and mounted photographic enlargement of the dictionary definition of 'chair', New York, MoMA. Retrieved March, 31, 2021 from <<https://www.moma.org/collection/works/81435>>.



resentation and between authentic object and copy. On the one hand, therefore, in analysing the conventional framework of imitative art, which characterized the orientations of preeminent Western culture up to the nineteenth century, the need to contemplate representation and expression in the work was highlighted, leaving the user with a key role. On the other hand, the field of the authentic and the false was explored, tracing the distinctive elements to primarily, though not necessarily, non-perceptive characters. In fact, René Descartes (1596-1650) wrote

everything that up to now I have believed to be above all else true, I have received either from the senses or through the senses. But since I have realized that these sometimes make mistakes, prudence dictates that we never completely trust those who, even if only once, have deceived us. (Descartes, 1986, p. 212)

And the sense of perception, addressed to indistinguishable artefacts, especially in contemporary culture, often turns out to be fallacious in distinguishing the true from the false. This is what happens, for example, when observing a box of Brillo soap pads and a *Brillo Box* by Andy Warhol, absolutely identical in terms of visual aspect but not in meaning. Precisely the latter constitutes the invisible level

of an image and once again highlights the centrality of the observer, or if we want the user, who is entrusted with the burden of decoding it in order to access it. In an artwork, what you see is not always true but it could be; what is not seen is what instead denotes it.

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**Article available at**

DOI: 10.6092/issn.2724-2463/12670

**How to cite**

**as article**

Chiarenza, S., Messina, B. (2021). Representation between art and imitative structure. *img journal*, 4, 78-95.

**as contribution in book**

Chiarenza, S., Messina, B. (2021). Representation between art and imitative structure. In M. Ghizzoni, E. Musiani (Eds.), *img journal 04/2021 Copy/False/Fake* (pp. 78-95). Alghero, IT: Publica. ISBN 9788899586195



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# CITATION, TRIBUTE, REMAKE, PLAGIARISM OVERLAPS AND BORDERS IN MOVIES

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## ESSAY 70/04

CINEMA

CITATION

TRIBUTE

REMAKE

PLAGIARISM

*Mimesis* is the basic principle of all arts. Visual arts, in particular, alternate between imitation of reality and attempt to represent in a symbolic or allusive way. In both cases, the theme of mimesis remains central, and the concepts of inspiration, model, copy, and plagiarism evolve in parallel with the history of art. In cinematography, the theme of imitation is one of the most debated. The chances of copy are innumerable in movies industry, both in sincere admiration of a young author for the works of a great master and in desire to exploit commercially an

intuition of others; but we must also admit that the nuances between inspiration and plunder are numerous. This essay analyses overlaps and boundaries between four variations on the theme of copying in the cinematography: citation, tribute, remake, plagiarism. These four key concepts are analysed by relating them and at the same time trying to highlight differences and common elements. The analysis is carried out from a conceptual point of view and through the comparison of films in which the theme of imitation is particularly evident.

## INTRODUCTION

The method used for the analysis and comparison between the mentioned films is based exclusively on the visual elements of the shots that will subsequently be edited, thus neglecting the information relating to *diegesis*, the psychology of the characters, dialogues, sound effects, etc.

We have divided all the visual qualities into three categories, referring both to single frames and to frame sequences (movie shooting portions):

- staging, relative to the elements that characterize the physical space subject of the shot (for ex. lights, furnishings, costumes, landscapes, etc.): 12 visual qualities;
- shooting, including the choices related to the capture of the images (for ex. type of film used, depth of field, shot, movements of the camera, changes of optics, etc.): 28 visual qualities;
- editing, referred to the operations performed in post-production (for ex. fades, cut-in and cut-away, overlay, reverse shot, etc.): 17 visual qualities.

The overall visual qualities identified are therefore 57. For each shot we checked for the presence of elements corresponding to each of the 57 visual qualities. For each significant shot we have drawn up an analysis sheet that allows you to critically compare scenes belonging to different films and, therefore, compare the way in which the director interprets (or re-interprets) the narration.

## IMITATION IN CINEMATOGRAPHY: VISUAL AND NARRATIVE ARTS

*Mimesis* is the underlying principle of every artistic expression. Art is always imitation, regardless of the technique used, the language of communication, the means of transmission and the context. Even in the most abstract, intangible, and experimental forms, an artwork always refers

to an 'elsewhere' of which it constitutes the 'copy'. As early as the fourth century BC, Aristotle points out the fact that each poetic genre is based on imitation and differs from other genres in relation to the 'means' used, the 'object' of imitation and the 'way' in which imitation is carried out (Aristotele, 1999, p. 5). Considering these three variables, mimesis can be defined as "a relationship that establishes a correspondence between different and non-homogeneous classes of elements" (Ugo 1994, p. 17). This correspondence can be achieved in two ways: by simply reproducing the external appearance in a mechanistic way or, more appropriately, by making sure that the similarity is evoked through a process of critical, imaginative, poetic elaboration. In both cases, the problem of mimesis remains central.

The history of cinema is short but very intense: the theme of imitation is crucial for it. Each film has a mimetic relationship not only with reality (phenomenological or imagined), but also with all the other films that preceded it, as well as with other forms of art. As Abel Gance asserts, in the future "Shakespeare, Rembrandt, Beethoven will make films" (Gance, 1927, p. 94). We will not deal here with the concept of intermediality, or rather the relationship of cinema with other media; from the very beginning, cinematography has drawn from other forms of expression (first narrative), so the enterprise would be endless. We will try to focus on the theme of imitation within the cinema itself, which is already a very extensive issue. From the sincere admiration of a young director for a great master, to the pleasure of quoting (or citing oneself), from the thrill of engaging in a sequence that constitutes a milestone to the desire to commercially exploit the success of others, opportunities to repeat—more or not consciously—something already done are innumerable, as are the nuances between inspiration and plunder.

Early cinema immediately needed to refer to the figurative arts. It consists of an evolution of photography, which in turn derives from painting. And it is precisely from painting that many feature films of the early 20th century production draw clearly,

such as *La Vie et la Passion de Jésus-Christ* (Zecca & Nonguet, 1903) or *Christus* (Antamoro, 1916). It is an attempt to connect with the great figurative tradition of Western painting; cinema is also a figurative art, but still young and lacking in cultural authoritativeness. Cinema draws on other arts to affirm its legitimacy and to overcome that playful dimension that assimilates it to a 'funfair' attraction. The references and imitations made by the pioneers of cinema are not only visual. They also draw from the theatre (the stage terminologies are identical), and obviously from literature, systematically transposed into almost all the films of the first two decades of the twentieth century.

All references to existing figurations in early cinema cannot be systematized or referable to the four categories that represent the topics of this essay. The expressive language of the first films is still not structured, the excessive experimentation of the productions does not allow for a systematic comparison between different works.

We will see below how the theme of the 'copy' has four main variations in cinematography: citation, tribute, remake, plagiarism. For the sake of brevity, we will not deal with parody (Jameson, 1991, p. 65), which is a particular type of quotation based on the repetition of an existing fragment but in a totally different context and aims to create a comic contrast through one or more elements of incongruity. We will not examine the theme of allusive inspiration, which occurs every time an author is influenced by a previous work, without this involving a real imitation. We will not address the theme of the forgery, as it is an act deliberately declared by the director and therefore does not consist in an imitative action but in a more radical 'transplant' of a fragment *tout-court* into another work.

#### THE ACT OF COPYING IN CINEMATOGRAPHY: MAIN VARIATIONS

Let us start with the director's awareness. If the copy is made unconsciously by the author, who spontaneously draws

from his own references and from his masters, it is defined as allusive inspiration. If copying is a conscious choice and is made explicit, it can be configured as a citation, tribute, or remake. If the copy is aware but is presented in such a way that the viewer does not notice, it comes down to plagiarism.

The citation consists in fully recovering a structural, figurative, and narrative cell; its debt to the original is clearly recognizable. Often it is used in an ironic, irreverent, or transgressive way; in this case, as already mentioned, the more correct term is parody. Citation contains the concept of copy and states it explicitly. Since the 1980s, cinema has come closer and closer to postmodern language (Jameson, 1991, p. 56), rejecting the rigor and commitment of the previous two decades and re-proposing ideas and elements already seen, often stereotyped, freely drawing on a repertoire focused on *déjà-vu* and adapted to the changed sensibility of the public and to the new communication needs. It is the cinema that Hitchcock defines as “pieces of cake” (Truffaut, 2014, p. 84).

The citation is both the instrument and the characteristic note of the society of replacement: in an era where everything has already been said and seen, we just have to proceed with the combination of new figures, assembling fragments of sentences and sequences. (Grasso, 2010)

Post-modern cinema is a path between the citations. “It loves the pastiche form, weaving itself with continuous references and quotations, often ironic, to the cinema of the past and dialogues with all contemporary media and forms of communication, to which the public is increasingly accustomed.” (Rondolino & Tomasi, 2011, p. XIII). In pastiche (Jameson, 1991, p. 65; Hoesterey, 2001, p. 1, Dyer, 2006), the citation is therefore an explicit imitative process, based on the concept of copying, in which there are elements that differentiate it from the original: it is precisely these elements that give the citation its quality and expressive value.

Let us see some of the countless examples of citation in cinema. The famous *Battleship Potemkin* (Ejzenštejn, 1925) is probably the most cited film in the history of cinema, in par-



**Fig. 1** Sergej Michajlovič Ējzenštejn, *Battleship Potemkin*, 1925.

**Fig. 2** Alfred Hitchcock, *Foreign Correspondent*, 1940 (left, centre); Francis Ford Coppola, *The Godfather*, 1972 (right).

ticular the shot of the Odessa staircase with the Cossacks advancing in line, the glasses of the fatally shot woman and the wheelchair that slips down the steps (Figure 1).

In *Foreign Correspondent* (Hitchcock, 1940) Albert Bassermann is hit in the face by a photographer and rolls down the steps, just like the woman in the original by Ejzenštejn. The same scene is re-proposed, in two different shots, in *The Godfather* (Coppola, 1972). Woody Allen turned it into a parody in *Bananas* (1971) and in *Love and Death* (1975) (Figure 2).

In Brian De Palma's *The Untouchables* (1987), the sequence at Chicago's Union Station clearly quotes the wheelchair scene, but re-proposing it in a different context: expanding time and space, lingering for a long time with the tension linked to the danger that threatens the newborn and the reckless attempt to save him by the gangster who, at the same time, brutally takes the life of his antagonists. This is probably the most effective quote from the original, but Bernardo Bertolucci in *Partner* (1968) had already used the wheelchair in a scene in which Pierre Clementi and one of his students in a theatre course, wearing a gas mask, throw a bomb inside, before it rolls down a long staircase at the EUR in Rome and finally flips. In *C'eravamo tanto amati* (Scola, 1974), the pram is

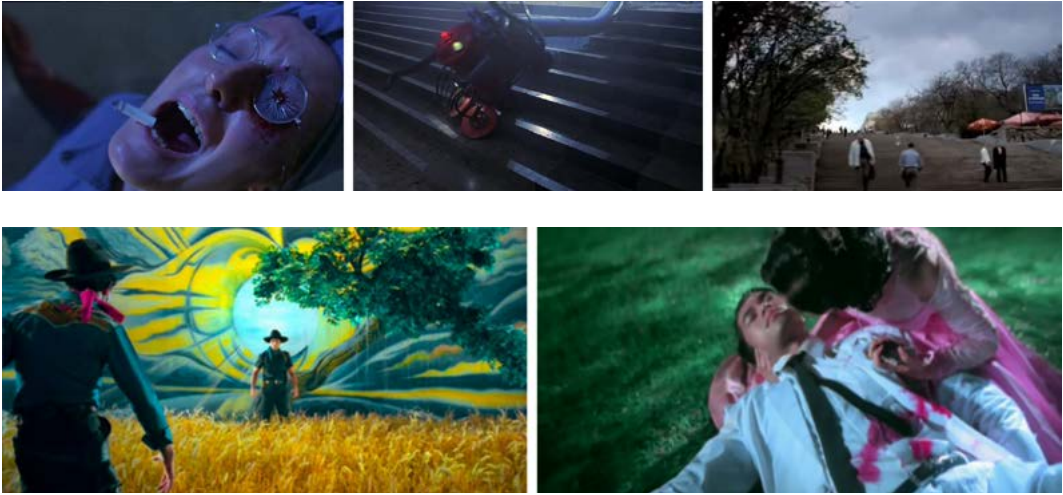
**Fig. 3** Brian De Palma, *The Untouchables*, 1987 (above); Bernardo Bertolucci, *Partner*, 1968 (in the middle); Ettore Scola, *C'eravamo tanto amati*, 1974 (below).



the pretext for a multiple quotation in which a frenetic Stefano Satta Flores reconstructs the sequence of Ejzenštejn's film to Stefania Sandrelli using a wooden cart that risks hitting the unsuspecting Nino Manfredi sitting on the steps of Trinità dei Monti in Rome (Figure 3).

In *Brazil* (1985), Terry Gilliam mentions both the blow to the face and the wheelchair scene (replacing it with a compressor); in Peter Segal's *Naked Gun 33 1/4* (1994) we have the parodistic citation of the citation, as the reference is precisely *The Untouchables*. In *Joshua* (Ratliff, 2007), the theme of the wheelchair and the staircase returns, with a level of psychological tension similar to that of De Palma's masterpiece, but in the context of the family psychological drama caused by a child with unusual behaviour. The real Odessa staircase as a





**Fig. 4** Terry Gilliam, *Brazil*, 1985 (left, centre); Liev Screiber, *Everything is illuminated*, 2005 (right).

**Fig. 5** Wisit Sartsantieng, *Tears of the Black Tiger*, 2001.

'cult' place also appears in many other films, including *Everything is illuminated* (Screiber, 2005) and *Star Wars – Revenge of the Sith* (Lucas, 2005) (Figure 4).

The *mimesis* relationship that links all the citations we referred to the original is purely visual and, even if decontextualized, remains evident. It is a narrative tool used in an episodic way; however, there are films built entirely on quotation, such as *Tears of the Black Tiger* (Sasanatieng, 2001). Conceived as a tribute-quotation from Hollywood westerns, but full of clichés and references to Southeast Asian culture, it achieved great success in the West precisely due to the exasperation of a quotation narrative that often crosses the border with trash (Figure 5).

The quote is a central element in all the works of Quentin Tarantino; he is considered the main representative of postmodern cinema. Its sources are innumerable and heterogeneous (exploitation, spaghetti-western, horror splatter and Italian detective stories, Japanese historical genre, oriental action cinema, classic noir, Nouvelle Vague, British cinema, New Hollywood), intertwined and superimposed in a mix of irreverent and surreal dialogues, time leaps, black humour, and violence (Figure 6).

The tribute consists in the recall of a visual imagery borrowed from an existing work. In this way, the author declares his gratitude and admiration, revealing the con-



**Fig. 6** Ringo Lam, *City on Fire*, 1987 (top left); Federico Fellini, *8 ½*, 1963 (top center); Hiroyuki Nakano, *Samurai Fiction*, 1998 (top right). Quentin Tarantino, *Reservoir Dogs*, 1992 (bottom left), *Pulp Fiction*, 1994 (bottom centre), *Kill Bill*, 2003 (bottom right).

nections through a gradual and veiled similarity (referring to the viewer's imagination and memory). As in the case of the citation, it is necessary for the director to make the reference explicit, so that the viewer can recognise and appreciate it. Woody Allen, for example, often uses this form of gratitude towards his mentors. A well-known example of tribute is the opening sequence of *Stardust Memories* (Allen, 1980), an evident homage to the beginning of *8 ½* (Fellini, 1963) (Figure 7). What do the two scenes have in common? The crowded bus, the laboured breathing, and the spasmodic agitation in wanting to get out of the car / train of Mastroianni / Allen, the dazed and indifferent looks of the people who watch the scene, the touch of eroticism assured by Sandra Milo and by Sharon Stone (in her debut), but above all the dreamlike and estranging component that binds the two sequences. Obviously, there are expressive differences, indeed even inversions: the smoke is inside the machine in *8 ½*, outside in *Stardust Memories*; Sandra Milo's sensuality is decadent lascivious, Sharon Stone's is sparkling and joyful; the bus passengers watch the story in *8 ½*, they are completely indifferent in *Stardust Memories*.

In *Love and Death* (1975), Allen performs a tribute to Ingmar Bergman using a completely different logic, no longer based on the atmosphere and the presence of characterizing details, but on an unequivocal technical expedient. He repeats the same shot used by the Swedish director in *Persona* (1966), in which Liv Ullmann is in profile, Bibi Andersson in front and their faces overlap in a sort of graphic match. In the final se-



**Fig. 7** Federico Fellini, *8 ½*, 1963 (above); Woody Allen, *Stardust Memories*, 1980 (below).

quence of *Love and Death*, Allen uses the same shot with Jessica Harper in profile and Diane Keaton in front (Figure 8).

These two examples certainly do not exhaust the numerous variations of the tribute in the history of cinema, but they allow us to propose a definition: it consists in a clear reference to a work already performed, using the reproduction of a situation, an atmosphere, an element, a gesture, a technical expedient in shooting or editing. Unlike the citation, in the tribute the mimesis between the original and the copy is not formal but deeper: relies on analogy and is aimed at an audience that is able to understand the reference through a process of intuition, analysis and recognition. The concept of copy is obvious but is declined in a positive meaning, as the tribute recognizes the value of the original work and tends to evoke its aura (Dika, 2003, p. 10).

The remake (Mazdon, 2019) reproduces the entire narrative structure of an already existing film. Usually, a remake introduces significant changes in the plot, the characters, the setting or even the genre, focusing on new techniques, on popular actors, on updated dialogues, to obtain a new social setting and to use a language closer to the audience. In some cases, the remake develops the original idea further as a sequel. Or, as in *The Prisoner of Zenda* (Thorpe, 1952), a colour version of John Cromwell's 1932 film of the same name, the remake is carried out to exploit the expressive possibilities of the recently introduced films. There are

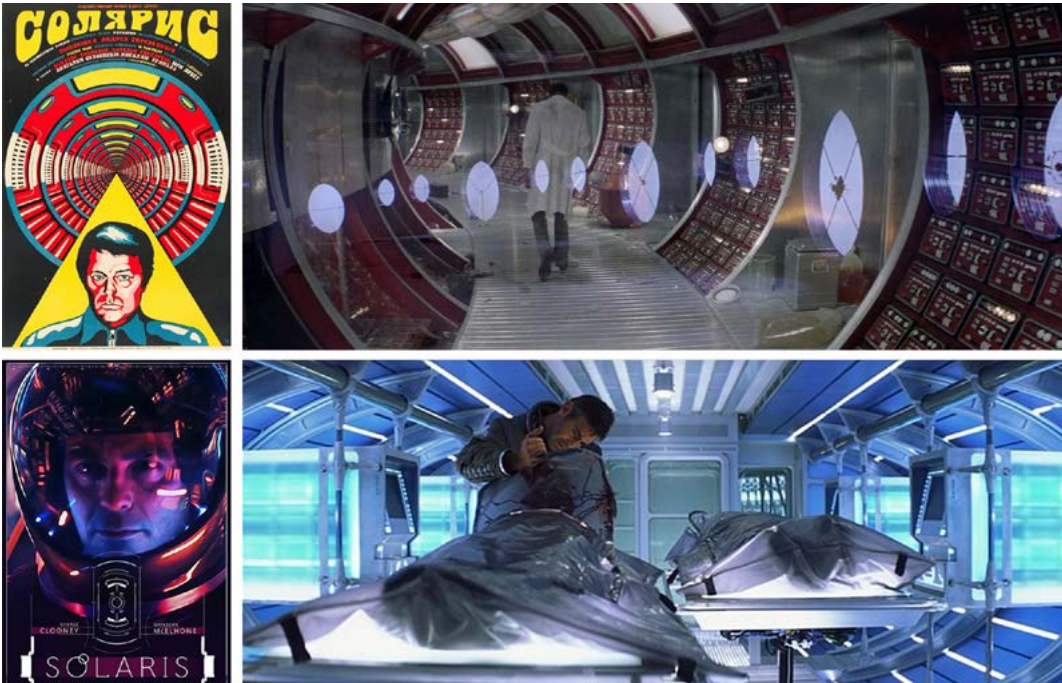


**Fig. 8** Ingmar Bergman, *Persona*, 1966 (left); Woody Allen, *Love and Death*, 1975 (right).

countless examples of remakes in the history of cinema, and many films rework novels or plays (in these cases it is more correct to use the term 'adaptation'). For example, *Solaris* (Soderbergh, 2002), is a remake of the homonymous film by Andrej Tarkovskij (1972), which in turn is an adaptation of the 1961 novel by Stanisław Lem. Soderbergh's *Solaris* was conceived as an adaptation of the novel rather than as a remake of Tarkovsky's film, even if numerous visual and narrative choices of the original movie are evidently re-proposed. Both films, in the opinion of Stanisław Lem, are very far from the idea that animated the novel; he recognizes a greater value in the Soviet version and an excessive trivialization in the American one. In fact, the 1972 film was based on the destabilizing force of nostalgia and the past, while that of 2002 relies on the uncanny force of a present characterized by hypertrophy of images (Figure 9).

By definition, a remake should stay as faithful to the prototype as possible. Sometimes the remake is made shot-for-shot. Such as *Psycho*, whose 1998 version by Gus Van Sant is a faithful reproduction of the 1960 original by Alfred Hitchcock. A comparison of the two films reveals that settings and camera angles, in most cases, are the same. In this instance, the remake consists of a real exercise in style, in which the shots and the same editing cuts of the original are reproduced as well as the dialogues and the entire plot. The differences concern some temporal shifts, the use





**Fig. 9** Andrej Tarkovskij, *Solaris*, 1972 (above); Steven Soderbergh, *Solaris*, 2002 (below).

of colour, the presence of more explicit sexual references, greater violence, and some ‘hidden’ frames within the key scenes of the two murders (Figure 10).

The remake explicitly declares its debt to the original and therefore remains distant from the negative meaning of copying; sometimes it keeps the same title. The issue of *mimesis* concerns aspects that go beyond the visual appearance; often the director tries to go beyond the existing version by improving its weaknesses, enhancing elements that are not sufficiently emphasized, or bringing out points of view in which he is particularly interested.

The word ‘remake’ is, however, anachronistic to the degree to which our awareness of the pre-existence of other versions, previous films of the novel as well as the novel itself, is now a constitutive and essential part of the film’s structure: we are now, in other words, in ‘intertextuality’ as a deliberate, built-in feature of the aesthetic effect, and as the operator of a new connotation of ‘pastness’ and



**Fig. 10** Alfred Hitchcock, *Psycho*, 1960 (above); Gus Van Sant, *Psycho*, 1998 (below).

pseudo-historical depth, in which the history of aesthetic styles displaces 'real' history. (Jameson, 1991, p. 67)

Plagiarism consists in the misappropriation of someone else's idea. Plagiarism can be intentional, or the consequence of careless conduct. In cinematography it is very difficult to define its boundaries because contamination and inspiration from previous creations are the basic premise of any work. Plagiarism is unethical, but not always illegal. There are two main characteristics of plagiarism:

- the differences compared to the original work are limited to the details and are not the result of a creative contribution;
- the reproduction is camouflaged in such a way as not to make the original work recognizable.

The accusations and lawsuit of plagiarism in the cinema are very frequent (also considering the economic interests at stake), but they are difficult to resolve with a sentence certifying the infraction. Convictions for plagiarism in cinema are very rare, because each film is influenced by all the others and the reference to previous creations is the prerequisite for any work. One of the most famous cases of plagiarism charges is *A Fistful of Dollars* (Leone, 1964), which blatantly copies *Yojimbo's* situations, shots, and dialogues (Kurosawa, 1961). Leone has never denied that he has taken over the structure of *Yojimbo* and admitted to having read the entire script of Kurosawa's film to avoid using the same dialogues, also ad-



**Fig. 11** Akira Kurosawa, *Yojimbo*, 1961 (above); Sergio Leone, *A Fistful of Dollars*, 1964 (below).

vising his producer (Jolly Film) to pay Toho Film the royalties (about ten thousand dollars). But the Jolly did not pay: “no one had worried about the royalties because the film was not expected to be successful” (Mininni, 1995, p. 62). The Japanese master wrote a telegram with these words: “Mr. Leone. I just had the opportunity to see his film. It’s a great movie, but it’s my movie. Since Japan is a signatory to the Bern convention on international copyright, you must pay me. Akira Kurosawa” (Pescatore, 2006, p. 119). But the trial for plagiarism did not take place, and a compromise was reached: Kurosawa obtained the royalties of *A Fistful of Dollars* in the Far East plus fifteen percent of the total proceeds derived from the commercial exploitation of the film in the world (one and a half million dollars). Instead, there was the trial that saw Leone and the Jolly film in opposition, which went on for ten years and ended in a stalemate. From that day on, Leone produced his own films (Figure 11).

The plagiarism can also be limited to sequences. This is the case of one of the highlights of *The Shining* (Kubrick, 1980), clearly taken from *The Phantom Carriage* (Sjöström, 1921) (Figure 12). Why in this case are we talking about plagiarism rather than quotation? Because the sequence essentially reproduces the original work, with minimal differences that are not the result of a creative contribution, but above all because the reference model is not an iconic film, universally known and present in the collective imagination. Tarantino too, as we have seen, draws heavily on the





**Fig. 12** Victor Sjöström, *The Phantom Carriage*, 1921 (above); Stanley Kubrick, *The Shining*, 1980 (below).

boundless archives of cinema, but his poetry is encyclopaedic and his style is openly based on quotations and on the imitative act; unlike Kubrick who, instead, he quotes extensively referring to painting, architecture, and photography. Tarantino probably would not mind being accused of theft. He, paraphrasing Picasso, claimed: “Great artist steal. They don’t do homages”.

#### DIFFERENCES, BORDERS, OVERLAPS

The variations of the concept of copying in cinema, which we tried to define in the previous paragraph, have uncertain boundaries and evident overlaps. In general, the originality of a work must be accepted when a creative principle of any kind can be found in it; there are often films with many elements in common, but none of them were made with the intention of stealing the idea from others. Western culture tends to identify the value of a creative product with absolute originality; however, re-proposing and revisiting, with or without variations, is a characteristic of the human nature, and imitative pro-

cesses have always been a prerogative of art. “Imitation is not necessarily recognition of subordination; it can be the area in which the reworking and creative remaking takes place” (Tinazzi, 1983, p. 68). Furthermore, an author can make a ‘copy’ or an alleged ‘plagiarism’ in perfect good faith, even ignoring the existence of the other similar work. In this case we speak of ‘accidental creative coincidence’, as both works are the result of independent and distinct creative processes. When the copy “is subtle and produced unconsciously by the author, it is normal artistic creation, in which echoes of the teachings of the masters return. When the author acts consciously, making the citation elusive, we speak of a trivial plagiarism” (Piemontese, 2003, p. 123). On the contrary, we speak of tribute when the teachings of the masters are consciously recalled in the psychological characterization, in the atmosphere, in the shooting and in editing techniques; compared to it, the citation appears more like an insertion within a narrative. Finally, the remake is often considered an effect of the creative crisis of contemporary cinema, but many remakes can have a much higher value than the older versions, as in the case of *True Grit* by Joel and Ethan Coen (2010). In cinematography, which is not a conceptual art, the result is more important than the idea; and even in cases of obvious remakes, the copy may have a higher value than the original.

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**Article available at**

DOI: 10.6092/issn.2724-2463/12662

**How to cite**

**as article**

Colistra, D. (2021). Citation, Tribute, Remake, Plagiarism. Overlaps and borders in movies. *img journal*, 4, 96-115.

**as contribution in book**

Colistra, D. (2021). Citation, Tribute, Remake, Plagiarism. Overlaps and borders in movies. In Ghizzoni, M. & Musiani, E. (Eds.), *img journal 04/2021 Copy / False / Fake* (pp. 96-115). Alghero, IT: Publica. ISBN 9788899586195



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# FORGERY AND NARRATIVE IN ARCHITECTURE DESIGN COMMUNICATION

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## ESSAY 71/04

DESIGN COMMUNICATION

DIGITAL COLLAGE

LOUVRE

ALBERTO CAMPO BAEZA

RAPHAËL GABRION

Although in the wake of the tradition of photomontage and collage, the communication Alberto Campo Baeza and Raphaël Gabrion adopted to present their architectural proposal for a new facility building for the Louvre in Liévin demonstrates an innovative connotative power of intertextual elements add-

ed to the basic renderings. In particular, artworks and cinema-referred elements added to the perspective renderings are used to unfold their semantic range, to orient the reception and to discuss on the threshold between fictive and scientific, where forgery can be paradoxically used to tell the truth.



## INTRODUCTION

In *L'image ouverte*, the French philosopher Georges Didi-Huberman recalls how painting has often been defined as “minor-being, a work of appearance”. He also adds that “Whoever says to paint says to pretend” (Didi-Huberman, 2007, p. 44), reiterating a critical position towards images that has ancient roots. Such a judgment comes from an age in which the sight was underestimated. The truth was rather transmitted through the ‘word’ (the Lord’s word), the ‘touch’ (Thomas’ proverbial ‘finger in the wound’) or ancient written sources, which were given an absolute value for centuries. Pictures were instead considered “unreliable and deceptive” (Nuti, 2008, p. 10). Isidore of Seville declares it bluntly around the 4th century:

the painting is an image that reproduces the appearance of some reality and which, when you look at it, brings that reality back to mind. The painting was called *pictura* almost to say *fictura*: it is, in fact, a strong image, that is, false, not real [...] in fact there are paintings that, striving to reproduce the original exactly, go beyond reality itself and, wanting to be more credible, offer a deceptive image. (Isidore of Seville, 615-636, XIX, 16)

Imitation, intended as the derivation after a ‘model’, was formerly based on aspects such as the material used, the proportions or key figures, the arrangement between the parts or the use of specific formulas (Krautheimer, 1942). During the Renaissance, this relationship shifted to a fundamentally visual level and the pictures acquired credibility and centrality in the formation and transmission of knowledge. The invention of print, of photography, and, recently, of computer-generated imagery, have given images a more important but also more ambiguous role, especially in a context, such as the architectural design communication, which lies on the slippery threshold between scientific illustration and artistic expression. Digital technology has not only allowed the production of photo-realistic

pictures, often indistinguishable from a photograph, but also promoted the transformation of existing images, whose semantic reservoir can be put at the service of the communication of the architectural design. In this way, architects can communicate their proposal by constructing visual anticipations that easily combine ‘denotation’ –the projective and scientific representation of the architectural body and the environment it belongs to– and ‘connotation’ –elements and treatments adopted in order to recall meanings that belong to the reader. In some cases, the connotative contribute takes superiority over the denotative one.

The architectural ‘envelope’ is only evoked while accessory elements such as textures, human figures, vegetation or signals become intertextual filters through which the design space is given further sense (Colonnese 2017, 2019, 2020).

Waiting for visual studies addressed to interpreting the iconographic production of modern architecture in the expanded field of media, the author analyzes the graphic results of a project developed in 2015 by Alberto Campo Baeza and Raphaël Gabrion as an entry for the competition for the deposit of the Louvre to be built in Liévin. In particular, the innovative renderings, which involve both recognizable human figures and artworks belonging to Louvre, are here decomposed in layers and connected with the external sources and meanings. They are then discussed both to illustrate the communicative power of the intertextual network they perform and to investigate their specific critical role in connoting the project as a piece of truth out of the fictive, virtual context it is immersed in.

## DESIGNING FOR ART

In 2015, the Spanish architect Alberto Campo Baeza and the French architect Raphaël Gabrion took part in the competition for the Conservation and Storage Facility for the Louvre Museum in Liévin. Together with Elena Jiménez,



**Fig. 1** Alberto Campo Baeza and Raphaël Gabrion, *Conservation and Storage Facility for the Louvre Museum in Liévin*, 2015. Digital rendering of the building on the lake (Courtesy of Alberto Campo Baeza and Raphaël Gabrion).

Tommaso Campiotti, María Pérez de Camino, Imanol Iparraguirre, Ignacio Aguirre, Alejandro Cervilla, as well as Raphaël Gabrion's collaborators in Paris, they designed a concrete cubic storage crowned by offices and laboratories around narrow patios in a place marked by two sturdy coal chimney stacks as memory of a previous anthracite mining centre. The competition entry is presented by a number of different drawings and pictures: plans, sections, photographs of a *maquette*, an exploded axonometric view and view and a perspective section after a digital model. Added to these, no less than 15 perspective views, seven outdoor and eight indoor views, explore the project (Figure 1). While plans and elevations reveal the mostly functional nature of the

building, made of neutral rooms open either to courtyards or landscape, both the architects' report and renderings are entrusted with the mission of make a 'cultural artefact' out of it.

The building, which is designed on the shore of a small lake, is described as "A large, dark podium housing all the workshops and services, with the cubic part of this great warehouse emerging like the chimney of a great boat" (Campo Baeza, 2015). Such a primary metaphorical reading is suggested by the words *bateau ivre* (drunken boat) that comments a sketch of December 14, 2014, and are assumed as the entry's motto for they echo the title of the well-known Rimbaud poem. But this is only the first step, as most of the connotative work is performed by the renderings, which can be organized in three distinct groups, according to the complexity of their semantic device.

A first group consists of black-and-white perspective views of exteriors and interiors, with a few figures of technicians in charge of packing, moving, analysing, or restoring the works of art. Actually, the artworks, together with the landscape, are the true protagonists of these pictures. Some large sculptures are arranged in the full-height room covered with Carrara marble square tiles to demonstrate the use of that exceptional space. Generally, the 'pasted' works, such as the sculpture known as *The Marly Horse* or Eugène Delacroix's *La Liberté guidant le peuple*, are popular, recognizable and immediately relatable to the original Louvre. In one case, Hubert Robert's *La Grande Galerie*, it directly shows its magnificent interiors rooms and pay homage to their architect (Figure 2).

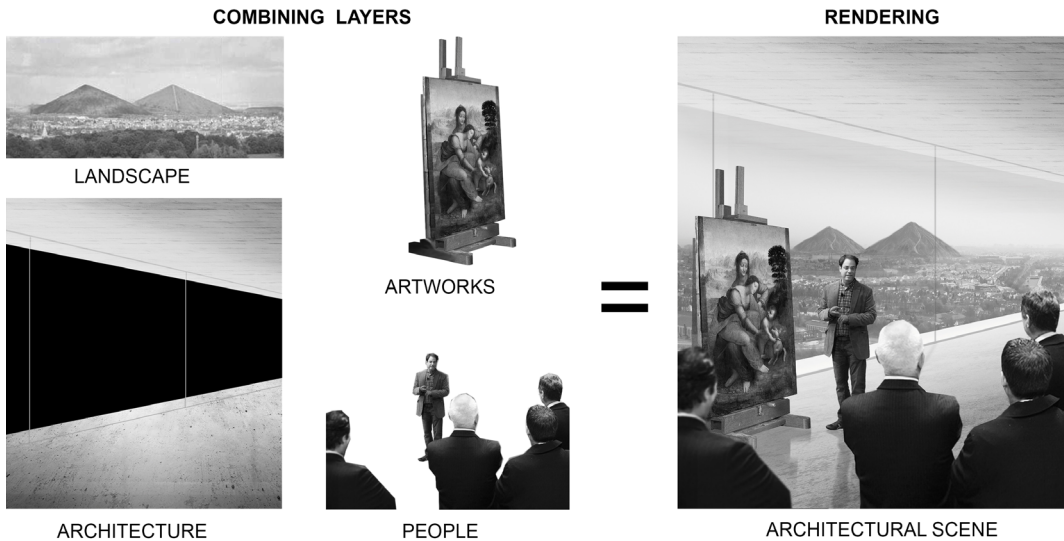
A second group consists of three black-and-white renderings of exterior or interior. In addition to the works of art, these renderings feature recognizable human figures, which obviously constitute a precise choice of the architects and visualizers. Some of the figures look compatible with the program of the building, such as a group of art historians intent on appreciating the restoration of Leonardo da Vinci's *St Anna and the Vergin*. The group is presumed to be pasted



**Fig. 2** Alberto Campo Baeza and Raphaël Gabrion, *Conservation and Storage Facility for the Louvre Museum in Liévin*, 2015. Digital rendering of the large format unpacking area with people admiring Hubert Robert's Grand Galerie (Courtesy of Alberto Campo Baeza and Raphaël Gabrion).

from a screenshot of Stan Neumann's *Leonardo da Vinci: The Restoration of the Century*, a documentary presenting the restoration accomplished between 2010 and 2012. This rendering is particularly interesting in demonstrating how architecture is evoked by four grey lines and two photographic maps stretched to frame a view of the landscape while the quality of space is expressed mainly by the people, and their shadows, around the painting (Figure 3).

Conversely, other figures, such as the Italian actor and director Vittorio De Sica or the Australian actor Geoffrey Rush, appear to be 'out of place', in temporal, geographical, and logical terms. Their presence has the consequence of unfolding the semantic field of the images to a wide range of suggestions. De Sica's 'architectural cameo' has been cut out of a photograph shot in London in the 1950s and recently shown in the exhibition *Tutti De Sica* (Farinelli, 2013) but his narrative role in the rendering of the building entrance is



**Fig. 3** Alberto Campo Baeza and Raphaël Gabrion, *Conservation and Storage Facility for the Louvre Museum in Liévin*, 2015. Digital rendering decomposed in four layers (Courtesy of Campo Baeza and Raphaël Gabrion; elaboration by the author).

quite enigmatic and needs to be justified. Besides being a general homage to the artist and a dimensional reference for design space, De Sica evokes here a general relationship between cinema and classic art. But there is more. Standing in front of the museum entrance, his face looks serious and he looks like a guardian of the art institution, maybe indirectly condemning the current spectacularization of museum space (Figure 4).

By taking into account his movies, he can be associated with the black-and-white quality of the renderings. By taking into account the famous *Umberto D.*'s (De Sica, 1952) sequence shot by the Pantheon, his figure can even be interpreted as Campo Baeza's homage to his favourite Roman monument. But he is best known as the father of Neorealism and this specific quality of his 'motion pictures' seems to deal with the authenticity of the architectural representation and the spatial data it conveys.

The presence of Geoffrey Rush in the rendering of the 'large format unpacking area', dressed as an elegant gentleman looking at pieces of sculpture and potteries among wooden boxes, is even more ambiguous (Figure 5). Although seen





**Fig. 4** Alberto Campo Baeza and Raphaël Gabrion, *Conservation and Storage Facility for the Louvre Museum in Liévin*, 2015. Digital rendering of the main entrance with Vittorio De Sica cut, mirrored, and pasted after a photograph of 1950s, here added at left (Courtesy of Campo Baeza and Raphaël Gabrion).

from behind, we can recognize him as Virgil Oldman, the standoffish and aloof art auctioneer of Giuseppe Tornatore's (2013) *The Best Offer*. Virgil uses the expertise in forgery of his friend and painter Billy to manipulate the mind of the bidders and acquire original artworks at a very low price.

The figure in the rendering is cut-out of a sequence in which he is revealing his secret collection of woman portraits to his beloved Claire. She is a fragile lady apparently affected by agoraphobia, eventually revealing to be a member of thievery plan organized to steal Virgil's priceless collection.

The concepts of 'simulation', 'copy', 'fake' and 'authentic' are central in the whole movie, as symbolized by the man-shape automaton being restored by Robert, one of Claire's accomplices. Billy states that "everything can be simulated, even love". Virgil does not agree with his friend, as proved by the following dialogue:

Claire: "In an old article of yours I found on the internet, you said: There's something authentic in every forgery. What did you mean?"

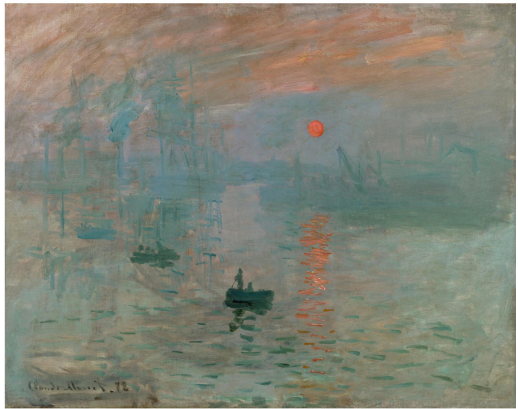
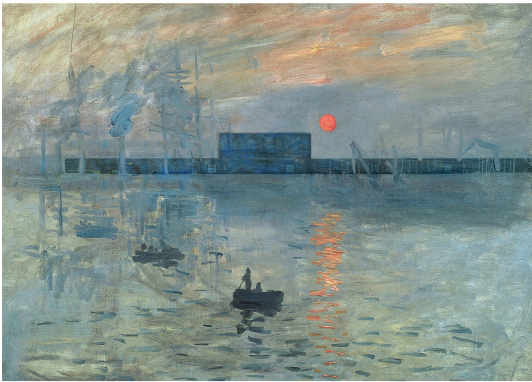




**Fig. 5** Alberto Campo Baeza and Raphael Gabrion, *Conservation and Storage Facility for the Louvre Museum in Liévin*, 2015. Digital rendering with Geoffrey Rush after Tornatore's *La migliore offerta*, compared with a partial view of the original shot at right (Courtesy of Campo Baeza and Gabrion).

Virgil Oldman: “When simulating another’s work the forger can’t resist the temptation to put in something of himself. Often, it’s just a trifle, a detail of no interest. One unsuspected stroke, by which the forger inevitably ends up betraying himself, and revealing his own utterly authentic sensibilities”.

While this dialogue offers Virgil the hope of a true love, even after his secret collection has been stolen by Claire herself, it casts a different light on the rendering, on the museum project and, by extension, on the practice of architectural representation. Any rendering of an architectural design is commonly designed to ‘sell’ a building and commonly mixes real and fictive elements. But what is ‘real’ or ‘authentic’ and what is ‘fake’ or only ‘fictive’ in the rendering of an architectural project? A building like the Louvre facility building is somehow ‘summoned’ from the mind of architects and, although copied-and-pasted from other sources, human figures, artworks, and the landscape outside the windows look like the only ‘authentic’ elements in these pictures. At the same time, nowadays an architecture scene is always a combination of layers of visual information coming from the ‘machine’ (a computer-generated scene) and elements coming from people arranging and finalizing the picture itself (the forgers?). But, maybe another sense can be found.



## FORGING PAINTINGS

The third group of renderings consists of digital views produced by inserting an image of the building model into three paintings of the Louvre collection. The museum design appears into the background of Jean-François Millet's *L'Angélu*s (1857-59), in the waterscape of Claude Monet's *Soleil Levant* (1872) and as a model onto the table of Jean-Baptiste-Siméon Chardin's *L'Enfant au toton* (1738). From an operative point of view, the digital insertion of a picture of the model into the paintings required some collateral interventions. For example, the higher part of *L'Angélu*s, with some ducks flying in the sky, were cut out and the two figures in the foreground were distanced to frame the building shape in the background. Quite the same building shape has been placed in the upper part of *Soleil Levant* and textured with impressionistic brushstrokes captured from the painting itself, eventually removing the artist's signature.

These three pictures (Figure 6) are neither architecture renderings with figures pasted onto nor paintings made on purpose for illustrating an architectural design, in the wake of a long-lasting tradition. They are properly existing paintings that were turned into architecture design presentations by inserting a small picture of the design building. They are digital reproductions of a painting reproducing a scene into which a view of the digital model of the designed building was inserted. Added to their layered structure, an actual iconographic short-circuit occurs as the artworks literally embody the building designed to contain them.

These three pictures provide different levels of information. One reacts to these images as if in front of an experience of Augmented Reality, scrutinizing the elements to evaluate their authenticity and conjecturing syllogisms to connote them. For example:

1. the picture reproduces a painting;
2. the painting belongs to the Louvre collection;

**Fig. 6** Alberto Campo Baeza and Raphaël Gabrion, Conservation and Storage Facility for the Louvre Museum in Liévin, 2015. Digital renderings after Jean-François Millet's *L'Angélu*s (1857-59), Claude Monet's *Soleil Levant* (1872) and Jean-Baptiste-Siméon Chardin's *L'Enfant au toton* (1738). (Courtesy of Alberto Campo Baeza and Raphaël Gabrion).



3. the painting recalls a set of consolidated meanings related to the author, context, technique, etc.;
4. the painting has been slightly modified to add a small image of a designed building or, in one case, the explicit image of one of its models (representation of a representation);
5. the painting is therefore a representation of the architectural project inserted in a pictorial context;
6. the architectural project is linked to the Louvre and may be associated with the meanings of the painting, an artwork;
7. the architectural project is an artwork.

This chain of deductions, with its radical conclusion, is only one of the many possible. Certainly, the denotative content of the designed structure is almost insignificant when compared to the connotative contents of the context it is inserted in and, therefore, to the semantic range. Further interpretations emerge by observing the specific elements contained (or missing) in the chosen painting (Figure 7). For example, in Chardin's painting, the model is onto a table, close to a pair of books, a roll of paper, and a gorgeous quill in an inkwell, all of them instruments for writing and drawing. Moreover, the model replaces a spinning top the boy is playing with. This replacement gives further meanings to the model and, consequently, to the image, the project, and the building. The model is connoted as a game in itself, a sort of innocent board-game or a mysterious mathematical box explored by the boy's right hand. When indulging this 'path of breadcrumbs', the whole picture can be interpreted as a puzzle to solve. In this sense, the missing spinning top cannot but recall *Inception*. As known, in Christopher Nolan's (2010) movie, Leonardo Di Caprio plays a man who uses a spinning top to reveal whether he is currently living in the reality or in a multi-level dream. By adopting this suggestion, the image reveals to be a sort of 'matryoshka' inspired by the four-level structured dreams explored in the movie, a chain of connected representations in which any clear boundary between reality and representation, and between true and false, is challenged and deceived.

**Fig. 7** Alberto Campo Baeza and Raphaël Gabrion, Conservation and Storage Facility for the Louvre Museum in Liévin, 2015. Digital rendering after Jean-Baptiste-Siméon Chardin's *L'Enfant au toton* (1738) compared to the original painting (detail). (Courtesy of Alberto Campo Baeza and Raphaël Gabrion).



## CONCLUSION

Although in the wake of the tradition of photomontage and collage, the visual communication conceived by Campo Baeza, Raphaël Gabrion and their collaborators to present a new building for the Louvre in Liévin is paradigmatic of the current evolution of the visual models for architecture design communication in the extended field of the digital media. Somehow, their presentation of a building for preserving pieces of art became an opportunity for considering the current role of architectural images.

Although the renderings of the building are based on realistic views after a digital model or digital collage, they are retouched, simplified and integrated to convey meanings coming from outside the building and the picture. This intent is evident since the motto, the 'drunken boat', which connotes the whole building as an ark preserving meaningful exemplars of human art with a bit of irony that seems to cast a critical shadow on the program or the place chosen. In particular, while most of the human figures and artworks serve to express size and uses of design space as well as the connection with the Louvre as an institution, some are chosen with the specific goal of questioning the actual sense of the pictures themselves, forcing the readers to deal with the many possible layers of meaning.

The presence of 'uncanny' figures in the rooms of the Conservation and Storage Facility of the Louvre, like De Sica and Rush/Oldman are a sort of homage to their artistic performances and indirectly demonstrate the renderings are explicitly fictive. At the same time, they provide a semantic contribute to the project presentation. Both De Sica and Rush/Oldman are connected to cinema, the Dream Factory, which seems the main critical filter to interpret the pictures. De Sica, the father of Italian Neorealism, possibly inspired the black-and-white documentary-like renderings and seems to remind that more than fiction, these renderings are authentic gazes onto reality.

Rush/Oldman could simply recall the power of visual seduction of art as well as the excesses and risks of its trading, but there something more. He associates the renderings with the work of a forger, who, in recreating a work of art, may give in to the impulse to customize the copy through a detail that belongs to him or her. This opportunity is testified by the three paintings transformed into pictures presenting the project. As a sort of iconographic short-circuit, they literally turn an 'unreliable and deceptive' *fictura* into a message of truth. The insertion of the building in the digital copy of the painting is the personal, authentic contribute coming from the mind of the architect/forger, a small piece of truth left on the uncertain border between the domains of real and virtual. Besides this specific contribute, the architects convey the idea of an interrelated system of representation not only in a projective or visual sense but also in a narrative sense, in which each single view may provide clues to interpret the others.

## ACKNOWLEDGEMENTS

This article develops from a paper presented at the EAEA 14 - Envisioning ambiances: representing (past, present and future) atmospheres for architecture and the built environment, a conference held in Nantes, September 3-6, 2019 (Colonnese 2019). I wish to thank Alberto Campo Baeza for his collaboration.

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**Article available at**

DOI: 10.6092/issn.2724-2463/12648

**How to cite**

**as article**

Colonnese, F. (2021). Forgery and narrative in architecture design communication. *img journal*, 4, 116-133.

**as contribution in book**

Colonnese, F. (2021). Forgery and narrative in architecture design communication. In M. Ghizzoni, Musiani, E. (Eds.), *img journal 04/2021 COPY / FALSE / FAKE* (pp. 116-133). Alghero, IT: Publica. ISBN 9788899586195



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# SUM OR TOTAL?

## THE CASE OF THE CISTERCIAN MONASTERY IN MIAMI

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## ESSAY 72/04

WILLIAM RANDOLPH HEARST

MIAMI SPANISH MONASTERY

ART COLLECTIONS

MOVING ARCHITECTURE

CREATIVE RESTORATION

As an architecture is moved, the relationship with the place it was designed for is lost. Its original functions are altered and it acquires novel meanings, concerning with not only the new context but the act of transfer itself. Its authenticity seems, on the one hand, to be guaranteed by the original materials, while, on the other hand, it is challenged by the different form and reception, which is somehow mediated by the idea of its

previous, pure existence. The story of the ancient Spanish monastery purchased by William Randolph Hearst in 1925, dismantled, shipped and rebuilt in Miami, Florida decades later is here described, analysed and discussed as a sort of borderline of the idea of 'fake', by focusing on the historical, epistemological and symbolic value of interventions that challenge the 'nature' of architecture itself.

## INTRODUCTION

The concepts of 'fake' and of 'copy' or 'imitation' are rather elusive whenever they are applied to architecture, an art in which the creative authorship and the physical production often do not coincide, and the productive process implies a plenty of compromises. These concepts, as the opposite ones of 'originality' and 'authenticity', present evanescent delimitations under several points of view (Schultz, 2020): from the variations a project is affected during the construction to the post-occupancy adaptations, which are sometimes necessary to the survival of the building; from the industrial technology needed for a faithful reproduction of the project, to the restoration procedures, which imply a gradual replacement of the architectural components.

Is the *Esprit Nouveau Pavilion* Giuliano Gresleri and José Oubrerie rebuilt in Bologna in 1977 (Gresleri, 1979) a 'copy' or a 'fake'? Cesare Brandi (1977, p. 66) sustained that the difference between forgery and copy or imitation is not in the productive method or materials but in the intentions. Forgery occurs whenever one is simulating an authentic work to mislead the viewer rather than to studying or documenting the work itself. From this point of view, the adjective 'fake' properly describes the architectural illusion produced by deceiving perspectival devices, by mirroring surfaces, or by projection mapping which transforms the façade of buildings for the tourists' pleasure.

Obviously, the Bologna pavilion is just a copy built to promote the knowledge of Le Corbusier's architecture, but the sharpness of this judgment dissipates when sections of 'authentic' buildings or entire blocks are moved from a place to another. Can they be still judged 'authentic' buildings?

Moving deprives them of the univocal relationship with the primitive geographical, historical, and cultural context they had been conceived for and disclose them to novel meanings (D'Amelio & De Cesaris, 2019). This process of re-semantising implies several degrees of betrayal of truth<sup>1</sup> and



**Fig. 1** Francis P. Johnson, *Ancient Spanish monastery - Miami Beach, Florida, August 1954*. Courtesy State Archives of Florida, Florida Memory.

impacts on the building's aura and authenticity. Does a torn-up structure, after being transferred and rebuilt elsewhere, albeit with primal materials, keep the aura of its pristine configuration or does it become a kind of fictive representation? Think of the Pergamon Museum in Berlin and the captivity into which the Pergamon Altar (2nd century BC) or the Istar Gate (6th century BC) were forced (Marchand, 1996; Payne, 2008). The Gate, one of the eight entries to the ancient Babylon, was cut from the blue-tiled walls and reduced in size (Bilsel, 2012). The relocation transformed the structure into a simulacrum, modified its meaning, deleted its relationship with the place, and drastically turned its function from a passageway to a scenography.

The relocation of the architecture in the Pergamon Museum is neither a unique nor a rare case in history.

Often in wars, besides slaves, valuables and artworks, the predatory action of the winners comprises the appropriation of monuments or fragments of architecture. This practice is intended to emphasize the subjugation of one civilization over another. In recent ages, collectors have subtly replaced weapons with money to manifest an analogous power, making possible what seemed impossible: turning architecture, a traditionally permanent work, into a mobile artwork.

This practice is exemplified by the daring story of the acquisition of the Cistercian monastery of Santa Maria la Real in Sacramenia, near Segovia, Spain and its reconstruction in Miami, Florida (Figure 1). The building's vicissitudes started from its acquisition by the American businessman and politician William Randolph Hearst (1863-1951), who had it disassembled and shipped to the United States. This episode belongs to the early 20th-century diaspora of ancient architectures from Europe, mainly medieval cloisters from Spain

**Fig. 2** Unknown, *The Hearst Castle under construction in the early 1930s*. Courtesy Hearst Castle/ California State Parks.





(Merino de Cáceres & Martínez Ruiz, 2012) and France (Brugéat, 2018a, 2018b). Nevertheless, the story of monastery, here reconstructed, is exceptional for several reasons. In particular, the cogent philological ambiguity of the cloister's reconstruction calls for a reflection on what is and what is not (or no longer) 'authentic' or 'true'. This ambiguity is indirectly testified by the difficulty in finding proper words in the architectural terminology to name the interventions the monastery was submitted to, which are here analysed in their epistemological and symbolic power. In this sense, images and terms here borrowed from other disciplines such as biology, anatomy, or linguistics, are indirectly suggesting that those interventions are somehow opposed to the intrinsic 'nature' of architecture.

#### PURCHASING HISTORY. HEARST AND THE CISTERCIAN MONASTERY

In the vibrant industrial and financial growth of the first post-war period, American collectors happened to have a reckless attitude towards the European artistic heritage. It was likely fed by an ancestral complex of cultural inferiority as well as the economical subordination of some geographical areas in Europe, which presented great opportunities for the traders in antiquities and artworks. This situation led to the enrichment of the collections of American antique dealers and businessmen. Inspired by the model of the European merchant-patron, some of them saw the art of the old continent as the symbol of an achieved economic success and a social position conquered by self-made men. This is the case of Randolph Hearst, one of the richest American tycoons, at the head of a veritable publishing empire. A profile of him, however arbitrary, was outlined by Orson Welles and Herman J. Mankiewicz for their famous *Citizen Kane* (1941).

Hearst was inspired by the activity of contemporary antiquarian and architects, such as Stanford White (1853-1903),

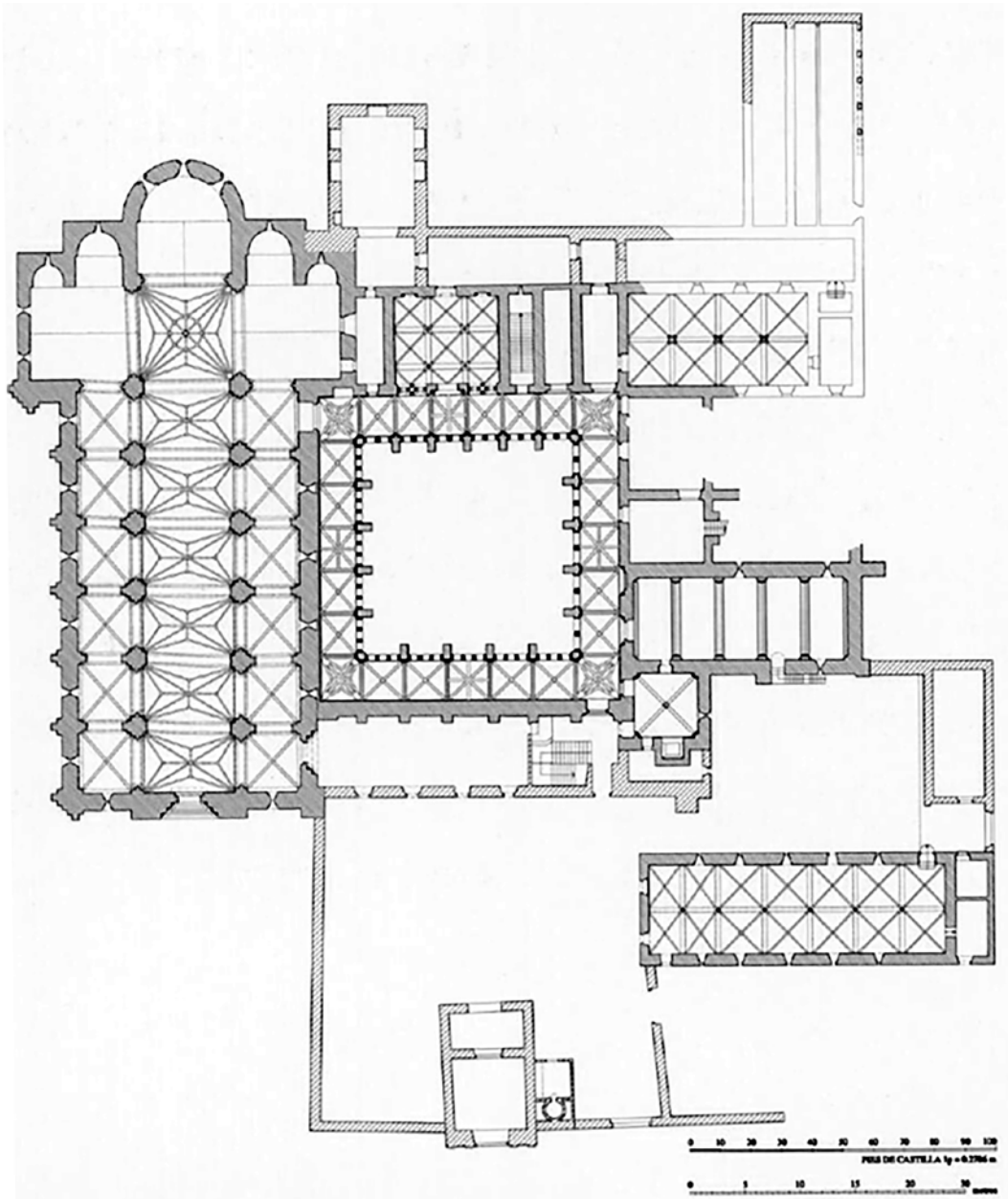
who gathered architectural pieces and drawings from Europe. Likewise, Hearst started to acquire salvages or entire sections of European historical buildings to enrich his monumental Californian residence, in the shape of a majestic castle on San Simeon's hills (Figure 2). Hearst also bought pieces from White's apartment in New York, in the sale following the death of the architect in 1906, including a precious, carved Italian ceiling which covers the Doge's suite in the Hearst Castle.

Hearst's antiquarian mania fed up the construction of his social, political, and economical identity (Levkoff, 2008). As underlined in the autobiography of his wife, the Californian actress Marion Davies, Hearst did not "like paintings so much. It was antique furniture, then armor, then tapestries, and then paintings last" (Davies, 1975, p. 181). This antiquarian preference was linked to the pragmatically approach of a self-made businessman, which valued objects and architecture in terms of their materiality. Although his collection comprised several paintings by masters or antique furniture, original pieces were often mixed with in-style reproductions, often suggesting the importance of economical convenience and visual enjoyment over the 'aura'. For instance, he tried to buy Italian marble fountains for the Castle park but, after realizing that the shipping and import taxes would make the deal inconvenient, he opted for US-made cheaper reproductions. On other occasions, along with his architect Julia Morgan (1872-1957), he had no qualms about modifying original pieces to adapt them to the rooms of his Castle, or simply to his personal taste.

Hearst purchased several Gothic cloisters in Spain, at the suggestion of Arthur Byne and Mildred Stapley. Respectively architect and writer, they were authors of several books, more properly catalogues, on Spanish architecture (Byne & Stapley, 1920). In 1924, they were financed by Hearst to find, evaluate and acquire portions of Spanish buildings to be incorporated into his Californian castle project. In particular, through his architect

**Fig. 3** Unknown, *The monastery of Sacramenia*. B. Davis Schwartz Memorial, William Randolph Hearst Archive, LIU Post. Courtesy Long Island University.





**Fig. 4** Unknown, *Plan of the monastery of Sacramenia before the relocation* (Merino de Cáceres, 2003, p. 125).

Julia Morgan, Hearst asked the Bynes to find a “big, fine Gothic cloister – the bigger and finer the better” (Randolph, 1924). The response of the antiquarians was not long in coming and in July 1925, Byne bought an ancient cloister on Hearst’s behalf, who had it rebuilt within a museum of medieval art at the Berkeley campus of the University of California. The whole operation was carried out in antagonism with John Davison Rockefeller Jr. who, in the same years (1925-38), was donating antiques to the Metropolitan Museum in New York, forming the core of The Cloisters Museum (Rorimer, 1972; Barnet, 2005). Soon after, Hearst asked the Bynes for an additional cloister. In October 1925, they communicated to have found another monastery. It was the monastery of Santa María of Sacramenia, which had been built in the 12th century for a community of Cistercian monks under the patronage of Alfonso VII (Merino de Cáceres, 2003) (Figure 3).

Through Byne, Hearst purchased the cloister, the Chapter room, and the large refectory, which could be easily converted into an exhibition space, while the church remained on site, mutilated (Figure 4).

The blocks forming the walls and vaults of the monastery were numbered, disassembled, packed with straw, and closed in some 11.000 wooden crates. Loaded on a ship, the pieces of the monastery crossed the ocean. Unfortunately, the cargo was stopped at USA customs to avoid the contagion of an epidemic that was raging in Spain. For three months, 23 men uninterruptedly opened the thousands of crates, burned the straw used for packaging, and put the stones back into the crates.

The whole operation was carried out summarily, undermining the order of the numeration which had been attributed to the pieces. The delay was also increased by the disastrous effects of the Great Depression of 1929, which profoundly changed the world economic situation. Hearst had to correct his plans and abandoned the cloister to its fate.





**Fig. 5** Unknown, *The stones of the Sacramenia cloister after it was bought to be rebuilt in Miami in 1952* (Merino de Cáceres & Martínez Ruiz, 2003, p. 447).

The crates remained in a Brooklyn warehouse until 1952, when two entrepreneurs, William Edgemon and Raymond Moss, bought them with the idea of building a tourist attraction in Miami (Figures 5, 6). This venture lasted for years and gradually eroded their finances. Moreover, the loss of drawings and documents illustrating the original position of the stones and their correspondence with the boxes forced the workers to follow criteria of contingent opportunity rather than philological authenticity. Some parts were even discarded and used elsewhere. The reconstruction, which costed about 20 million dollars, lasted for 19 months and integrated pieces from both other European monasteries and local artisans. The *Time* Magazine reported that “the master mason who supervised the job called it ‘the greatest jigsaw puzzle in history’” (Unknown, 1954, January 11th). The result is as picturesque as disrespectful of the original status of the cloister. Those who visit the monastery today in Miami, a dynamic and multi-ethnic city,

are convinced that they are standing in front of an authentic Medieval Spanish building made of authentic stones quarried, sculpted, and assembled in old Europe. On the contrary, those who know its history may consider it just a fake.

#### FROM ARCHITECTURE TO OBJECT

Although Byne had described the monastery to be purchased with words, drawings, and photographs (Larkin, 2005), Hearst's cultural and geographical distance promoted the acquisition of the building in the perspective of a sort of artificial dynastic construction.

**Fig. 6** Unknown, *The stones of the Sacramenia cloister in Miami, Florida, in August 1952*. Private Archive.





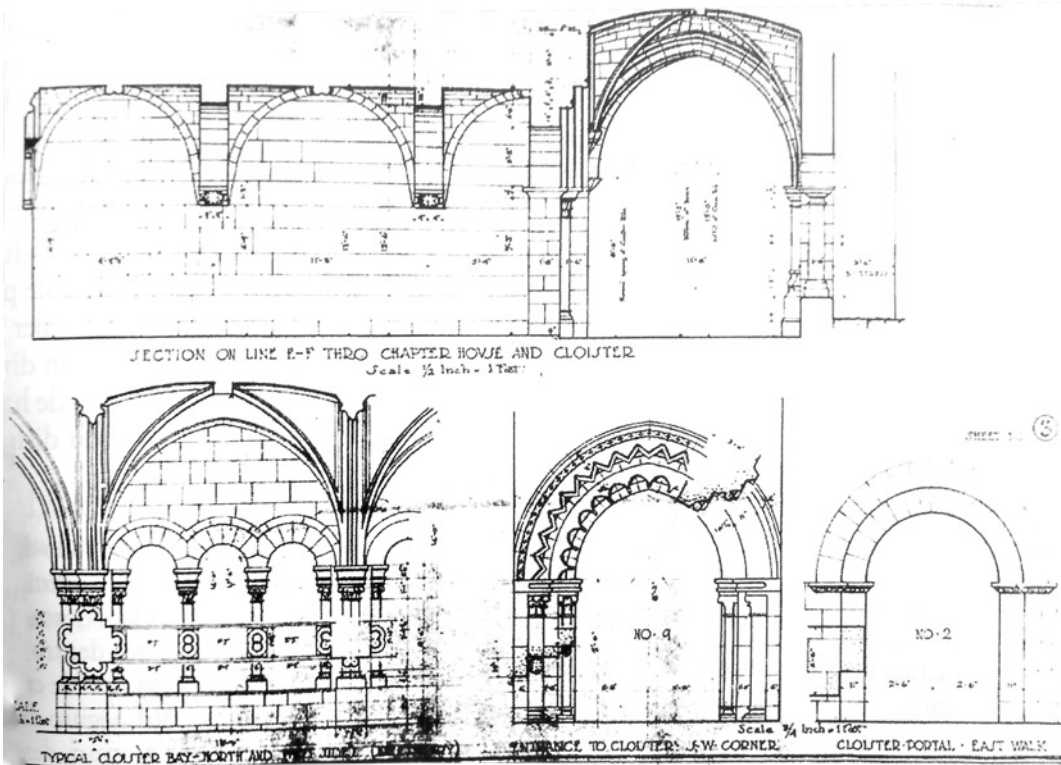
**Fig. 7** A postcard portraying the statue of Alfonso VII in the rebuilt cloister of Miami, Florida. Private Archive.



The comparison between the king Alfonso VII, the patron of the Cistercian monastery celebrated in its sculptural apparatus (Figure 7), and the American businessman, who intended to donate the complex to the University, corresponded to the construction of Hearst's social identity. In line with the process that the American sociologist economist Thorstein Bunde Veblen (1899) defined "conspicuous consumption", collecting was also based on the visual exer-

cise of power. This celebrative feature was manifested above all in architecture, the most social of the arts, which was often used as a persuasive tool to celebrate and fix individual pre-eminence, prompting dynamics of social persuasion (Bunde Veblen, 1989)<sup>2</sup>. This interpretation stresses the encomiastic eloquence of architecture of which Hearst was rather aware, as confirmed by the amount of architectures and salvages used in the construction and furnishing of his sumptuous residences, including his ambitious Californian castle. In the light of these considerations, the story of the Sacramenia monastery stimulates a reflection on the concept of fake. The reference to this definition requires an analysis of the building's transformation, to evaluate the distance between the primitive and the final form. Indeed, the monastery was subjected to a series of actions, each embodying intentions and symbolisms that contributed to change the meaning of the building and reduced the complexity of architecture to the individuality of objects. Architecture is presumed to escape the definition of bourgeois work (Birindelli, 1983, pp. 128, 129) with which the historian Massimo Birindelli qualified the works which present a precise spatial "delimitation" and a consistent "mobility". An ordinary painting, depicted on an easel, framed, sold, and placed in a living-room or a gallery, remains available to many uses and displacements.

Architectural works, instead, cannot be easily "delimitated" since they are "rooted" in a place and designed for a specific community and time. While critics have developed categories and tools for the interpretation of "bourgeois works", architecture, so radically linked to its place and time, is often difficult to read in terms of forms and socio-economical relationships which no longer belong to our age. This chronic lack of critical investigative tools, which surfaces in the difficulty of recognizing, documenting, and representing architecture, can be ascribed to the growing tendency to approach a building as if it were a product of industrial design. The assignment of a furnishing role to the ancient stones of the monastery can be framed in this scenery, too.



**Fig. 8** Arthur Byne, *Drawing for the disassembling of the chapter hall of the Sacramenia monastery* (Merino de Cáceres & Martínez Ruiz, 2003, p. 441).

Turning a building into a portable “bourgeois work” – without denying its authenticity, which is what makes the transformation a pure display of power– requires some fundamental actions to reshape the architecture according to a logic of industrial production. When the workers numbered the stones of the cloister in Spain, they transferred the collective value of a unitary work to a graphic and numerical code, a generic aggregative layout (Figure 8). When the blocks were taken apart, they acquired an individual identity, independent from collective categories, such as ‘wall’ or ‘vault’.

When the blocks were packed, they were standardized by forcefully adapting them to the form of the crates, the whole building symbolically turned into an industrial assembly kit. These strategies ensured a physical and mental control over the whole work by cancelling the primitive identity of pieces and allowing their relocation in space.

Like a sort of magic spell, their architectural essence was somehow reduced and entrusted to drawings and notes onto two-dimensional sheets. It is no coincidence that, after the loss of the layout, the stones were assembled freely, resulting in a different shape, with pieces redundant.

#### SUM OR TOTAL? ANALOGICAL READINGS

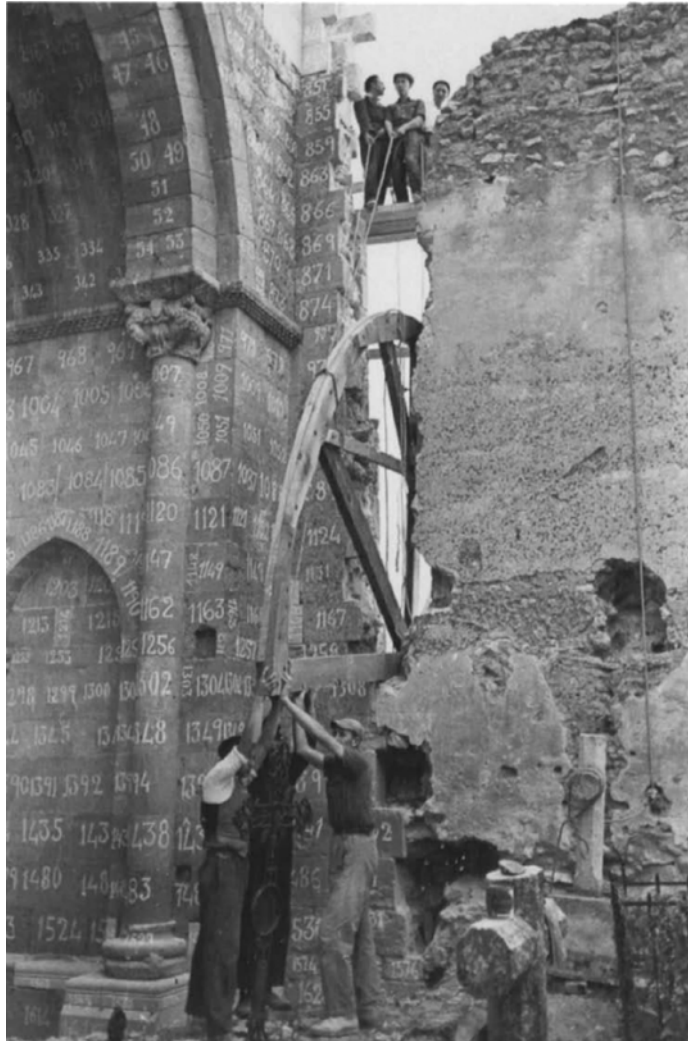
When discussing the actions involving the monastery, authors cannot but use heterogeneous terms such as translocation, grafting, hybridization, dismemberment, disarticulation, metaphor, translation, metaphor, and so on. Almost challenging the disciplinary limits, ordinary architectural terms resulted to be unable to frame and define the specific sense of the material and immaterial phenomena occurred to the Sacramenia cloister.

In this sense, they need to be analysed using analogies with other disciplines, such as biology, mathematics, or linguistics. The organic conception of architecture, which implies a direct analogy between the building and the human body, dates back at least to the early Renaissance treatises; however, it continues to find proselytes among those who regretted the introduction of the Napoleonic meter to the detriment of anthropometric units or those who design buildings upon human proportions.

It is therefore natural that architects often derive their terminology and their 'yardstick' from anatomy. Looking at anatomy, the removal of a piece from the body corresponds to a mutilation of the building, while the addition of a new part corresponds to a prosthesis. In this perspective, what remains of the monastery in Spain is an architectural stump, while the recomposed cloister in Miami was subjected to grafts, prostheses, and implants of elements from other buildings (generally other European monasteries).

The result was therefore an altered building, a kind of 'Frankenstein's monster' of architecture. Nevertheless, also

**Fig. 9** Unknown, *The Numbering and disassembling of stones of the apse of San Martín de Fuentidueña, to be shipped in New York, 1958* (Barnet & Wu, 2005, p. 38). (1954, January 11th). Jigsaw Puzzle. Time Magazine. Retrieved July 7, 2021 from <http://content.time.com/time/subscriber/article/0,33009,819355,00.html>



this terminology seems to be linked to figures and conditions which belong to the past when compared to the current conception of the 'augmented body' inspired by the cyborgs of science fiction literature.

From a genetic point of view, the insertion of alien elements in the reconstruction of the structure in Miami has produced a translocation, or a variation in the genetic heritage of the building, due to an incorrect exchange and re-arrangement of its constituent parts.



In this case, it is clear that the sum of the parts of the building is different from its original unit, as the operation that led to its re-composition is not commutative: indeed, when the order of the elements changes, the result varies, too. However, more than mathematics, linguistic can reveal something more on the building's transformation process. In fact, that of architecture is a proper language (often particularly eloquent) with its own grammatical and logical rules. The numbering and the isolation of stones, a frequent process in the relocation of architectures (Figure 9), reduce the complexity of the architectural language to the simplicity of its singular terms which, isolated, lost the meaning of the whole text.

The transport of the monastery from one place to another led to a change in the receptors of language, which can be identified in the users of the building and their perceptions, from the Spanish monks living, praying, and working within the walls of the monastery to the tourists who visit the attraction in Florida. The change of interlocutors was also accompanied by a translation process.

It is no coincidence that the word 'translation' is understood in its double meaning of physical and linguistic displacement. According to the philosopher Jacques Derrida (1979, p. 102), works survive only if they are both translatable and untranslatable, as the work must necessarily lose a part of itself during the translation.

Furthermore, for the philosopher, it is always hard to trace a boundary between the original and its translation, because the original has already lost its alleged purity. Indeed, the original is itself a translation: the Spanish monastery, even before the transoceanic transfer, was the result of adaptations and architectural stratifications that had already translated its primitive image.

Nevertheless, the translation, or the re-composition of the building in Miami, has allowed the work to remain alive and, at the same time, to invent and define, by contrast, its original purity. Indeed, the reconstruction of the building

allows to experience a philological integrity that is given by the sense of difference:

The original calls for a translation which establishes a nostalgia for the innocence and the life it never had. [...] The supplementary translation which appears as a violation of the purity of the work is actually the possibility of that very purity. (Wigley, 1989, p. 8)

## CONCLUSION

The condition of the Spanish monastery in Miami is as unique as the characters and historical events that brought it from Spain to Florida. Today the building is presented to public as an original Spanish monastery. It hosts religious services and is appreciated as a favourite location for marriages (Figure 10). On the other hand, the story of how it arrived at Miami, which has become a common heritage, symbolizes a disinhibited way of intending collectorship and entrepreneurship that was somehow typical of American upper classes. In this sense, it is representative of the way USA culture has been defining itself in relationship with its controversial European roots.

If in architecture we call 'fake' those cases in which there is an evident intention to deceive, re-presenting an architectural work or a part of it that imitates the original or suggests a non-existent antiquity, then the monastery cannot be considered as such. But if by fake we mean the result of a process in which the original building changes place, shape and meaning, then the monastery is a fake. But how correct is this judgment? Certainly, the monastery is neither a copy nor an imitation. Moreover, most of the materials it was rebuilt with are authentic. This fact certainly contributes, in some way, to keeping alive a part of its aura, of its authenticity. At the same time, the authenticity of such a 'second-life' of monastery is constantly negotiated by the memory of its 'first-life', which is furtherly idealized by its absence. The relocation of the



cloister from Sacramenia to Miami and its consequent transformation is an extreme case, of course, but the extremity of its condition seems to call for a new definition of authenticity while, at the same time, it perfectly embodies those translation processes which often amplify the myth of the original.

## NOTES

**1** Adrian Forty (2004, pp. 308, 309) recalls how, in architecture, truth can be expressed in three ways: the 'expressive truth', when a work is faithful to the spirit of the person who created it; the 'structural truth', when the appearance conforms to the structural system; the 'historical truth', when a work expresses the ideas and the level of development of its era.

**2** Hearst was infatuated with the coffered ceilings and the *alfarjes* of Granada and Guadix; in the 153 rooms of his castle of San Simeón, he accumulated more than one hundred Gothic, Mudejar and Renaissance ceilings. See: <https://www.elindependientedegranada.es/cultura/granada-castillo-ciudadano-kane> (March 21, 2021).

## ACKNOWLEDGEMENTS

The text results from a collegial work of the authors. However, Fabio Colonnese edited the section "Purchasing History. Hearst and the Cistercian Monastery"; Maria Grazia D'Amelio the section on "From architecture to object", Lorenzo Grieco the section "Sum or Total? Analogical readings". The authors thank Mary Levkoff, former director of the Hearst Castle; Catherine Larkin, of the Long Island University; Dean Smith, of the Bancroft Library, UC Berkeley; and Laura Sorveti of the Robert E. Kennedy Library, Cal Poly.

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**Article available at**

DOI: 10.6092/issn.2724-2463/12665

**How to cite**

**as article**

Colonnese, F., D'Amelio, M., G., & Grieco, L. (2021). Sum or Total? The case of the Cistercian monastery in Miami. *img journal*, 4, 134-155.

**as contribution in book**

Colonnese, F., D'Amelio, M., G., & Grieco, L. (2021). Sum or Total? The case of the Cistercian monastery in Miami. In M. Ghizzoni, Musiani, E. (Eds.), *img journal 04/2021 Copy/False/Fake* (pp. 134-155). Alghero, IT: Publica. ISBN 9788899586195



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# THE CULTURAL VALUE OF THE COPY IN THE MUSEUM DOMAIN

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## ESSAY 73/04

3D MODELS

DIGITAL COPIES

MAQUETTE

DIGITAL CULTURAL HERITAGE

The essay aims to analyse past and present methods of reality simulation critically. It proposes a non-exhaustive classification of 2D and 3D digital artefacts mainly concerning the cultural heritage field and the museum domain, ranging from reconstructing virtual environments to the most recent computer graphics trends. Moreover, the use of digital copies, sometimes accompanied by their 3D prints, was com-

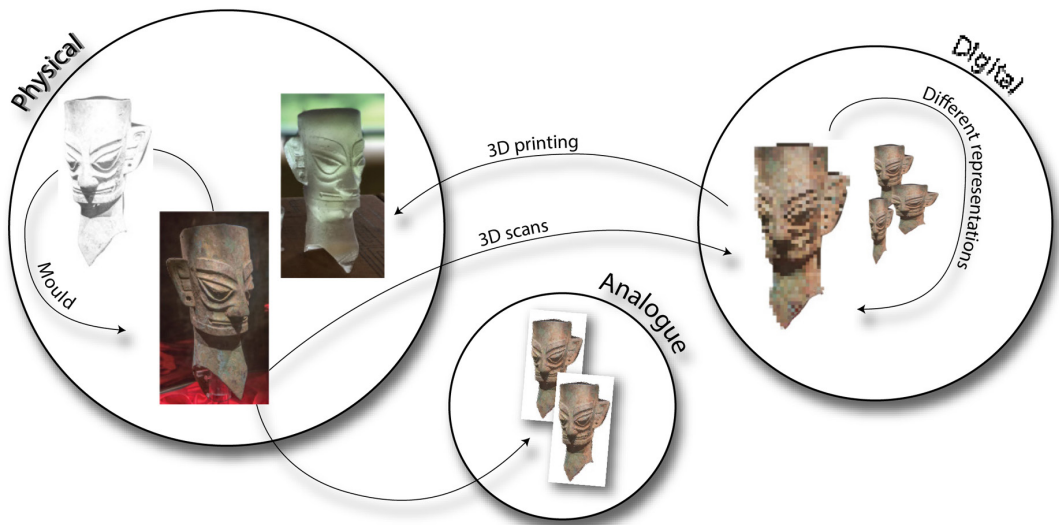
plementary to the original artefacts' vision. Starting from some well-known examples of the past up to the most recent artefacts produced in recent years, the contribution of reality simulation methods intends to reflect the different meanings that the copy can take other than its economic value. Value is not easily measurable. It refers to culture and new opportunities for dissemination.

## INTRODUCTION

As defined by the Oxford Learner's Dictionaries, an artefact is "an object that is made by a person, especially something of historical or cultural interest" (Oxford Learner's Dictionaries, n.d.) The same definition can be applied in the digital domain. In the field of digital archival preservation, the value of a digital artefact is the intrinsic value of a digital object, as opposed to the information content of the object itself. Although there is a lack of a precise standard for making quantitative assessments, born-digital objects and digital representations of physical objects can have a value attributed to them as artefacts.

Digital surrogates constitute an essential opportunity for preservation and greater access to resources. However, digital surrogates may have different utilities for objects depending on the original artefact's nature and condition. In 2001, the Council on Library and Information Resources (CLIR) published a report on artefacts in library collections, stating that digital surrogates' usefulness can be determined by segregating the original materials between rare and non-rare artefacts. These can further be divided into two categories, artefacts that are frequently used and those that are not. Similar reasoning can also be extended to 3D models and different modes of use (Gwinn, 2002). The copies, both physical and digital, are produced for very different purposes. For example, to conceive reconstructions of missing parts, offer inaccessible viewpoints, monitor and assess risks due to the degradation of materials, archive copies of rare and damaged artefacts; for educational use or in tactile museums, to name a few.

The simulacrum rejects any claim to objectivity and replaces its real counterpart, assuming a completely autonomous value of its own. However, it is useful to reason about the difference in value between the original and its copy. While the former has an intrinsic value, the latter has an instrumental value. If the two are put together, the value will perhaps become more significant than that of the original.



**Fig. 1 A.** Tomalini, *Classification of possible reproductions in the fourth industrial revolution and their relationships according to Ch'ng* (2019), 2021, Digital composition.

The present work proposes a non-exhaustive classification of the different meanings that the copy can assume, between past and present, material and immaterial, with the simple intention of making the reader reflect on the multiple declinations of the term 'copy'. The purpose is to overcome the simplistic connotation of reproduction of the original object or reduce the discussion to more immediate considerations about the different uses of replicas.

## MATERIALS AND METHODS

Ch'ng's proposed taxonomy reduces the types of reproduction available in the age of the fourth industrial revolution to six categories (Ch'ng, 2019):

1. Physical to Physical
2. Physical to Analog
3. Physical to Digital
4. Digital to Digital
5. Digital to Physical
6. Digital and Physical



Henry Cole's 1867 convention mainly dealt with the first two types of reproduction: physical to physical, such as plaster casts, and physical to analogue, such as photography (Cole, 1867).

The variables increase when the fourth industrial revolution (Schwab, 2017) blurs the physical and digital line. The reproduction of cultural heritage is included within that revolution in terms of the four additional reproduction types. To these classes, one could perhaps add the transition from analogue to digital, referring, for example, to some reconstructive digital models that are based on historical photographs. The example could be considered a special case of the third category. It is necessary to provide for digitisation of the resources to work with artificial intelligence algorithms, extract the metric information and then proceed with the digital reconstruction.

In Ch'ng's classification, the boundaries between the various reproductions are evident (Figure 1). In contrast, the taxonomy presented below leans towards a strong combinatorial variable. The following criteria have characteristics that can be traced back to different proposed criteria; thus, generating a large number of possible matches.

## RESULTS

These criteria are briefly described below, accompanied by several examples to facilitate a better understanding of the proposed considerations.

### **The dimensions of the replicas: 1D, 2D, 3D, 4D**

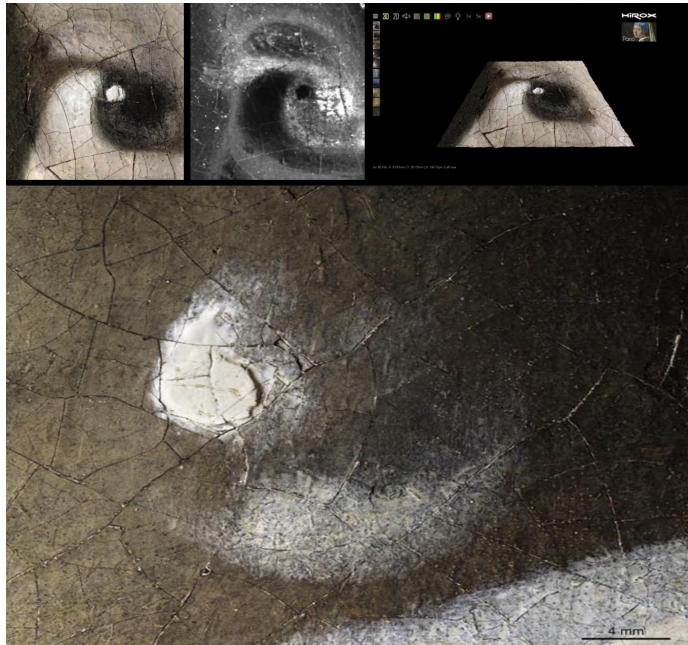
The dimension feature aims to reason on the number of dimensions that a copy can assume, starting from the reproduction of textual documents (one-dimensional) to graphic elaborations such as drawings and images (2D), to models (3D). To these further information related to the digital sphere, the temporal dimension can be added (4D).

Although the physical reproduction of textual, graphic and spatial resources can also be included in the following classifications, with specific reference to the digitisation of Cultural Heritage, we intend to reflect on the possible adding value that such operations could generate. One of the most significant objectives that memory institutions pursue, besides fulfilling the basic functions of custody and enhancement of cultural heritage, is to make digital representations of the objects they preserve accessible to the public to facilitate the knowledge and celebration of the heritage itself (Kelley & Wood, 2018) supporting scientific research and fostering education (Biagetti, 2016).

In the digitisation of cultural heritage, ontologies are increasingly used as fundamental tools to pursue semantic interoperability, conceptualising a domain and acting as mediators for the integrated search of digital objects managed in different repositories. For this reason, all systems should refer to the ICOM CIDOC-CRM standard – the most important and extensive ontology in the cultural heritage domain. The ontology aims to facilitate the exchange and integration of descriptions, information and documentation for scientific research between heterogeneous sources of cultural heritage: museum collections, archaeological sites, monuments and scientific documentation stored in archives and libraries (Doerr, 2003). Many international research projects have dealt with these issues (Meghini et al., 2016).

In art, it is interesting to mention the very high-resolution digital reproduction of paintings. Among others, the digitisation of the painting *Girl with a Pearl Earring* by Jan Vermeer allows us to admire every single brushstroke (Figure 2). It also opens up new scenarios and interpretations in the field of research. These digital artefacts include the highest resolution Gigapixel images that allow us to appreciate the paintings of the masters with extremely high levels of definition. The results are pretty different from the purposes of the author: from a work of art conceived by the artist, we move on to a work of art for the community, facilitating that stratifi-

**Fig. 2** M. Lo Turco, *High-resolution views of the painting Girl with a Pearl Earring by Jan Vermeer, 2021, Digital composition.* The composition allow to admire every single brushstroke of the painting but also opens up new scenarios and interpretations in the field of restoration research. Retrieved March, 31, 2021 from <<http://hirox-europe.com/PEARL/3D/>>



cation of information capable of defining different and less explored narratives and fruitions.

Regarding the reproduction of statues, the *Parian Marble, A Virtual Multimodal Museum* project, is worth mentioning. This case study concerns the cultural promotion and exploitation of the ancient quarries on the island of Paros in Greece, in a multi-layered project using modern technologies attempting to 'return' –albeit virtually– all the marble works that were created from the 7th to the 5th century BC to their place of origin. Through intensive experimentation with different emerging technological solutions in the three-dimensional documentation of cultural heritage assets as well as virtual and augmented reality, the project aims at a curatorial concept of breaking the restrictions of geography and time and involving European stakeholders, policymakers and citizens in the digitisation of heritage through virtual environments (Joannides et al., 2016). Regarding the fourth-dimension representation, it is interesting to describe the research work conducted by the VHLab of the ISPC - CNR In-

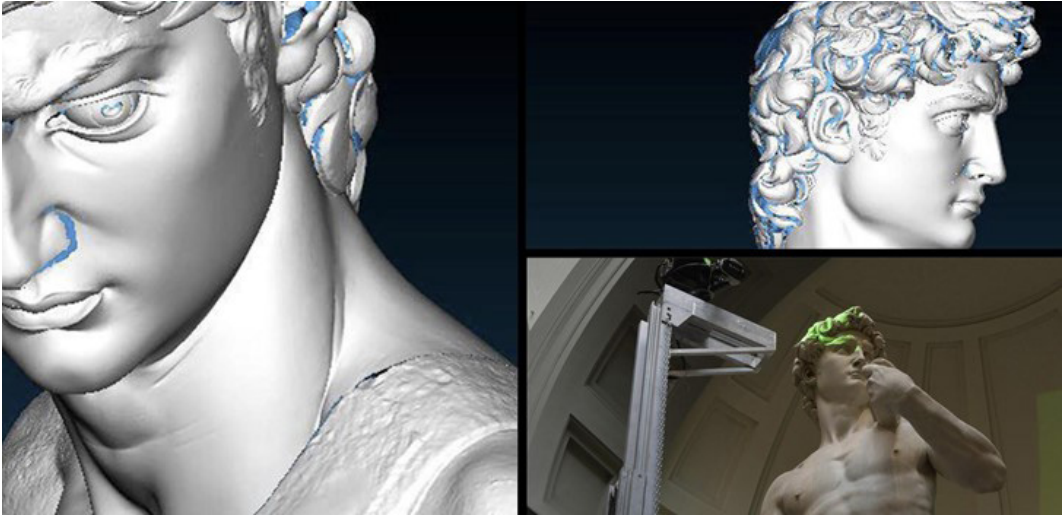
stitute, coordinated by Emanuel Demetrescu. The *Extended Matrix* is a formal language designed to keep track of virtual reconstruction processes. It is intended for archaeologists and heritage specialists to document their scientific activities robustly. The *Extended Matrix* makes it possible to record the sources used and the analysis and synthesis processes that led from scientific evidence to virtual reconstruction. Its adoption organises the 3D archaeological record so that the modelling steps are more fluid, transparent and scientifically complete and organised, in terms of temporal stratifications (Demetrescu & Fanini, 2017).

Moreover, replicas can lose or gain information, switching from 3D to 2D, or from 2D to 3D, possibly even including the temporal variable: famous are Van Gogh's paintings accessible in 3D or the *Monet Immersive Experience* exhibition organised in the Palazzina di Caccia di Stupinigi in 2019, proposing a sublimated experience at an unprecedented visual level, thanks to ultra-high-definition visors.

### **The scale factor of the replicas: reduction vs. full scale**

As it is easy to imagine, physical reproductions may or may not be replicated at full scale (Sass & Oxman, 2006). In the digital domain, the conditions are different: repositories of 3D models allow to make some measurements on digital artefacts, section them, and decompose them semantically. In other cases, these artefacts are supplemented by the presence of a graphic scale or a silhouette that schematically integrates the model with the size of the human figure or parts of it, such as the hands, to deduce, albeit indirectly, the size of the real object.

A famous example of a small-scale wooden model is the 16th-century work of the architect Antonio da Sangallo. The model, of magnificent proportions, was built to illustrate the layout of the new San Pietro's Basilica to the new Pope Paolo III Farnese. With great attention to detail, the model was created as a tool for disseminating and illustrating the design idea (Bianchini, 2007).



**Fig. 3** M. Lo Turco, *The process of digital acquisition and 3D reconstruction of the Michelangelo's David*, 2021, Digital composition. From the project *Michelangelo's David* at Expo 2020 Dubai. Retrieved March, 31, 2021 from <<https://italyexpo2020.it/memoria-e-futuro-il-david-di-michelangelo-a-expo-2020-dubai/>>

The model was appreciated not only by designers as with it they could measure and visualise the proportions of their ideas<sup>1</sup> but also by clients who, not used to reading drawings, could visualise the architect's ideas in three dimensions.

The formal control of architecture in the study phase and the client's need to visualise it were not the only factors that led designers to rediscover the material model. Material models also helped designers to solve static and construction problems, as illustrated below.

A highly topical example is the project to digitise and replicate Michelangelo's *David* in real size through the work of a team of geomatics coordinated by Professor Grazia Tucci of the University of Florence (Figure 3). The work is divided into a sequence of phases ranging from the digitisation of the statue to its printing and the placement of the 'David's twin' in the Italian Pavilion at the Universal Exhibition scheduled for October 2021.

**Scope: (some) ingredients, difficult to mix, not the whole recipe**

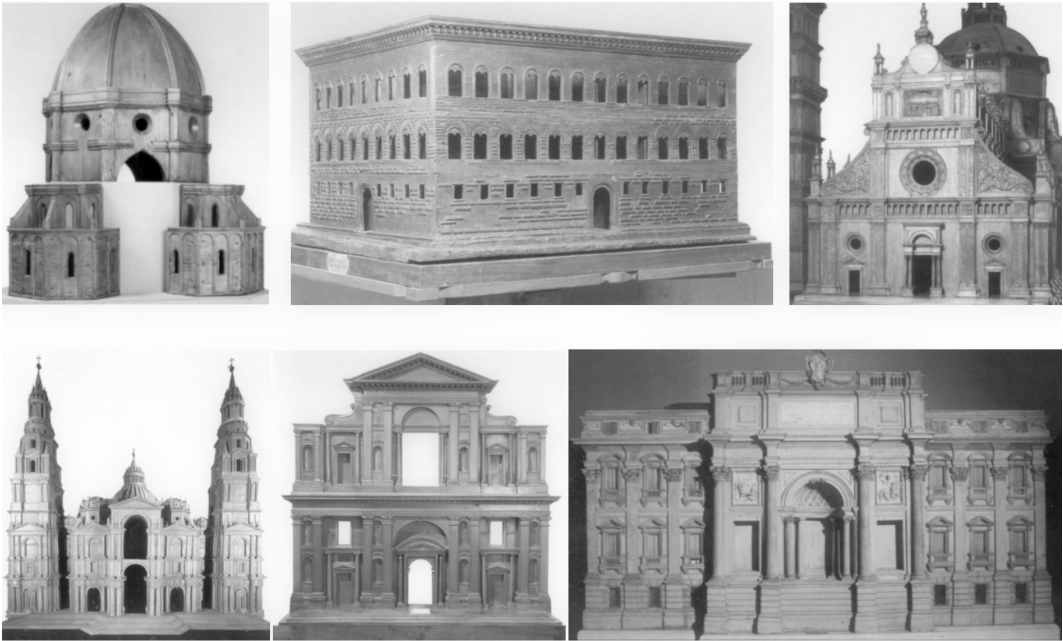
This is probably the most articulated category and the richest in examples. Here, we cannot fail to mention the

famous fakes, copies of the originals that have fooled even the most scrupulous critics for years. Among the many, we should mention Michelangelo Buonarroti. He did not just limit himself to copying paintings by contemporary artists –such as the one he made to deceive his master Domenico Ghirlandaio– but he was also delighted, it seems several times, in making sculptures that were then put on the market as Greco-Roman originals. The most famous one is undoubtedly the *Sleeping Cupid*, now lost, which Buonarroti made for Lorenzo de Medici, Magnifico's cousin, around 1496. At the suggestion of the same client and perhaps without Michelangelo's knowledge, it is said that the statue was buried to give it an older appearance and then sold in Rome as an original piece from the Roman era.

In the field of painting, we can remember the famous Mark Landis, one of the best-known falsifiers in the United States, all the more so because he is technically 'unpunishable'. Landis did not sell but donated more than a hundred works of art, which he has faked, to the nation's museums. For making these donations, which appeared to be genuine, he used various identities, even disguising himself as a Jesuit priest. He admitted this himself, explaining that he gradually became addicted to the privileged treatment he received from museum staff. Landis' technique was incredibly simple: he chose the work to be reproduced, made a copy with a light table and then continued working by observing the photocopy of the original with quick strokes, exploiting what remained impressed in the memory. But the real trick of the artist lies in the meticulous reproduction of the signature because, as he said, 'if it is convincing enough, the painting is checked less carefully'.

Changing context drastically and moving back into the architectural field would be wrong to think that there was only one type of model. Brunelleschi and Alberti favoured models which, to ensure greater control of form, did not seduce the eye with decorative details or colours. Their models were, therefore, bare, and only the main elements were represented.





**Fig. 4** M. Lo Turco, *A selection of some of the wooden models carefully classified by Barlozzini (2003, pp. 149-154), 2021, Digital composition. First row, from left to right: Filippo Brunelleschi, dome and absidio of Santa Maria del Fiore, Florence, (probably between 1420 and 1452); Giuliano da Sangallo, façade of Palazzo Strozzi, Florence (1489-1490); Cristoforo Rocchi, Giovan Pietro Fugazza, Pavia cathedral, (probably between 1493 and 1526). Second row, from left to right: Antonio da Sangallo il Giovane, Basilica di San Pietro in Vaticano, (1539-1546); Prospero Sagari (il Clemente), façade of Reggio Emilia Cathedral, (1583); Nicola Salvi, Fontana di Trevi, Rome (1735).*

On the contrary, models such as those of Sangallo il Giovane or the designers of the Baroque period had to be distinguished by their ability to represent even the smallest details (Figure 4).

Therefore, different models, as the research work of the historian Ludwig H. Heydenreich also points out (Pacciani, 1987), can be divided into three categories:

- experimental creative study model: used in the creative phase to fix the designer's ideas, characterised by approximate finishes and materials with a high degree of malleability.
- technical model for the building site: used to communicate with the workers the technical solutions to be adopted. They are usually partial models of the building but are very detailed.
- representative model that prefigures the reality in power: these are models used to communicate with the client. They are usually very detailed, representing in scale the entire building.

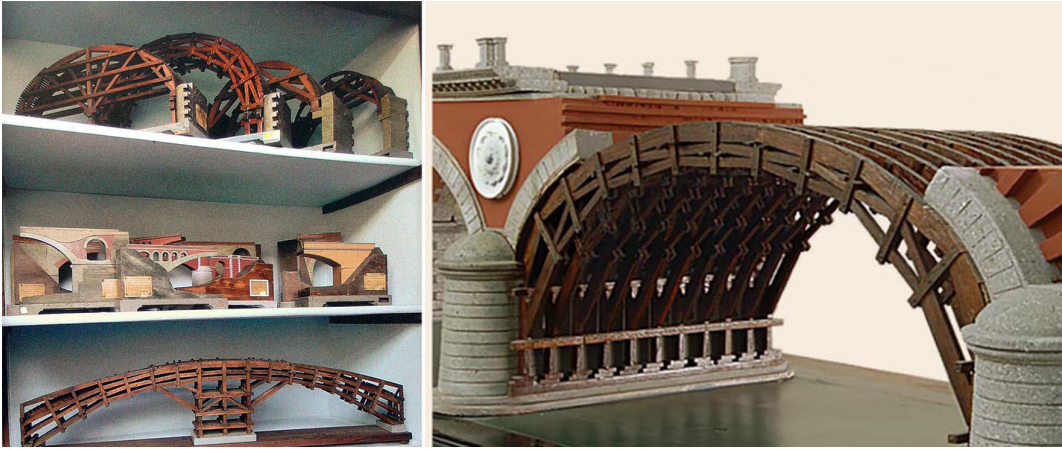


About the study models, we mention the famous rope and weights model used by Antoni Gaudì to calculate the load supported by each parabolic arch of the Sagrada Familia building in Barcelona. For Nervi (1935, model for Aviorimesa), it became a way to verify the form's stability and prototype prefabricated structural systems in iron-ore cement (Barazzetta, 2017).

A second and more recent example is the construction of the scale model of Brunelleschi's dome. The studies undertaken by Prof. Ricci had led to the formulation of a complex construction procedure, which was verified in 'theoretical' terms and tested from the point of view of craftsmanship. For this reason, the experiment of constructing a large-scale model (1:5) using small bricks ideally in scale (1:2.5) was devised. The construction technique was centred around adopting traditional ancient technologies, strictly identical to those used at the time of the Royal Dome's construction. The construction method formulated by Prof. Ricci made use of elementary tools used by Brunelleschi: the rope, the plumb line, the mobile partial ribs, hooks and brackets (Ricci, 2014).

The safeguarding, conservation and valorisation of tangible and intangible assets require a plurality of constantly integrated skills. The knowledge of design and construction methods and techniques is an indispensable fundamental asset to intervene with awareness on existing heritages. More and more, this knowledge, preserved in dedicated archives and library funds, is being organised and distributed on digital platforms (Novello & Bocconcinno, 2018).

The Department of Structural, Building and Geotechnical Engineering (DISEG) of the Politecnico di Torino preserves an extensive collection of construction models: historical models used between 1865 and the end of the 19th century as teaching aids for the training of civil engineers students (Figure 5); the cultural richness of this repertory of models has prompted many studies and the preparation of the exhibition *L'arte di fabbricare— Giovanni Curioni e la nascita della Scienza delle*



**Fig. 5** M. Lo Turco, *Models for education purposes*, 2021, Digital composition. On the left, a collection of construction models, historical models used between 1865 and the end of the 19th century as teaching materials. On the right: a model of the Isabella Bridge, in Turin (1874). Retrieved March, 31, 2021 from < [https://www.biblio.polito.it/eventi\\_culturali/2018/l\\_arte\\_di\\_fabbricare\\_giovanni\\_curioni\\_e\\_la\\_nascita\\_della\\_scienza\\_delle\\_costruzioni\\_alla\\_scuola\\_di\\_applicazione\\_per\\_gli\\_ingegneri\\_di\\_torino](https://www.biblio.polito.it/eventi_culturali/2018/l_arte_di_fabbricare_giovanni_curioni_e_la_nascita_della_scienza_delle_costruzioni_alla_scuola_di_applicazione_per_gli_ingegneri_di_torino)>

*Costruzioni*, hosted in the Corso Duca degli Abruzzi building between 2018 and 2019 (Novello & Bocconcino, 2020).

The art of copying, the legal one, is an indispensable tool for learning. Let's only think of the imitative drawings made in many drawing studios or the representations that school-children produce during visits to museums in an attempt to grasp their secrets: light, colours, rules of perspective.

Digital invasions is a nationwide bottom-up project, unique in its innovation in digital, co-creative, inclusive and participatory cultural communication and dissemination.

Within these initiatives, the results of the #DIGITALINVASIONS 3D pilot project stand out. The project had been active since 2015 and involved the Museo Archeologico Regionale 'Antonio Salinas' in Palermo, the Museo Civico di Castello Ursino in Catania, and the 'Campanarazzu' archaeological site in Misterbianco in 2016. The project, aimed at the *in situ* acquisition of 3D models of artefacts, and museum collections, was carried out through the involvement of students from Catania and Palermo.

The 3D models of the collections were obtained through the application of SfM (Structure from Motion) techniques: the models with acceptable errors in the reconstruction of the surfaces' geometry were delivered to the relevant museums to enhance and disseminate the collections online.

The growing number of international 3D cultural heritage digitisation projects adopting crowdsourcing methodology has led to the development of a systematic operational methodology aimed at digitising museum collections or sites of historical and artistic significance understudy. This process demonstrates that the visitor can become a co-creator of museum digitisation, and is becoming an active part of the process (Handler Miller, 2008).

If well organised, this kind of policy would support museum realities in the actions of digitisation of collections, a decisive step in the process of Cultural Heritage preservation (Mandarano, 2019; Bonacini, 2011), with the conviction that the reuse of data and images of art through platforms connecting visitors, experts, scholars, enthusiasts, can activate the production of personalised content for the benefit of co-creative processes of cultural and economic value for all (Bonacini et al., 2017).

### **Geometry (plus) information**

This category reflects on the digitisation processes oriented to the restitution of the geometric/dimensional/material aspects of the objects to explore more advanced functionalities of semantic enrichment for a new fruition. In the field of the metric survey, the objective is the digital reconstruction of the surveyed object congruently with the prefix levels of metric accuracy: the most recent Building Information Modeling methodologies applied to the Heritage field are providing useful indications to classify the graphic contents (LOG – Level of Geometry) and information (LOI – Level of Information) in a single database, consistently with the prescriptions of the current regulations. In this case, the digital copy of the surveyed artefact keeps track of the various data elements collected during the integrated survey experience: archival data, previous restoration work, stratigraphic consistency, analysis of degradation, description of the different methods of direct and indirect metric survey, to mention the main ones.

**Fig. 6** M. Lo Turco, *Images from the temporary exhibition Invisible Archaeology*, 2021, Digital composition. The process of measuring, 3D reconstruction and printing of ancient Egyptian jewellery and the analysis of the remains contained in mummified animals from Ciccopedi, 2019.



In the museum field, the most recent trends are moving towards creating copies of objects expressly designed to be complementary to the vision of the real object, constituting a valuable ground for the construction of effective and engaging narratives. There is a specific attempt to balance the passivity of the vision through an emotional approach that involves the visitor in an informative journey in which, despite the inactivity of the fruition, the visitor is somehow participating because emotionally involved (Gabellone, 2020, p. 167). A more recent example is the temporary exhibition *Invisible Archaeology* organised by the Fondazione Museo delle Antichità Egizie in Turin.

The use of digital copies, sometimes accompanied by their 3D prints, complement the viewing of the artefacts in the collection (Figure 6). Through the radiological scanning of the mummies, it was possible to acquire the metric information of the jewellery of the ancient Egyptians. Subsequently, 3D prints of the physical copies were produced



**Fig. 7** M. Lo Turco, *Le Tre Grazie and its copy*, 2021, Digital Composition. On the left, *Le Tre Grazie* (1812-1816), in the Hermitage Museum, St Petersburg. On the right, *Le Tre Grazie* (1815-1817) held by the Victoria & Albert Museum, London.

and displayed next to the original artefacts, fully respecting their actual size and replicating their colours and materials by taking inspiration from similar objects found in other tombs (Ciccopiedi, 2019 pp. 54-59).

### **Consistency and replicability**

This category is included in the variety of the examples described above. We would add only a brief reflection on the value that physical copies can represent: think of the copies of *Le Tre Grazie* that Antonio Canova remade for an English patron (Figure 7) who had greatly appreciated the first version of the work (now in the Hermitage in St. Petersburg) or the preparatory copies of some important statues, jealousy preserved and exhibited in the most important museums in the world; or the large number of Greek sculp-



tures exhibited in museums that are actually copied from the Roman era.

There were two ways of obtaining physical replicas: making a cast and using the reporting points technique. The original is covered with a protective substance, and the liquid plaster is poured into a mould to obtain a negative form. By subsequent pouring, 'positives' can be obtained again: duplicates, again in plaster, faithful to the original. A completely different method is the reporting points technique. The procedure consists of creating a spatial reference system around the statue to be copied (even simple plumb lines), measuring the coordinates of some points of the sculpture (the most prominent, at the beginning) and carrying them over to a block of marble equipped with a similar reference system.

This method is very ancient. Its origin can be traced back to the grids applied to stone blocks in the Egyptian and Greek archaic periods. These grids made it possible to reproduce sculptures with very similar proportions and postures. This method is sometimes accompanied by copying with casts: an original is duplicated in plaster and then the first copy is reproduced on marble.

A third method has been added in contemporary times: think of 3D printed copies of fossils that can be freely manipulated without the risk of defacing precious artefacts dating back millions of years. Much has been said about digitisation procedures and the possibility of integrating such virtual models with additional content. In the physical sphere, too, such processes can give rise to 'augmented' models. In this connection, we mention the workshop *Il Disegno per le mani* (Drawing for the hands) conducted under the scientific coordination of the professors Anna Marotta and Annalisa Dameri of the Department of Architecture and Design of the Politecnico di Torino, under the patronage of our section UICI (Italian Union of the Blind and Visually Impaired) of Turin. The exhibition displays the tactile sheets created by the students using the stereo plastic relief printing technique, commonly known as *Minolta*, consisting of fourteen tables describ-

ing the current conformation of the building. The fourteen sheets describe the current conformation of the building: from the plate that illustrates the location of the Castle in the urban fabric and its relationship with the river, the park, the hill, to the description of the articulation of the volumes and their composition; followed by the elevations and sections of the courtly area, of the towers, up to the detail of some main elements, such as the composition of the openings, the decorative apparatus of the courtly rooms. In this case, the classic two-dimensional drawing is augmented by the informative, physical component that allows the visually impaired to perceive the architecture with their hands.

**Modality of fruition: in-person, remote, geo-referenced, in VR/MR/AR**

Finally, the last categorisation refers to the fruition modes. The first one is the in-presence, referring to the more classic fruition of physical copies or digital artefacts that integrate the experience through the use of physical objects, in line with the most innovative experiences referable to the phygital heritage: the digital experience does not replace and filters the physical one, but on the contrary, it feeds its value even more and enriches the on-site experience (Petrelli et al., 2013). Particularly interesting and innovative is the relationship between the physical object and its (complementary) digital representation (Lo Turco, 2019) by fusing the digital skill of cultural learning, entertainment and storytelling with heritage artefacts, activity, or environment (Luigini & Pancioli, 2018). Heritage constitutes a fascinating field that can give meaning to new and dynamic digital experiences (Nofal et al., 2017).

Therefore, the digital transformation for a museum is a unique opportunity to create an ecosystem of socio-cultural relationships that extend without barriers between the physical space of the collections and the online space.

The ways of invading the digital sphere can also be divided according to different levels of immersiveness. According to



the geographer Edward Soja (1996), the “Firstspace” is understood as the physical environment, and the “Secondspace” is the layer of media images and representations (Soja, 1996). The “Thirdspace”, therefore, is the simultaneous experience of these two spaces, to which the experience of Augmented Reality can be traced. Virtual Reality experiences can be traced back to “Secondspace”, also through different levels of immersiveness. Third place also refers to those AR experiences in the territory, geo-referenced and mainly usable through smartphones or tablets (Kosari, & Amoori, 2018). Mixed Reality experiences can also be traced back to similar modalities: an example is the Kennin-ji museum in Kyoto, organiser of an entirely virtual exhibition: thanks to the Microsoft HoloLens the visitor can see the folding screens of the *God of Wind* and the *God of Thunder* painted more than four centuries ago by Tawaraya Sotatsu, considered among the most ancient and sacred treasures of Japanese culture.

The exhibition, which took place in 2018 in both the Kennin-ji Temple and the Kyoto National Museum, gave a new light to the temple, bringing (virtually) in other works of art that cannot normally be admired together.

Thanks to the interesting and original narration and 3D guidance of a hologram depicting the Zen monk Asano-san, visitors had the opportunity to understand the historical and artistic context of ancient Japan, as to be involved in an immersive experience that, in a few minutes, transports the visitor to a time that no longer exists.

## CONCLUSIONS

The essay critically reflects on some topics of extreme relevance, between false, fake and copy, trying to understand if in the contemporary age a copy can have a proper value compared to the authentic object. Technology evolves rapidly and at the same time, art changes itself and the criteria according to which it must be read. The

relationships that the artefact has with its author or with the historical period to which it belongs, do not seem to have the effectiveness of the past, as the contemporary meanings of authenticity and authorship have changed (Casarin, 2015).

The ongoing health emergency has required the cultural ecosystem to go off the rails, and in many cases, to adapt to alternative methods and languages to cross physical boundaries and enter people's homes. Thus, after the news of the closure, in a very short period, thanks to digital technology, websites and social channels were opened, strengthened and redesigned (*Youtube, Facebook, Instagram* is the most trendy, but watch out also for *LinkedIn* and *Pinterest*) to bring visits and tours, collections and workshops, stories and tales to people's homes.

While waiting for the openings, this particularly delicate moment for the museum institution can become a not-to-be-missed opportunity to show that it is not only a place for heritage conservation but a service to the global society and local communities without distinction as well as a natural cure to quarantine isolation. Virtual tours, open collections, digital exhibitions, guided tours, streaming video clips, workshops and remote games are the central answers that cultural institutions can propose, skilfully mixing different ingredients with high-quality results.

Museums must no longer be places where people only understand what they already know. Museums must acquire their prestige among the community for the values that the stories they contain. This is what Christian Greco, director of the Museo Egizio, likes to call biographies of objects (Greco, 2019) and which can even more easily be recounted and digitally returned to their original contexts, thanks to the communication capabilities and immediacy favoured by new technologies (Bonacini, 2020, p. 274).

Now, it is more necessary than ever to build a bridge between reality and imagination, finally understanding that even the emotional (and cognitive) value of a narrative, espe-

cially digital (Beale, 2018) should not be considered a secondary activity compared to others (Pietroni, 2019, pp. 1, 2). In a period in which the artistic value and the market value do not always coincide and, above all, that a judgment of falsity is not said to be forever, it is crucial to keep in mind the ‘cultural value of the copy’, whatever form it takes.

## NOTES

<sup>1</sup> “*debbo dire che molto frequentemente mi è venuto fatto di concepire opere in forme che a tuta prima mi parevano lodevolissime, mentre invece, una volta disegnate rivelavano errori, e gravissimi, proprio in quella parte che più mi era piaciuta; tornando poi di nuovo con la meditazione su quanto avevo disegnato, e misurandone le proporzioni, riconoscevo e deploravo la mia incuria; infine, avendo fabbricato i modelli, spesso, esaminandone partitamente gli elementi, mi accorgevo di essermi sbagliato anche sul numero*”. L. B. Alberti, 1485, *De re aedificatoria*, Firenze. 1989, (libro IX, cap. XI, p. 478).

## ACKNOWLEDGEMENTS

Although this work is the result of collegial considerations and elaborations by all the authors, the paragraphs are mainly edited individually as the following order: *Introduction, materials and methods, conclusions* paragraphs were edited by Massimiliano Lo Turco; *The dimensions of the replicas: 1D, 2D, 3D, 4D; The scale factor of the replicas: reduction vs. full scale; Scope: (some) ingredients, difficult to mix, not the whole recipe* were edited by Elisabetta Caterina Giovannini; *Geometry (plus) information; Consistency and replicability; Modality of fruition: in-person, remote, geo-referenced, in VR/MR/AR* were edited by Andrea Tomalini.

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**Article available at**

DOI: 10.6092/issn.2724-2463/12725

**How to cite**

**as article**

Lo Turco, M., Giovannini E. C., & Tomalini, A. (2021). The cultural value of the copy in the Museum domain. *img journal*, 4, 156-179.

**as contribution in book**

Lo Turco, M., Giovannini E. C., & Tomalini, A. (2021). The cultural value of the copy in the Museum domain. In M. Ghizzoni, E. Musiani (Eds.), *img journal 04/2021 Copy / False / Fake* (pp. 156-179). Alghero, IT: Publica. ISBN 9788899586195



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# MANIPULATION, RETOUCHING AND STAGING

## THE DEBATE ON VERACITY OF DOCUMENTARY IMAGES IN DIGITAL ERA. SOME CASES COMPARED

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## ESSAY 74/04

DEONTOLOGY

ETHICS

MANIPULATION

PHOTOJOURNALISM

The article addresses the issue of the alteration of images in the digital age, and therefore the question of the authenticity and truthfulness of documentary photographs, through the analysis of some cases that involved affirmed reporters (awarded on the occasion of international contests

by major photojournalistic institutions) and their professional integrity; vicissitudes that had important aftermaths and stimulated (especially on websites and blogs) technical, deontological and theoretical debates concerning the legitimacy of manipulative operations and their ethical implications.

## IS THE BEAUTY RIGHT?

To what degree, in what contexts and according to which rules is the modification of a photojournalistic image considered admissible, when is it allowed and accepted in order to present a testimony that is not only true but also visually pleasing or narratively more appealing? And what are the actions to be condemned, which make a documentary photograph (from which a considerable level of reliability and objectivity is therefore expected) false, or in any case distorted, both on a perceptual and an informative point of view? These are just some of the issues pointed out by the debate –which is indeed variously articulated and always current– on the legitimacy of the practice of altering images, especially those of a testimonial nature. The spectrum of possible strategies is in fact very broad, and most of the time the precepts and guidelines included in the codes of conduct adopted by press and information agencies turn out to be vague, partial or inadequate. The stratagems range from more properly aesthetic expedients, corrective interventions that can affect the formal aspect of the image (tonal changes, digital retouching or tactical concealments made in post-production) to grave misrepresentation of reality or malicious miscommunication of narrative contents (by staging characters, re-enacting situations, formulating incomplete captions).

The examples I would like to focus on are five, all well known by specialists and experts but generally discussed, except for some important publications, via web or in the news press. The first is the now famous shot by Paul Hansen entitled *Gaza Burial*, awarded as best picture in 2013 on the occasion of the *World Press Photo Contest* and soon at the center of a heated controversy about its alleged falsification; the second revolves around an image of Narciso Contreras, fired by the prestigious *Associated Press* for having erased an unwanted element from the scene; the third is represented by Brian Walski, author of a misleading and

deceptive photomontage; the fourth concerns a highly ambiguous image by Spencer Platt of 2007, considered one of the most significant picture of that year; the latter has as its protagonist Giovanni Troilo, accused of having insincere intentions behind his award-winning reportage.



**Fig. 1** Paul Hansen, *Gaza Burial*, November 20, 2012. Retrieved November 25, 2016 from <<https://www.worldpressphoto.org/collection/photo/2013/world-press-photo-year/paul-hansen>>  
©Dagens Nyheter/Paul Hansen

#### AT THE BORDERS OF LEGIT

It has been discussed a lot a picture by the Swedish photojournalist Paul Hansen (Figure 1), an image awarded in 2013 as Photo of the Year by the *World Press Photo Foundation*, one of the most important in the field of visual journalism. The specific case<sup>1</sup>, extremely emblematic by virtue of the problematic questions it was able to raise, and the resulting debate it triggered have in fact assumed considerable proportions, spreading both via Internet, through websites and especially blogs, and on printed paper. The echo of this story, destined to become a precedent, has affected not only photojournalism as a

professional practice, questioning its principles and rules, but has also addressed more general issues by starting discussions about, in the first place, the legitimacy and limits of the photographic image processing and its manipulation procedures. The official motivation given to ratify the win describes the photograph as “a powerful and direct image”; specifically Santiago Lyon, president of the jury, explained the choice as follows: “It reaches your mind, your heart and even your stomach – all key points for an effective photojournalism” (Lyon, 2013).

The image is indeed dramatic and visually effective, thanks to the emotional strength it conveys and the depth of social and political issues it involves. *Gaza Burial* is a close-up shot that testifies the repercussions on the civilian population of the Israeli-Palestinian conflict, a history of unpunished abuses and continuous violations of fundamental rights. Local people is reduced to exhaustion and especially young and children, innocent victims –casualties– of explosions and air strikes, are paying the worst consequences. Suhaib Hijazi, just two years old, and his brother Muhammad, nearly four, were killed by a bomb that destroyed their home during an Israeli raid in November 2012. Their bodies were carried to the mosque where the funeral would be celebrated by a procession of friends and family members, whose reactions range from desperate resignation to angry indignation. The human column seems to be crammed into an alley, coming towards and looming over the viewer. The space of the narrow passage is made even more claustrophobic by a distorted perspective that generates an ‘immersion’ effect, while the vanishing lines of the perimeter walls converge in a point placed in the distance and raised above the horizon giving the impression that the two buildings on the sides are progressively closing, crushing whoever is between them.

In the days immediately following the awarding ceremony in April 2013, Hansen found himself at the center of a dispute over the integrity, the correctness and the reliability of his photograph –even though criticism had been raised since nominations in February. According to the detractors,

who threw allegations of falsification from their blogs and from social media, the photojournalist of the Dagens Nyheter would have composed the image by combining several photographs with the purpose of obtaining an almost perfect exposure (Capovilla, 2013). Although the jury never questioned the veracity and authenticity of the shot, the Foundation felt compelled, in order to appease every accusation—like the one made by the computer scientist Neal Krawetz (2012), who had declared that the image was “composite”, i.e. formed by a stratification of frames (Bogliolo, 2013)—, to undertake a forensic technical analysis aimed at clarifying the presence of modifications and possibly justifying the reasons. The photographer came out of the investigation clean, fully exonerated, and his reputation remained substantially intact. The experts appointed to conduct the digital inquest—Eduard de Kam (Nederland Instituut voor Digitale Fotografie), Hany Farid and Kevin Connor (Fourandsix)—explained that by comparing the original raw file with the final image in JPEG format, it can be noted that, although in the post-production phase some parts have been adjusted by darkening or lightening them, each pixel is in its place and therefore, from an electronic point of view, the two images are perfectly superimposable, basically the same. The photographer would therefore have limited himself to open the original file several times, in subsequent *Photoshop* sessions, each time emphasizing an element of the scene by means of tactical tonal increases or decreases (Capovilla, 2013). Despite the continuous and bitter opposition, of which a clarifying example is the article *Why Do Photo Contest Winners Look Like Movie Posters?* by Allen Murabayashi (2013), who immediately after the communication of the winning images has harshly criticized the excessive aestheticism of most of the photographs awarded (Winslow, 2013), the operation was judged legitimate and consistent with the parameters within which such modifications are allowed. Principles that, however, in most cases are anything but restrictive, and whose lability is often a reason for clashes and diatribes both on a technical and theoretical level.

## CONCEALMENTS, OVERLAPS, OMISSIONS AND DISTORTIONS

Given that, the decision, considered by some to be too severe, to fire Narciso Contreras, an appreciated Mexican photo-reporter, has been therefore rather surprising. He was one of the protagonists of the difficult operation that led to the most complete coverage of the Syrian conflict in 2013 (a reportage that obtained the *Pulitzer Prize* for the Breaking News category). Not only the discharging from the agency for which he had worked for five years, the *American Associated Press* (AP), one of the most influential worldwide, but also the removal of all his photographs from the archive, albeit among the more than 500 images no other traces of alteration were found. The reason: having retouched a picture taken on 29 September 2013 (which is not part of the Pulitzer-winning reportage) (Figure 2) making a camera abandoned on the ground disappear from the frame with a shot of stampclone (Colford, 2014; Associated Press, 2014). Opinions were divided: those who accused him of having falsified the realness of the fact, and who, on the other hand, took his side criticizing the inflexibility of the provision, which the photojournalist nevertheless accepted admitting his faults and declaring to have full responsibility for the mistake he made. For Santiago Lyon (the same who only a few months earlier had been the jury president of WPP 2013), at that time vice president of the AP, the choice was made in defense of the agency's reputation and its strict ethical principles, since "deliberately removing elements from our photographs is completely unacceptable" (Colford, 2014).

Other cases had already shaken the world of documentary photography. One of these dates back to the spring of 2003 and gave rise to a long series of on-line discussions (Smargiassi, 2014) even though the general opinion was consistent in condemning the author of the shot. In fact, the story did not leave room for many interpretations: it was a manifestly incorrect intervention, which radically changed the factual truth of the event distorting it by means of a

temporal overlap. Brian Walski, a correspondent for the *Los Angeles Times* appointed in 2001 as photographer of the year by the *California Press Photographers Association*, was embedded to the troops stationing in Iraq, near the city of Basra. British soldiers urge the civilian population to remain nearby, in order to stay safe in case of an impending attack. In the first shot the soldier's gesture is suitably authoritarian, perfect in its imperious movement, but it seems to be facing nowhere; in the second, instead, it is the position of the Iraqi father to be right, by expressing a submissiveness that could justify the attitude of the gunned man (Figure 3). The photographer then decided to combine them into a sin-



**Fig. 2** Narciso Contreras, *A Syrian opposition fighter takes cover during an exchange of fire with government forces in Telata village, September 29, 2013. Retrieved February 17, 2021 from <<https://www.ap.org/ap-in-the-news/2014/ap-severs-ties-with-photographer-who-altered-work>>*  
©AP Photo/Narciso Contreras





**Fig. 3** Brian Walski, March 30, 2003. Retrieved February 17, 2021 from <<http://www.alteredimagesbdc.org/walski>> ©Los Angeles Times/Brian Walski

gle image to make the event more significant (Walker, 2003; Aspan, 2006). The result: the quite immediate photojournalist's dismissal with a satellite phone call.

The episode was, as often happens, a pretext to reiterate the need to condemn attitudes and conduct not only inappropriate from a deontological point of view, but also wrong on a more purely ontological level, which calls into question the sense of truth (or in any case of truthfulness) of which the testimonial and documentary image should be the bearer, given its natural vocation for objectivity or at least honesty. On the pages of the *Washington Post* Frank van Riper underlined the willfulness of Walski's intentions and emphasized his desire to create a picture that was false (Van Riper, 2003) in its own informative content, as well as distorted from a narrative and even kinetic point of view.

An extreme example of ambiguity is the controversial photograph by New Yorker Spencer Platt, overall winner of the 2007 edition of the WPP (Figure 4). Who are the girls driving through a devastated neighborhood in a convertible? Passing tourists, locals? The original caption does not help to know much more: it is learned that they are wealthy Lebanese, the place is a suburb of Beirut hit by Israeli bombings<sup>2</sup>. Generally this information would be enough, but given the peculiarity of the image (the close cut, the different expressions of the women, all difficult to interpret, the rubble in the background) the questions that arise looking at it are more than legitimate, first of all if they were models posed by the photographer. In this regard Michele Smargiassi, author of an instructive book on the concepts of true and false in the history of photography, wrote:

The structure of the informative channel through which this photograph reaches us, in fact, does not leave many alternatives to take-or-leave: we are not able to ascertain, for example, whether the girls were aware that they were being photographed, or the photographer suggested them a pose ... So we should ask ourselves if the relationship between the image and the moment if the relationship between the image and the moment it t claims to tell could be a little more



**Fig. 4** Spencer Platt, *Young Lebanese drive down a street in Haret Shreik, a southern suburb of Beirut, to check on their homes after bombardments by Israel, August 15, 2006*. Retrieved September 10, 2016 from <<https://www.worldpressphoto.org/collection/photo/2007/world-press-photo-year/spencer-platt>>  
©Getty Images/Spencer Platt

complicated than what it shows us at a first sight. In cases like this, but we would like to say in all cases, in all photographs, the true/false alternative is too simplistic. [my translation from Italian] (Smargiassi, 2015, pp. 21-22)

Something doesn't feel right and in fact, as reported by Fred Ritchin (2009, pp. 169-70), the contextualization of the scene was questioned by its own protagonists, who said, interviewed by the BBC, that they were not rich as stated by the caption, then modified (in the meantime it has been discovered that the photographer had not spoken to any of them), but middle-class workers and that they were actually residents of the neighborhood who had returned to the place to check the damage suffered to the dwellings. In short, thanks to the intervention of the portrayed people (fundamental were the statements made by Lana El-Khalil, owner of the car, and Bissan Maroun, author of the video taken with the mobile phone), exceptionally released from the anonymous condition of "subjects", the interpretation of



**Fig. 5** Giovanni Troilo, *La Ville Noir - The Dark Heart of the Europe*, 2015. Retrieved February 18, 2021 from <<https://www.theguardian.com/artanddesign/gallery/2015/feb/27/world-press-award-photos>>  
©Giovanni Troilo/LuzPhoto

the image has been rectified (Guerra & Parisi, 2013, pp. 398, 399). Even the car in which they were seated, which in the photograph appears to be a large-displacement vehicle, was actually a Mini Cooper. The fact is that no measures were taken against the photographer, who limited himself to substituting an adjective in the caption to define the women as “young” instead of “wealthy”.

Similar but quite different in scope is the strategy adopted by Giovanni Troilo, a young Italian photographer and now also an affirmed documentary maker, to whom the award received in 2015 by the WPP was revoked (Porcellini, 2015). The series, entitled *La Ville Noir - The Dark Heart of the Europe* (Figure 5)<sup>3</sup>, was conceived to present –‘reveal’– to the international public the alleged dark sides of the Belle Europe, its hidden violence sublimated by bourgeois respectability. The reportage should have provided an unpublished portrait of the Belgian town of Charleroi, a former mining center elected as a symbol of the decay of the living standards of the wealthy classes, one of the



social pillars of the Old Continent, in a Belgium which is one of its political and diplomatic hubs. But the one represented by Troilo in nocturnal and eerie atmospheres is not Charleroi but another city, always Belgian, Molenbeek. Furthermore, some situations would even have been reconstructed with the complicity of the photographer's friends and relatives, as well as other performers (Weeks, 2015). Showing "voyeurism through voyeurism" (Troilo, 2015), this was, at least according to his intentions, the mission of the reporter<sup>4</sup>. The problem lies in the fact that he decided to do it in defiance of every ethical and professional rule, falsifying reality in an unforgivable way<sup>5</sup>.

The one proposed by Troilo is a montage of images that has been judged unreliable at its foundations, untrue and therefore completely incongruous to the basic principles of photojournalism. It was not a way of pushing the ambiguity of the representation to its maximum degree, or of making an image more attractive by means of interventions that alter its appearance; it was a deliberate distortion of discursive modalities, a deliberate and premeditated falsification of the authenticity of the fact and its context. We are well beyond the boundaries of, albeit questionable, staged photography, which should be limited to arranging and orchestrating the elements of reality in order to enhance the value, both aesthetic and conceptual, of the image. Even beyond the slippery terrain of the so-called photo opportunities<sup>6</sup>.

## MARGINS OF INTERPRETATION

What are the reasons for this unequal treatment? What makes the situations examined so far different beside their own specificities, mainly due to personal, individual choices and to the inevitable singularity of the contexts in which they are made? The answer, or rather the answers, could be found in the first place in the regulations drafted by news and information agencies, which are official statements regarding their operational

and ethical policy formulated in the attempt to preserve and confer systematization (in other words: to give full legitimacy and dignity) to a profession that is perpetually in the balance –that is also the history and the very nature of photography itself– between recording needs (informative purposes) and personal views (expressive outcomes), with a wide and varied spectrum of attitudes and practices.

So says the code of ethics of the *National Press Photographers Association* (NPPA), a reference point for US photojournalists since 1947 but adopted almost all over the world:

1. Be accurate and comprehensive in the representation of subjects.
2. Resist being manipulated by staged photo opportunities.
3. Be complete and provide context when photographing or recording subjects. Avoid stereotyping individuals and groups. Recognize and work to avoid presenting one's own biases in the work.
4. Treat all subjects with respect and dignity. Give special consideration to vulnerable subjects and compassion to victims of crime or tragedy. Intrude on private moments of grief only when the public has an overriding and justifiable need to see.
5. While photographing subjects do not intentionally contribute to, alter, or seek to alter or influence events.
6. Editing should maintain the integrity of the photographic images' content and context. Do not manipulate images or add or alter sound in any way that can mislead viewers or misrepresent subjects.
7. Do not pay sources or subjects or reward them materially for information or participation.
8. Do not accept gifts, favors, or compensation from those who might seek to influence coverage.
9. Do not intentionally sabotage the efforts of other journalists.
10. Do not engage in harassing behavior of colleagues, subordinates or subjects and maintain the highest standards of behavior in all professional interactions (National Press Photographers Association, nd).

Studied in detail, the list offers the opportunity to analyze in clear terms a wide range of situations in which the photographer may find him/herself operating, as well as

the way in which he/she should behave. Although the single points of this decalogue logically presuppose a rather broad freedom of action –and it could not be otherwise, given that excessively rigid restrictions would risk undermining the very essence of testimonial activity– they contain a large number of key-concepts useful for understanding the fundamental methodological issues that guide the work of the photojournalist. While points 1, 3, 4, 5 and 7 concern the ideal attitude toward the subjects (along with the ways to guarantee maximum truthfulness and objectivity), the last three aim to define the nature of professional and interpersonal relationships that photographers must establish in order to create a propitious environment, as well as to build support and collaboration networks. Point 2 introduces the idea of construction, i.e. the possibility that a scene could be ‘recomposed’ with the intention of making it more captivating or spectacular; even worse would be the will to preliminarily and artificially modify the conditions in which the subject is photographed with the risk of triggering partial and inaccurate interpretations that could distort the message by violating its basic communication codes. Then it is more explicitly spoken of manipulation and alteration in point 6, which also refers to the post-production phase, now considered a crucial step and for many even preponderant compared to the moment of shooting.

Another complete and detailed statement is undoubtedly the one conceived by the Associated Press. It offers a sort of ethical and functional handbook for anyone facing a career as a photojournalist and a set of guidelines which, summed up in succession like precepts, make up a rather precise description capable of encompassing a large number of operational scenarios: from the use of sources to corrective techniques, from the ideal features the image should have to the treatment of any obscene or vulgar content, from the issue of privacy to that concerning conflict of interest. In a climate of growing distrust in the credibility of the photographic medium, the AP strongly affirms –it has been the first to do so– a simple and strict directive: “the content of a photograph



must NEVER be changed or manipulated in any way” (Associated Press, not dated; Smargiassi, 2015, p. 45).

In recent years, even the main international newspapers such as the *New York Times* or the *Washington Post*, have adopted their own codes of ethics, which reiterate the need to preserve authenticity at every stage of the work. But defining such syntheses is not easy, not to mention that “each code contains the lock pick for its own picking” [my translation from Italian] (Smargiassi, 2015, p. 47). Paul Sanders, picture editor of the *Times*, manages to describe his anti-manipulation policy only in macroscopic terms: “do not allow digital manipulations beyond what is reasonably possible to improve the image: small alterations in color, contrast and, of course, trimming” [my translation from Italian] (Smargiassi, 2015, p. 47; Baker, 2006). The appeal is therefore addressed to the photographer’s common sense and that “naturally” would seem to indicate the ease and, indeed, the naturalness with which one can cling to it. So, in this perspective in which small alterations and cosmetic interventions are allowed, the manipulatory procedure adopted by Hansen is legitimate, that of Contreras is not.

Different expedients to implement the rhetorical effectiveness of photography. While Hansen renounced the raw nature of live photography to strategically increase the pathos of the scene—which is indeed already strong—through retouches that remain enclosed in the decorative sphere of the aesthetic, Contreras and Troilo modified the real datum and its documentary potential: the first indirectly and a posteriori (by deleting a diegetic element in a post-production operation), the second, committing a much more serious violation, directly and a priori (by forcefully enhancing the evocative power of the settings). The relationship of trust, if not of dependence, which links, referentially and phenomenologically, the photographer’s gaze and his/her testimonial will to the actual event that is conveyed, is questioned. The pact, the tacit compromise between chronicler and fact, between the author and the tools he has at his/her disposal, is irretrievably broken in the name of a different, maybe higher purpose, even if it is bogus. Perhaps one can feel justified

in doing this in the age of falsification, the age of simulacra (Baudrillard, 1981) where a general and profound crisis of deictic systems prevails<sup>7</sup>. Smargiassi wrote again, in his essay on the lying character of photography:

Even circumscribing the scope of photography as a document, Rudolf Arnheim identifies at least three different aspects of the problem. The authenticity of a photograph “requires that the scene is not altered” before the lens. The correctness, that the image “corresponds to what the camera has taken”; finally, the truth “guarantees for the facts that the image shows”. The three requirements are neither synonymous nor necessarily copresent. [my translation from Italian] (2015, pp. 57, 58)

But one thing is sure: photography itself never lies (Smargiassi, 2015, p. 58)<sup>8</sup>. The liar can always and only be the photographer, and ultimately only the use made of certain images or, at most, the meaning attributed to them can be incorrect. Contexts of signification are fundamental in this process. After all, Troilo’s photographs would certainly not have been false without captions that contradicted their descriptive assumptions. Even if it was born in recent times, in the face of pressing definitional and juridical needs, the policy of ethical codes already seems to be wobbling. The common imperative seems to be to compromise each time, delving into the specificities of individual cases.

An interview commissioned in 2014 by the *World Press Photo Academy* and then published on channels such as *Lens*, the *New York Times* photography blog, collected the opinions of 45 experts from 15 countries, including many WPP jurors, on the issue of manipulation. David Campbell, authoritative scholar of communication and visual analysis in charge of conducting the survey (entitled *The Integrity of the Image*), argued that the practice of manipulating a digital image does not end in the use of computer technologies such as *Photoshop* but that, on the contrary, every phase of the realization, from the moment of the shot to the editing and distribution steps, contains the possibility of making changes (Campbell, 2014, 2015a, 2015b).

The debate on what are or should be the limits to which one can push him/herself –Michele McNally of the *New York Times*, jury president of the 2015 edition of the WPP, has repeatedly argued the need to establish rules that are clear from the beginning and without exceptions– offers new perspectives on the role that photography, in particular that which aims to tell the world and document its society, is called upon to play today. Some points seem to be certain and indisputable—even if, albeit being necessary conditions, they are far from being sufficient. As Campbell explained, so-called minor adjustments (burning, toning, converting to black and white) are generally accepted; while, as could be seen from the measures taken against offenders, the post-production removals and concealments have to be condemned (even if, for example, those that permit the removal of defects caused by anomalies or perturbations of the optical sensor, such as dust deposits, are allowed). Manipulation and retouching, it has been stressed, are not the same thing<sup>9</sup>.

#### TOWARDS AN AESTHETICS OF ETHICS

Admitting the expressiveness, both intrinsic and induced, of documentary, testimonial and informative photography has become compelling. Certainly there is no shortage of controversial voices, coming mainly from the defenders of an anachronistic photographic purism, people who share an idea of photography still linked, presumably, to its mimetic properties without taking into account the developments—which in fact they often deny—of a constantly evolving medium. Among them was that of the French photographer Thierry Dehesdin, who repeatedly lashed out at the WWP, which he considered, diminutively, a mere “beauty contest” (*Libertà di Stampa Diritto all’Informazione*, 2013)<sup>10</sup>. The criticism was moved precisely on the occasion of the ceremony that awarded Paul Hansen in 2013, whose photograph was defined by Dehesdin by citing Alain Mignam, winner of the same prize in 1981, *à côté de*

*la plaque*, or, in photojournalistic jargon, “stoned” (Libertà di Stampa Diritto all’Informazione, 2013).

An answer to Dehesdin’s attacks was given by André Gunthert (Libertà di Stampa Diritto all’Informazione, 2013)<sup>11</sup>, professor of Visual History at the prestigious *EHESS - École des Hautes Études en Sciences Sociales*, who affirmed how ridiculous it really is, considering the transformations introduced by the digital revolution, to stigmatize the practice of retouching; indeed, Gunthert still believes that it is a more honest and intelligent choice to admit once and for all the expressive potential of documentary images, without fear that it may somehow harm or distort the sense of photojournalism. The author also asserted, in defense of photogenic expressiveness<sup>12</sup>, that resorting to the problems raised by the manipulative use of retouching is an ideological argument<sup>13</sup>, that is to say:

An instrument of aesthetic disqualification in the context of a claimed photographic virginity. Refusing to admit that information photography can be constructed, the critics of Hansen’s photo systematically refer the expressive values of the photographic image to painting or cinema. Retouching is used as a pseudo-technical criterion that allows to justify and impose an implicit aesthetic. [So a] naturalization of aesthetics, disguised behind the matter of retouching, hides an impoverishment of the critical debate. [my translation from Italian] (Libertà di Stampa Diritto all’Informazione, 2013)

From the point of view of communicative effectiveness, retouching can be considered an expedient to achieve an ideal rhetoric. In this perspective, then, the distinction made by Roland Barthes between “aesthetic effects” and “significant effects” (1985, p. 14) would be inaccurate, or at least out of date. In fact, the former would mediate, through technical and connotative solutions, the latter, in a very tight intertwining—causing sometimes a problematic overlap—supported by the metaphorical functioning of the photographic image. Contrary to what Barthes affirmed, journalist Alberto Papuzzi wrote that “it is not possible to distinguish the technical aspects” from

“the aesthetic ones” [my translation from Italian] (1999, p. 145), which therefore, the latter, as intrinsically rhetorical, would include not only manipulation and retouching (as the cases of Hansen and Contreras clearly demonstrate) but also visual artificialities and narrative strategies (as shown by the cases of Platt, Walski and Troilo). However, Papuzzi argued, all this involves a considerable problem:

If the event, the reality (or the truth ...) coincide with the representation, in what way, then, is the news still a chronicle of the event and not the experience of the event itself? And what remains of the event? [...] We can conclude that photographic news is charged with a more extensive and deeper subjectivity than what the theory of information generally provides. The camera, apparently the most objective medium, determines the maximum subjectivity of the news. [my translation from Italian ] (1999, pp. 145-147)

## NOTES

**1** Analyzed, among others, by Michele Smargiassi on the occasion of a symposium, held at Sapienza University of Rome, on the relationship between ethics and photography. The papers presented at the conference were then collected in Perna, Schiaffini, 2015.

**2** The original caption in fact read: “Affluent Lebanese drive down the street to look at a destroyed neighborhood”.

**3** First prize *Stories for the Contemporary Issues* category of the WPP. The project also received the *People Photographer of the Year* prize assigned on the occasion of the *Sony World Photography Awards* in 2015.

**4** The photographer said, called to justify his actions before the World Press commission, that this was his goal, “to transform the camera into an active tool” in order to make it a sort of shame detector. As stated by the reporter in a long post published on his *Facebook* profile on March 6, part of the series was made on the night he decided to follow his cousin, fully consenting to be photographed and intending to have an occasional sexual intercourse.

**5** The jury of the WPP 2015 chose to follow a hard line that led to the exclusion from the competition, therefore to mandatory disqualification, 20% of the photographs submitted because they were digitally manipulated in ways not permitted by the regulations.

**6** This term refers to a highly misleading form of falsification for which situations are planned and prepared for conditioning the outcome of the photographic action (Papuzzi, 1999, p. 152). For an overview of journalistic falsehoods see also Fracassi, 1996.

**7** The theoretical literature on the concept of indicality or indexicality is vast, in particular that with a philosophical and semiological approach. Among the fundamental texts, in addition to the aforementioned anthology edited by Guerri and Parisi see Krauss, 1990 and Bate, 2016.

**8** Smargiassi, however, expresses a cautious reserve on the matter, while affirming several times the relative inability of photography to be really false: "Photography, this is evident, is unable to lie while denying the truth. But it can do it, and it does it very often, by stating the false: it is enough for photography to attribute a certain state of existence to visible forms [...] that have no comparison in the physical world, or are at least very different from how photography shows them to us".

**9** Smargiassi proposed the following definition of retouching, putting it at the same level of the notion of maquillage: "an intervention, usually imperceptible, carried out on the 'raw' image produced by the camera, in order to erase its technical or superficial defects, and to improve its general effect" (Smargiassi, 2015, p. 144).

**10** The article originally appeared on *Culture Visuelle*, an online magazine active between 2009 and 2016 ([culturevisuelle.hypotheses.org](http://culturevisuelle.hypotheses.org)). The alarm raised by Dehesdin warned about the iconicity, both innate and posthumous, which usually distinguishes the winning pictures of photo-journalistic competitions, which, once chosen, stop documenting a particular event to become symbolic and stereotyped images.

**11** The essay was originally conceived always for *Culture Visuelle* to be then republished on Gunther's new personal site, *L'Image Sociale* ([imagesociale.fr](http://imagesociale.fr)).

**12** The theory of photogenicity, as Barthes recalls in *The Obvious and the Obtuse*, was developed in the field of movie studies by Edgar Morin in his essay *The cinema or the imaginary man*. Resuming it, Barthes declines it on photography in terms of informative structure: "in photography the connoted message within the image itself, 'embellished' (that is, generally, sublimated) by lighting, impression and printing techniques ... each of them corresponding to a meaning of connotation that is sufficiently constant to fit into a cultural lexicon of technical 'effects'" (Barthes, 1982, p. 13).

**13** Louis Arago already considered photographic retouching a practice charged with ideology purposes, given its ability to idealize representation in order to act itself as a weapon against bourgeois realism

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**Article available at**

DOI: 10.6092/issn.2724-2463/12614

**How to cite**

**as article**

Maggi, E. (2021). Manipulation, Retouching and Staging: the debate on veracity of documentary images in digital era. Some cases compared. *img journal*, 4, 180-203.

**as contribution in book**

Maggi, E. (2021). Manipulation, Retouching and Staging: the debate on veracity of documentary images in digital era. Some cases compared. In M. Ghizzoni, E. Musiani (Eds.), *img journal 04/2021 Copy / False/ Fake* (pp. 180-203). Alghero, IT: Publica. ISBN 9788899586195



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# THE CULTURAL RECEPTION OF REPRODUCTION IN THE 21<sup>ST</sup> CENTURY CANOVA, PIRANESI AND THE USE OF TECHNOLOGY FOR ORIGINAL CREATIONS

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## ESSAY 75/04

ORIGINALITY  
REPRODUCTION  
FACTUM ARTE  
ANTONIO CANOVA  
GIAMBATTISTA PIRANESI

The present work reflects on the possibilities that the technologies of data acquisition and three-dimensional reproduction of artistic objects offer for the generation of never built historical artworks. The research focuses on the scientific and manufacturing labours carried out by Factum Arte on the work of Canova and Piranesi. Through the

projects of materialization of some pieces that were not executed by the Veneto artists in their age, we reevaluate the changing consideration of the reproduction of the artistic work and we analyse the parameters that allow considering the originality in the creations of historical artefacts in our present time.

## INTRODUCTION

The reproduction and dissemination of images are emblematic of the spread of information in the 21<sup>st</sup> century. The replication of iconic elements nowadays, in a wide variety of media, and the possibilities of their immediate diffusion have suppressed the distances in the transmission of visual knowledge on a global scale. However, reproduced objects have experienced a very diverse reception throughout the cultural history of the West. 'Non-originality' has been considered in very unequal terms depending on the nature of the reproduced object and the historical moment of its reproduction. The emergence of serial production in the field of visual arts at the beginning of the 20<sup>th</sup> century, although it partially remedied the gaps in visual culture that burdened the 19<sup>th</sup> century, resulted in a progressive and almost definitive discredit of the reproduction.

Beyond the dissemination of reproductions for merely informative or mass consumer purposes, when it comes to delving into aspects related to the visual arts in their facets of research and dissemination of knowledge, reproduction has traditionally been oriented towards exhibitions, recontextualization, conservation and reintegration of lost or severely damaged originals. Through the study cases introduced in this paper, we intend to address the new possibilities that technology offers to overcome these traditional roles of reproduction and present novel aspects such as the physical fabrication of artistic objects that never materialized. The existence of graphic designs by Giambattista Piranesi as well as the survival of projects in plaster by Antonio Canova that, for different reasons, their authors did not execute in their final forms, provide us with new possibilities for research.

## MATERIALS AND METHODS

This paper employs for its discussion some materials belonging to the research and manufacturing works of Antonio

Canova and Giambattista Piranesi carried out by Factum Arte. The firm, founded in Madrid by Adam Lowe almost twenty years ago, has a multidisciplinary team that uses the most advanced techniques on data acquisition and physical materialization for the reproduction or production of artistic objects, whether historical or contemporary, emblematic for the world heritage.

Its enormous activity renews the debate about the 'original' in art, which began in the first decades of the 20<sup>th</sup> century, when the then emerging technologies of reproduction "detached the reproduced object from the sphere of tradition" (Benjamin, 1935/2010, p. 14). The objective of the reproduction of historical pieces that Factum Arte executes does not focus, however, on the type of reproducibility that points to mass existence, that is, to the serial production to which Benjamin (1935/2010) alluded, but on the manufacture of unique objects with very specific purposes.

Beyond the unresolved controversy over the labile cultural reception of concepts such as double, counterfeiting, copying and other matters related to the duplication of artistic objects and their relationship with originality and authenticity (Casarin, 2015), this work will delve into the possibilities that new technologies offer for the materialization of historical designs whose visual documentation is preserved. The present manufacture of objects faithful to the projects and intentions of their no longer existing authors provides us with 'originals' that introduce elements for reflection on the potentials of disseminating and investigating artworks conceived in the past and materialized in the present.

Factum Arte has tackled the three-dimensional materialization of representative pieces of the production of Giambattista Piranesi and Antonio Canova that were never executed in their day. In the case of Piranesi, three-dimensional objects were modelled from two-dimensional representations for their display in two exhibitions: *The Arts of Piranesi: Architect, Engraver, Antiquarian, Vedutista, Designer and Diverse Maniere: Piranesi, Fantasy and Excess*. The first of them was held in Venice (2010), on the occasion of the 12<sup>th</sup>

*International Architecture Exhibition* (Pavanello, 2010) and later, successively, in Madrid (2012), Barcelona (2012) and at the Museum of Art of San Diego (2013). The second took place at Sir John Soane's Museum in London in 2014. Four objects among those published in *Diverse maniere d'adornare i cammini: ed ogni altra parte degli edificj desunte dall'architettura Egizia Etrusca e Greca* (Piranesi, 1769) –hereinafter cited as *Diverse maniere*– were manufactured by Factum Arte, as well as four others present in *Vasi, candelabri, cippi, sarcofagi, tripodi, lucerne ed ornamenti antichi* (Piranesi & Piranesi, 1778) –from here on cited as *Vasi, candelabri*.

In the case of Canova, the opportunity to cast a new colossal bronze from well-defined two and three-dimensional historical documentation will be discussed. The surviving drawings and plasters will be the basis on which, in a near future, a new Canovian sculpture will be displayed in a public space in Bassano del Grappa.

## RESULTS AND DISCUSSION

The visual part of the unorthodox *Diverse maniere* appears as a sort of pattern book of interior design pieces and various utensils distributed in sixty-six plates, which complete an unusual milestone in Piranesi's graphic production (Dixon, 1993, p. 76). The few objects that were executed from this work can be identified thanks to the existing captions in the only seven plates in which their author claims to have brought them to completion in whole or in part. The faithful coincidence of the graphics with the executed pieces shows that they were probably manufactured prior to the incisions (Wilton-Ely, 2010, p. 69) and were later included in the book along with the rest of the plates, which mainly show non executed designs. From that meager production, only two of the three fireplaces executed by Piranesi's workshop (Figures 1 and 2) are preserved nowadays, as well as two versions of the 'tavolino' designed for Giovanni Battista Rezzonico (Figure 3).



**Fig. 1** From left to right: Giovanni Battista Piranesi. *Fireplace for Lord Exeter in Burghley*. (Piranesi, 1769, Tab. 1); *Fireplace executed in the 18<sup>th</sup> century*. Burghley House, Lincolnshire, UK. Retrieved August 15, 2020 from <https://www.antiquariditalia.it/en/gazzetta/articolo/1144/le-diverse-maniere-di-acquistare-un-camino>



**Fig. 2** From left to right: Giovanni Battista Piranesi. *Fireplace for John Hope*. (Piranesi, 1769, Tab. 2); *Fireplace executed in the 18<sup>th</sup> century*. Rijksmuseum, Amsterdam, NL. Retrieved August 15, 2020 from <https://www.rijksmuseum.nl/en/collection/BK-15449>



If it is difficult to determine the presence of Piranesi's hand in the objects within *Diverse maniere*, beyond graphic design, the question of his intervention is further diluted when it comes to addressing the production of the pieces published in *Vasi, candelabri*. The work comes out as an inventory of one hundred and eighteen etchings that, in addition to some renowned archaeological objects (Udy, 1978, p. 823), collects faithful representations of '*antichi ornamenti*'. The Piranesian 'antiquities', produced in his Roman workshop in Palazzo Tomati, consist of a series of artefacts bordering the limits of restoration, sculpture and creative work, especially feverish in the cases of those pieces based on those archaeological remains found in a more fragmentary state.

The engravings of *Vasi, candelabri* were conceived to contribute to the commercial success of the 'antiquities' among the select clientele of the Grand Tour. Francesco Piranesi, the son of Giambattista, collected and edited in two volumes, shortly after the death of his father, the etchings of the pieces, some of whom had been circulating in single pages since 1755 (Reali, 2018, p. 75) in order to disseminate



**Fig. 3** From top to bottom:  
Giovambattista Piranesi. *Side table  
for Giovanni Battista Rezzonico*.  
(Piranesi, 1769, Tab. 63);  
18<sup>th</sup> century versión of Piranesi's side  
table. Minneapolis Institute of Arts.  
Retrieved August 15, 2020 from  
[https://collections.artsmia.org/  
art/8023/pier-table-giovanni-  
battista-piranesi](https://collections.artsmia.org/art/8023/pier-table-giovanni-battista-piranesi); 18<sup>th</sup> century  
versión of Piranesi's side table.  
Rijksmuseum, Amsterdam, NL.  
Retrieved August 15, 2020 from  
<[https://www.rijksmuseum.nl/en/  
collection/BK-1971-14](https://www.rijksmuseum.nl/en/collection/BK-1971-14)>

**Fig. 4** From left to right:  
Giovambattista Piranesi. *Tripode  
antico di bronzo*. (Piranesi, 1778,  
Vol. 1, Tab. 44); Factum Arte.  
(2010). *Isis tripod*. Retrieved  
September 1, 2020 from [https://  
www.factum-arte.com/pag/1217/](https://www.factum-arte.com/pag/1217/)

and publicize the production of Piranesi's workshop at Via Sistina. The deliberately ambiguous wording of the captions that accompanies the images, in addition to making it difficult to trace the authenticity of the archaeological fragments, prevents from identifying the specific intervention of Piranesi in each one of the artefacts, if it ever took place in any of them.

Unlike the limited materialization of the proposals that illustrate *Diverse maniere*, the many pieces that are still preserved in different European collections attest that the objects published in *Vasi, candelabri* were indeed manufactured, as the associated texts refer. The most numerous inventories are located in the United Kingdom, Rome and Stockholm. Thirty-five works are identified in British collections (Wilton-Ely, 2010, p. 85), thirty-three in Roman collections, as well as the great amount of pieces sold to the Crown of Sweden (Panza, 2013). Many other pieces scattered among various public and private collections all over the world have also been identified.

The choice of the Piranesi's pieces that Factum Arte recreates for the exhibitions is determined by the purposes of the two graphic works in which they were published. While



the eminently propositional nature of *Diverse maniere* makes it possible to decide from a wide inventory of designs never carried out, the *Vasi, candelabri* condition of a catalogue of already materialised pieces, etched *a posteriori*, greatly restricts the possibilities of selection when it comes to manufacturing non created objects. Consequently, the designs selected for their manufacture will be chosen among those presenting major traits of originality, as will be discussed later on.

The Piranesian *acquaforte* of Vincenzo Brenna's drawing of the 'tripode antico di bronzo' (Figure 4) from the temple of Isis in Pompeii (Piranesi & Piranesi, 1778) offers only an approximate version of the original tripod exhibited in the *Museo Archeologico Nazionale* in Naples (Lowe, 2010, p. 170). The two etchings of the 'altare antico di marmo' (Piranesi & Piranesi, 1978), whose original fragments are preserved in the Hadrian's Villa (Adembri, 2015, p. 27), present two different versions designed from the same scarce remains. The preservation of the archaeological vestiges in the Hadrian's Villa along with the two designs based on an only set of remains allow us to venture that they were never used to fabricate any 'antiquity' in the *Settecento*. Therefore, both artefacts, the 'tripode antico' and the 'antico altare di marmo', consist of the materialization of objects from graphic versions with a real reference. The outcomes result in the birth of two original pieces based on drawings that represent approximate or non-existing realities (Figures 4 and 5).



**Fig. 5** From left to right: Giovanni Battista Piranesi. *Altare antico di marmo*. (Piranesi, 1778, Vol. 1, Tab. 32); Factum Arte. (2014). *Altar with vase*. Retrieved September 1, 2020 from <https://www.factum-arte.com/pag/1207/>



**Fig. 6** From left to right: Giovambattista Piranesi. *Camino*. (Piranesi, 1769, Tab. 3); Factum Arte. (2010). *Fireplace*. Retrieved September 1, 2020 from <https://www.factum-arte.com/pag/1215/>



The other two pieces from *Vasi, candelabri* recreated by Factum Arte, the '*vaso con tre teste di grifone*' and the '*candelabro antico di marmo*' (Piranesi & Piranesi, 1778) would instead be recreations of pieces that were executed, if we give credit to the attached captions, although nothing is known of their present location nor is there absolute evidence that they ever came to exist in another support different from that of the etching itself (Lowe, 2012, p. 208, 2010, p. 196).



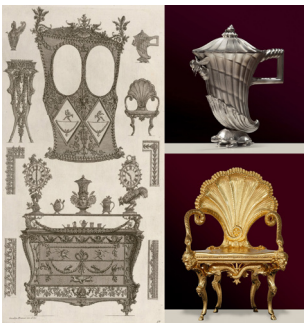
**Fig. 7** From left to right: Giovambattista Piranesi. *Helix Tripod*. (Piranesi, 1769, Tab.57); Factum Arte. (2010). *Helix tripod*. Retrieved September 1, 2020 from <https://www.factum-arte.com/pag/1219/Helix-Tripod>

The independence that Piranesi displays in his designs from *Vasi, candelabri* was sometimes limited by the archaeological objects that inspired them and by the antiquarian pretensions of his customers. However, deprived of the restrictions imposed by the dictatorship of the archaeological specimen, Piranesi's work of pure design in *Diverse maniere* unfolds with complete freedom. The miscellany of objects offered in the publication are left practically indeterminate in regards to their materials and their manufacturing methods. The lack of definition in the illustrations as well as, once again, in the captions, will allow the introduction of material interpretations and alterations in the craftsmanship methods employed for the fabrication of the selected objects: a fireplace embedded in a Pompeian-style background (Figure 6), a tripod with a helical support (Figure 7), a coffee pot and a chair (Figure 8).

In the descriptions of two of the three chimneys that were executed in the Piranesi workshop, it is reported that 'ancient' elements were used for their composition (Piranesi, 1769, Tabs. 1 and 2), while nothing is indicated about the origin of

the materials used in the third one (Piranesi, 1769, Tab. 13), which possibly reveals that it is a work completely composed of marbles sculpted in the 17<sup>th</sup> century. Something analogous happens with the wooden objects in *Diverse maniere*, of whose species there are no data, and with the metallic objects, undefined to the point that only in one of the captions appears a generic indication: “eseguito in metallo dorato” (Piranesi, 1769, Tab. 64). Factum Arte will inherit the freedom that the lack of definition of the materials allows for the conformations of the chosen pieces: marble composite in the case of the fireplace, synthetic wood resin to cast the chair and silver and bronze for the coffee maker and the helical tripod respectively.

The material non-existence of the Piranesian objects, beyond their presence in the engravings, allows us to discuss the original condition of the present creations. Although from the benevolent biography of Jacques-Guillaume Legrand (Bevilacqua, Glendening, & Minor, 2006, p. 15) it could be deduced that Piranesi himself had sufficient competence to recompose and sculpt with his own hand (Miraglia, 1994, p. 221) the *all'antica* objects that were produced in his workshop, the truth is that he surrounded himself with a large group of highly talented sculptors and experienced restorers to shape his designs. Piranesi's participation in the materialization process would have been limited to controlling the execution of the objects produced at Palazzo Tomati. The absence of scale, dimensions or exhaustive definition of views prevents Piranesi's designs from being considered as true industrial execution projects. Undoubtedly, his permanent presence and his guidance in the in situ definition of unresolved details in the designs were indispensable for the successful completion of the objects. However, it is also true that the designs published in *Diverse maniere*, without being properly representations that contain all the data necessary for their manufacture, are conceived to be executed in the absence of their author (Lowe, 2010, p. 180). The serial features that the production process would achieve under Francesco's leadership (Bosso, 2016, p. 318) confirm that the materialization of pieces could



**Fig. 8** On the left: Giovambattista Piranesi. In this etching, in addition to the helical tripod, a coffee pot is depicted on the top left and a chair below it. (Piranesi, 1769, Tab. 57). On the right, from top to bottom: Factum Arte. (2010). *Silver coffeepot*; Factum Arte. (2010). *Golden Chair*. Retrieved September 1, 2020 from <https://www.factum-arte.com/pag/1211/> and <https://www.factum-arte.com/pag/1213/>

continue for a certain period with relative success even after Piranesi's death. The fundamental differences that mediate between the present productions of the Piranesian designs from the past are fundamentally chronological in nature. In the absence of the author, 21<sup>th</sup> century technological resources are used for the extraction of all possible details that tend to minimize the spaces of indeterminacy (Ingarden, 1973; Iser, 1978) existing between the two-dimensional representations of historical designs and the three-dimensional conceptions from Piranesi's mind. The realization of many of the pieces manufactured today with techniques and materials used in the *Settecento*, contribute to provide attributes of originality two hundred and fifty years later.

The studies aimed at establishing the degree of intervention of Piranesi in the objects delivered from his workshop pale in comparison with the enormous literature published on the same subject about Canova. The negative consideration of his work as a succession of mechanically produced artefacts instead of autograph works (Honour, 1972a, p. 146) is constantly redefined in the research carried out in the second half of the 20<sup>th</sup> century. To conclude, with his many detractors, that his intervention in the intermediate phases of the execution was non-existent and that his handprint could only be traced in his famous '*ultima mano*' (Cicognara, 1823, p. 253) is equivalent to mistakenly assuming that the production process was always identical to itself. Although we do not know exactly what his presence was, if it occurred regularly, in each of the intermediate phases of his work, the germ stages of many of his sculptures are well known from drawings and, fundamentally, from '*modelletti in creta e in gesso*' (Sartori-Canova, 1837, p. 47) shaped exclusively by Canova himself. Generally, from the small scale of these three-dimensional sketches, full-size plasters were subsequently cast, on which the marble sculptures and the final bronzes were based (Ferando, 2015, p. 117).

The unexpected death of Canova in 1822 (d'Este, 1864, p. 463) leaves behind it the sad consideration of how many unfinished works, or even in embryonic state, could have been

provided with the '*alito di vita*' (Teotochi Albrizzi & Cicognara, 1824, p. 101) by the Veneto sculptor. According to Cicognara (1823) "scolpì oltre cento statue di tutto tondo nelle 176 opere di scultura che non uscirono del suo studio senza essere da lui perfezionate; [...] non conteggiandosi l'immenso numero di studj, disegni, modelli che sono raccolti nel suo gabinetto" [he sculpted over a hundred freestanding statues from the 176 works of sculpture that were not delivered from his workshop without having been perfected by himself; [...] regardless of the immense number of sketches, designs and models found in his office] (p. 271). The survival of a large part of the Canovian *modelletti*, some of which never carried out, opens up to the discourse about the possibilities of creation of new 'originals'. The discussion takes on special importance when the particularities of his bronze works are examined. Canova, in a letter addressed to Quatremère de Quincy in November 1815, expresses his disaffection with bronze in favour of marble sculpture. The metal, in addition to preventing him from the application of his perfecting finishing hand, lacks the necessary qualities that marbles do possess to convey "la carnosità, perché sono sempre gli uomini stati composti di carne flessibile, e non di bronzo" [the likeness of flesh, because men have always been made up of flexible flesh, and not bronze] (Missirini, 1825, p. 156). When it came to casting bronze, Canova delegated the operations to specialized craftsmen. Although he sometimes emphasizes that the process would be supervised by himself anyway (Missirini, 1825, p. 8) and there is news that, indeed, such supervisions were carried out (Piscopo & Tolfo, 2019, p. 165), his chances to intervene during the forging operations would have been practically non-existent.

The high project definition of some of the works not carried out by Canova allowed their materialization shortly after his disappearance. The bronze casting of *La Pietà*, whose plaster model for its translation into marble was completely finished before his death, was commissioned to Bartolomeo Ferrari in 1827 for its location in the Canovian temple of Possagno (Catra & Mampieri, 2015, p. 133), where it remains



**Fig. 9** Canova. Plaster model of the colossal horse before its dismemberment in 1969. *Museo Civico di Bassano del Grappa*. 1950. (Casarin, 2019, p. 175). Courtesy *Musei Civici di Bassano del Grappa*.



since then. In the cases in which the absence of the ‘last hand’ is inconsequential insofar as it would not anyway have been present during the artist’s life, it is worth questioning the authenticity of the objects (Casarin, 2020, p. 156) that could continue to be created, even in the present, from well-defined three-dimensional documentation.

The reflection on the new creation in the 21<sup>th</sup> century of historically documented pieces finds in the case study of the colossal horse by Canova one of its most relevant exponents. Since 2016, under the initiative of Chiara Casarin, then director of the *Museo Civico di Bassano del Grappa*, the bronze casting project of a highly defined horse by the hand of Canova is being developed. The museum safeguards the fragments of what was a full-scale plaster model (Figure 9) in addition to various autograph preparatory drawings (Pavanello, 1976, p. 121; Piscopo & Tolfo, 2019) of a 4,5 meters high horse. The work, related to the equestrian group of Carlos III and Fernando IV for Piazza del Plebiscito in Naples, is revealed after recent investigations as a third piece never cast in bronze (Casarin, 2020, p. 151). The documentation, both graphic and three-dimensional, generated by Canova at the beginning of the

**Fig. 10** Factum Arte. (2019). 1:10 reduced scale cast in bronze of the *Colossal Horse*. Retrieved September 7, 2020 from <https://www.factum-arte.com/pag/1481/estatua-ecuestre-de-canova>



19<sup>th</sup> century was the usual one in his procedure for bronze sculpture and has been conserved practically complete. The only missing phase would be that of the commissioning of the definitive cast and the only different parameter in the production process would be the execution time frame.

The availability of data from a three-dimensional model of the horse at 1:1 scale seems to offer a much more favourable documentary starting point than the one approached for the embodiment of Piranesi's two-dimensional designs. In the case of the Veneto etcher, it was necessary to fill in information gaps regarding scales, specific materials, production techniques or details not visible in the etchings. In the case of Canova's colossal model, we face spaces of indeterminacy of much less entity, mainly due to the deterioration of the plaster. The damages caused by the dismemberment of the model in 1969, the subsequent poor storage conditions of the fragments and the successive relocations (Piscopo & Tolfo, 2019, p. 178) have required a meticulous digitization of the remains and a digital reconstruction carried out by Factum Arte.

The digitized fragments have allowed, in the first instance, the virtual reconstitution of the model, which has been useful

**Fig. 11** From left to right. Comparison between the plaster model by Antonio Canova (c. 1810) and the digital restitution by Factum Arte (2018). Courtesy *Musei Civici di Bassano del Grappa*. Retrieved September 7, 2020 from <https://www.factum-arte.com/pag/1480/>



**Fig. 12** From left to right. Comparison between the plaster model by Antonio Canova (c. 1810) and the digital restitution by Factum Arte (2018). Courtesy *Musei Civici di Bassano del Grappa*. Retrieved September 7, 2020 from <https://www.factum-arte.com/pag/1480/>



for the precise identification of the existing gaps. Those gaps become expressively evident after the elaboration of a first 1:10 scale bronze model (Figure 10) now on exhibition at *The Materiality of the Aura. New Technologies for Preservation* –Palazzo Fava, Bologna 2020-2021. In a successive phase, work is carried out on the completion operations, based on the geometry of the immediate surroundings of the blanks, on the preparatory Canovian drawings and on the data provided by the 19<sup>th</sup> century bronze pieces in Piazza del Plebiscito.

The resulting digital model provides an extraordinary approximation to the original Canovian project (Figures 11 and 12) that will allow its casting in bronze in the near future. The materialization of the colossal horse does not foresee reinterpretations of the materials or the production methods,

as we have identified in the case of Piranesi; its construction will only consist of the completion of an unfinished process by infusing the definitive '*alito di vita*' required for the birth of a 19<sup>th</sup> century original in the 21<sup>th</sup> century.

## CONCLUSIONS

Both in Canova's and Piranesi's production, serial and modular features are identified (Bosso, 2006, p. 226), with high work specialization, which are related to industrial processes in a quasi-contemporary sense. Their direct intervention is ensured only in the creative aspects and it is very limited in the manufacturing phases of the artistic pieces, which would have allowed a certain productive continuity as long as autograph projects by the artists remained without materializing. However, despite the fact that the Piranesi workshop was at the height of its activity in 1768, the immediate inventory of goods and the onset in 1782 of the sales transactions operated by Francesco demonstrate the willingness to dismantle the prosperous Palazzo Tomati workshop, shortly after the death of the Veneto architect (Panza, 2013, 2018). There is also evidence of a dramatic decrease in the prices requested for the posthumous sale of some Canova sculptures estimated on his level of intervention on them before his death (Honour, 1972b, p. 217). To the different economic vicissitudes of the legal and artistic heirs that led to the abrupt or progressive dissolution of the production processes, a gradual consolidation in the negative reception of some aspects of the Canovian and Piranesian work in later generations was added. The principles of archaeological rigor (Wilton-Ely, 2010, p. 91), increasingly rooted in Winckelmann's wake, as well as the prevailing enlightened empiricism, would contribute to a rapid devaluation of the fantasy work reflected in *Diverse maniere* and in *Vasi, cippi* (Bosso, 2016, p. 303). The rigors of criticism, although due to different reasons, were also suffered by the reception of Canovian production. Already in the author's

lifetime, in addition to the attacks attributed to his inferiority in the *genere forte* (Johns, 1998, p. 37) and to other issues of style, his limited intervention on the finished pieces is subject to frequent discussion and censorship. This will be worsened, after his death, by the controversial reception of the *Passagno Gipsoteca* (Myssok, 2011), which would unexpectedly contribute to highlighting the serial production over Canova's sculptural skills and to emphasizing the possibilities of replicating pieces from the dotted plasters employing the '*macchinette di punta*'.

The secondary role of both authors in the materialization of their works would have justified the continuation of a coherent industry around their ideations, at least as long as their intellectual source could continue to be demonstrated, however, it is difficult to escape the component exerted by their physical presence in the concepts of originality and authenticity. Although the intervention of the authors in the materialization of the artistic object would have been non-existent or very limited in their time, their absence in a synchronous mode while that materialization is taking place, raises problems regarding the considerations of authorship, also closely linked particularly to the sense of authenticity. Changes of mind in the artists before outlining the definitive versions of their works (Myssok, 2010, p. 278), and even destructive impulses, dominated them from time to time, in a way that makes it impossible to guarantee in any case that the artwork would have been made exactly with the characteristics awarded in the present if it had counted with the participation of its authors. Despite this obvious limitation, research on manufacturing techniques and 18<sup>th</sup> century materials, along with the labours developed in close connection with the physical places of creation, approximate the results of the pieces presented in this work to their origins. In the absence of the author's hand or opinion, the distance is observed only in terms of the moment of generation of the object (Casarin, 2015, p. 42). The current materialization of previously unborn works of art reveals them in the first instance as primal, unique objects, not copied, with the stamp of originality in terms of new pieces, never before executed or reproduced. However,

it is that same technical possibility of production that reveals them as replicable objects from the very moment in which they are manufactured. If Benjamin (1935/2010, p. 27) proposes that the uniqueness of some artistic pieces from Antiquity is due to the technical limitations of their age, the extraordinary technological possibilities offered by the 21<sup>th</sup> century easily blur the boundaries of uniqueness.

The decline of the aura due to temporal factors and the possibilities of replication and, therefore, loss of uniqueness, are not enough to nullify the cultural and scientific values provided by the execution of pieces that were once conceived to get materialized. The circumstances that determined their non-conclusion deprived them of their existence, their main condition. The embodiment of unmade historical projects thanks to the opportunities offered by the 21<sup>th</sup> century technologies unfolds new environments for reflection on the concept of artistic originality.

## ACKNOWLEDGEMENTS

We thank the extremely useful scientific and technical information provided by Carlos Bayod Lucini, Guendalina Damone and Belén Jiménez Fernández-Palacios, from Factum Arte, for the elaboration of this research. This article is written in the context of the investigations of the National Plan Art, *Architecture and Heritage in the processes of construction of the image of the new cultural spaces* financed by the Ministry of Science, Innovation and Universities of the Government of Spain.

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#### Article available at

DOI: 10.6092/issn.2724-2463/12614

#### How to cite as article

Merino Gómez, E., Moral Andrés, F., & Casarin, C. (2021). The cultural reception of reproduction in the 21<sup>st</sup> century: Canova, Piranesi and the use of technology for original creations. *img journal*, 4, 204-223.

#### as contribution in book

Merino Gómez, E., Moral Andrés, F., & Casarin, C. (2021). The cultural reception of reproduction in the 21<sup>st</sup> century: Canova, Piranesi and the use of technology for original creations. In M. Ghizzoni, E. Musiani (Eds.), *img journal 04/2021 Copy / False / Fake* (pp. 204-223). Alghero, IT: Publica. ISBN 9788899586195



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**AURA, PROVENANCE,  
FAKES & FORGERIES**  
EXPLORING  
THE PITFALLS  
OF PROVENANCE  
AND HOW  
THIS CAN ENHANCE  
THE AGENDA OF FAKES  
AND FORGERIES  
IN THE ART WORLD

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## ESSAY 76/04

PROVENANCE

FAKES

AURA

WALTER BENJAMIN

PERCEPTION

The provenance of a work of art, that is, the documentation of its ownership history, is a vital tool in determining authenticity and legitimacy. Deriving from the French *provenir* meaning 'to come from', a sound provenance record functions as a prerequisite for authenticating a work; without one, the likelihood of it being accepted by any reputable collection or dealer is improbable. What happens, however, when a fake work of art is accompanied by a fake provenance record?

This essay shall take the 'master scam' conceived by John Myatt and John Drewe, notorious for infiltrating some of the world's

largest museums and galleries with fake artworks and provenance records, as an example to aptly illustrate such pitfalls of provenance. Emphasising seminal theories of aura and authorship through an analysis of the work of Walter Benjamin and Michel Foucault, it is argued that knowledge of such provenance holds the capability of psychologically altering the viewers perception of the work itself. Subsequently, utilising provenance in this way can enhance the agenda of fakes and forgeries circulating in the art world, highlighting the need for stronger institutional methodologies in relation to authenticity.

## INTRODUCTION

The ownership histories of objects and works of art possess the capability of altering the viewers perception of the object through knowledge of object biographies and provenance information. Knowledge of such information is consequently vital in comprehending the object in its entirety. Through an exploration of Walter Benjamin's concept of the aura (Benjamin, 2002), it is argued that provenance information, as a unique entity, possesses an aura of its own, relational to that of the work of art. Being aware of this aura can further alter the way in which the object is viewed and understood, bringing about a more thorough understanding of its object biography. This essay will analyse the case study of the 'master scam' conceived by John Myatt and John Drewe as an example to aptly illustrate the dangerous aspects of provenance and the consequences that arise when knowledge of how to create a provenance record falls into the wrong hands. Considering fake works of art in this way brings about a fundamental argument and theory of object biographies. That is, understanding the aura of provenance and the details of the works object biography is capable of psychologically altering the viewers perception of the work itself.

## BENJAMIN'S AURA

Walter Benjamin (1892-1940), an eminent philosopher, essayist and critical thinker from Germany, first delved into the notion of aura in March 1930, where it is mentioned in an unpublished report of one of his hashish experiments (Hansen, 2008). Initially, Benjamin used the word in its most literal sense; that is, to describe a certain atmosphere surrounding a person or thing. The use of the term, however, evolves throughout his writings to subsume a more theoretical position in relation to art, which is how aura will be characterised in this essay. Aura's most substantial analysis occurs in *The*

*Work of Art in the Age of its Technological Reproducibility* (2002), wherein Benjamin deliberates the auratic mode of the work of art: that of the original's unique presence in space and time. For Benjamin, aura is an exclusive semblance within the works presentness, igniting specific reactions and feelings in the observer when standing before it. Tyrus Miller (2014) encapsulates this characterisation, stating: "Benjamin calls the sacredness attached to such ritually situated images 'aura': a sort of halo around the work that evokes a spiritual realm foreign to that of work and everyday life" (p. 42). As original works of art are distinct and unique to themselves, the original is consequently placed in its own exclusive category, perceived as superlative to reproductions and other, non-original, works. It is worth noting that the discussion surrounding aura and originals here refers exclusively to perceptions of the West: a larger space would be needed to consider the role of aura in Eastern perceptions, as in some instances the reproduction can be perceived as having equal value to the original.

The reproduction of artworks is a common-place sight in our current, image-saturated epoch, with reproduced images appearing on merchandise, in books, and on the internet, to name but a few. In the 1930s, when Benjamin was contemplating aura, this notion of reproduction was beginning to take place on a larger scale than previously seen. This large-scale reproduction, Benjamin asserts, threatens originality, as the semblance which is particular to originals becomes jeopardised due to the use of mechanical reproduction and the aesthetic human experience. This act of reproduction strips the uniqueness from the works originality. Benjamin (2002) states, for instance, that "[i]n even the most perfect reproduction, *one* thing is lacking: the here and now of the work of art – its unique existence in a particular place" (p. 103). Thus, a copy or reproduction of an original can never attain the same status as the original, as the aura is altered to such a degree that the perception of it can never be equivalent. Although a reproduction possesses the benefits of trav-

el and disseminating to a wider audience simultaneously, for Benjamin the same auratic sensation cannot be felt before a reproduction as it does not maintain the aura of the original.

Benjamin's aura, then, is found exclusively in originals, and consequently cannot be felt in a reproduction. However, the somewhat conflicting approach to aura should also be underlined, as Benjamin often shifted his stance between the negatives and positives of aura, causing an inconsistency surrounding his theories. This indicates that the concept of aura is also in flux and subject to interpretation. Dependent upon personal positions or even specific situations it could be perceived as either positive or negative to have the aura stripped from the work. An assumption that the waning of aura is positive, however, is an oversimplification of the aura's unstable character, thus demanding a more nuanced, circumstantial reading. Benjamin often indicates that aura is malleable in its interpretation. In his *Technological Reproducibility* essay, for instance, Benjamin (2002) states that "for the first time in world history, technological reproducibility emancipates the work of art from its parasitic subservience to ritual. To an ever-increasing degree, the work reproduced becomes the reproduction of a work designed for reproducibility" (p. 106). This infers a sense of affirmative willingness in regard to stripping the work of its aura, thus becoming 'emancipated' – a term which indicates that the loss of aura brings about a sense of liberation. Contrarily, in *Little History of Photography* (1999), Benjamin asks "What is aura, actually? A strange weave of space and time: the unique appearance or semblance of distance, no matter how close it may be." (p.518). The sentimentalised wording here highlights an amalgamation of the spatial and temporal, emphasising the importance of the individual situation in which the original finds itself. Beatrice Hanssen (2006) further contemplates Benjamin's inconsistent stance on aura, stating that: "Benjamin often withdrew into the self-enclosure of melancholy, for example in the photography essay, where he lamented the disappearance of aura, whose fleeting presence occasionally shone forth from the photographed face, captured in old daguerreotypes" (p. 81). It

is therefore not clear in which light the stripping of aura should be understood, however it can definitively be said that aura is a concrete philosophy which surrounds the original work. It can also be proposed that aura, as a cultural construct, is one which emerges through a dualism of space and time and can be perceived in many differing situations. Benjamin (2002) states that “[t]o follow with the eye—while resting on a summer afternoon—a mountain range on the horizon or a branch that casts its shadow on the beholder is to breathe the aura of those mountains, of that branch” (p. 105). This example is utilised here to exemplify the experiential nature of aura and how it can be encountered within the realm of the natural. It is therefore again indicated that aura consists of a nuanced constitution and can be employed in various situations. Here, aura shall be discussed exclusively in terms of the work of art, and how the application of this theory can be translated to notions of provenance. As Benjamin (2002) affirms: “It is this unique existence—and nothing else—that bears the mark of the history to which the work has been subject” (p. 103). Acknowledging that the history of the work forms a segment of its originality, the aura and sensation felt when perceiving an original could hypothetically translate onto the study and display of provenance. Benjamin (2002) acknowledges that the ownership history of the work forms a segment of the aura, stating that “changes of ownership are part of a tradition which can be traced only from the standpoint of the original in its present location” (p. 103). Accordingly, provenance has been directly linked to aura, with Benjamin contending that ownership histories form a part of the unique semblance of the work. As the concept of aura is a malleable phenomenon, this could be elaborated further to denote that provenance, as its own entity, could also possess a unique aura, relational to the work of art.

#### FUSING AURA WITH PROVENANCE

Provenance, as a standard methodology for recording the ownership history of an object or work of art, becomes



a vital aspect of the object itself. The research into and understanding of provenance information has seen a continued growth in importance, with researchers and institutions contemplating the significance of understanding their collecting histories. It is, too, equally crucial to comprehend the influence that provenance has on objects in their respective socio-political climates. The ownership histories of objects can indeed alter the meanings and interpretations associated with them, as they migrate through different situations and become subject to alternate modes of display. It is this aspect of provenance—the discussion of the life-narratives of objects—that arguably enhances the understanding of objects within the framework of this little-known facet of art history.

Benjamin discusses aura in relation to the work of art, however due to its malleable characteristics, it can be argued that provenance can also possess a unique aura of its own, as the ownership history of a work is inextricably bound to the original. This sentiment is also acknowledged by Michel Foucault in his text *What is an Author?* (2009). Here, Foucault discusses the reverential qualities a text can possess due to the reputation of the author, as “[a] text has an inaugurative value precisely because it is the work of a particular author, and our returns are conditioned by this knowledge” (p. 332). Translating this Foucauldian perspective onto that of provenance, it is conceivable that when a work of art is in possession of a ‘pedigree’ provenance—perhaps previously being owned by a distinguished member of society—the viewers perception of the work could subsequently be altered due to the assertion of this knowledge. Sophie Raux (2012) illustrates such conceptions when deliberating the value of eighteenth-century auction catalogues: “Mentioning previous owners, especially if they were famous for the distinction of their choices, indicated that the painting had already gone through several selection and ratification processes, thereby building a consensus on the painting’s value and enhancing its prestige” (p. 100). This presumption is indicative of a sometimes lack of further research, as an object from a prestigious collection can hold

preconceptions of being sound, when in reality it should not be taken as fact until independent research has been conducted. Consequently, it is sometimes the reputable nature of the collector/collection which can hold precedence. Analogous to Foucault's discussions on public conceptions regarding famed authors, previous collectors and owners could also hold the same considerations and authority as the author, thus inferring a sense of aura. As Johannes Gramlich (2017) contends: "if an artwork has been in a prestigious collection or exhibition, this was an indication of authenticity as well as elevated aesthetic quality" (p. 3). This indication, however, should not be taken as blind fact, as errors and forgeries are a potentiality, thus leading to incorrect provenance information which emboldens the forgery in regard to the object and its evidence.

These notions of authorship proposed by Foucault can, therefore, equally be translated onto notions of provenance, as it is the distinct qualities of provenance which depict the works history and narrative, thus imbuing it with a sense of authorial authority. As aura has been explored in terms of the original, it is therefore possible to combine the thought of Foucault and Benjamin, bridging the gap between the two theories, with the authorial nature of provenance akin to a sense of aura: the auratic authorial. It is subsequently established that ownership histories can correspond to notions of aura, with their own unique presence similar to "the here and now of the work of art" (Benjamin, 2002, p. 103). But what happens when the provenance of the work of art is fake? Or if the artwork that the provenance is validating is fake? This illuminates some contentions, as Benjamin's predominant assertion with his theory of aura is that it is the original alone which can possess aura, and that this same sensation cannot be felt when perceiving a copy. Arjun Appadurai (1986), touches upon this concern in his seminal text *The Social Life of Things: Commodities in Cultural Perspective*, where he discusses how the value of commodities is generated through the act of exchange. According to Appadurai, objects have lives

of their own and, when broken down into phases, can subsume a plethora of commodity categories. The moveability of objects and the transactions that create value therefore form the basis for comprehending the commodity status of objects and their own unique trajectories. If it is the act of exchange which generates value in objects, ownership histories can subsequently place objects in many different commodity categories, highlighting their object biographies through the value of exchange. Following this trail of thought, Appadurai then mentions the theory of aura, stating that “copies, forgeries, and fakes, which have a long history, do not threaten the aura of the original but seek to partake of it” (p. 45). Alluding to the concept of originality, which is bound to the aura, surely it depends upon the nature of the copy, forgery, or fake, when establishing what transpires with the aura. This is therefore an oversimplification of auratic qualities, and it cannot conclusively be said that the aura is not threatened by such acts. Aura can be perceived as a malleable concept, which in turn denotes that its analysis is dependent upon the specific situation. The narrative of Myatt and Drewe is a fitting example with which to explore such contentions.

#### THE JOHN MYATT AND JOHN DREWE MASTER-SCAM

John Myatt, a former art teacher and a single parent, began earning some extra income by advertising his ‘genuine fakes’ –copies of 19th and 20th century paintings sold as reproductions of originals at a significantly lower cost. However, events soon took a different turn when one particular customer kept coming back– professional con man John Drewe (Sims, 2019). Drewe then convinced Myatt to sell his paintings as authentic, reaping a much larger reward. Myatt’s role in this scam, which deceived the art world for thirteen years, was to produce works that fit into an artist oeuvre, creating paintings in their respective styles and filling gaps in their portfolios. He painted a plethora of paintings in different

styles, such as Braque, Matisse, and Giacometti. However, the true genius behind this scam was the product of Drewe, who infiltrated some of the world's top art archives. Through his connections and the creation of a bogus persona which allowed him to illegally penetrate the art world, Drewe was able to change the provenance records of authentic paintings, establishing a lineage for Myatt's forgeries, essentially altering the history of a multitude of object biographies (Landesman, 2020). The element which made this scam so believable was not the quality of the fakes, which were decidedly quite poor in comparison to the originals, but the insertion of false provenance information. This provenance created a false history for the works to such an extent that, for quite some time, it was not doubted by professionals in the field. As provenance is linked to originals, possessing knowledge of how provenance operates and how to successfully create a disingenuous provenance record forges a history for the fake work, allowing it to be perceived as genuine. To ensure this, "Drewe then placed his forged letters, receipts, and inventory notices relating to this apparently undiscovered work into the archives of such venerable cultural institutions as the Tate and the Victoria & Albert Museum" in London (Phaidon, 2020).

This example stands apart from other forgery scams as it highlights the fundamental importance of provenance, as discussed by Rodney G. S. Cater (2007): "Unlike most art forgers, who direct their energies and talents in creating impeccable forgeries, Drewe realized that paintings of even poor quality could be passed off as authentic as long as a convincing paper trail was in place" (p. 79). The Myatt and Drewe case, then, underlines the tendency to believe provenance records, and the artworlds somewhat over-reliance on them as a means of authentication. Although these types of scams are relatively uncommon in comparison to other types of cons, Myatt and Drewe are by no means the only people to have figured out provenance's predominant pitfalls. There have also been similar cases throughout history where criminals have taken advantage of provenance and archival mate-

rial, for example the Greenhalgh Family scam and the Getty Kouros (Sladen, 2010). This type of provenance forgery, it would seem, is on the rise, calling for a more systematic and thorough methodology in regard to authentication, increasing the level of due diligence conducted and utilising numerous facets of authentication –such as connoisseurship and methods pertaining to technical art history– in order to be more confident in decisions. It is important to note, however, that this is ostensibly contingent upon the resources available to each individual institution. Funding for the Arts and Culture sector have seen massive cuts over the past ten years, with the UK seeing almost £400m in local authority spending stripped (The Guardian, 2020). The lack of funding in this area and the effects that this has on institutions will need to form the basis for a whole other discussion: here, it is simply highlighted as an effect which may prevent more thorough investigations into authentication from being completed. As provenance is seeing a continued growth in importance, it is nonetheless vital that steps be taken to safeguard this means of authentication, and that it is realised that not all provenance should be directly taken as fact without first conducting further research.

Returning to the notion of aura and authenticity, as of June 2020, “[o]f the approximately 200 ‘masterworks’ Myatt painted and Drewe sold, the police have located only 73.” This still leaves several Myatt fakes either in private collections or public museums. Indeed, it has been estimated that between 10 and 40 percent of artworks produced by significant artists on the market are in fact fake, and further to this, it is possible that as much as 60 percent of Giacometti’s that appear on the market are bogus (Landesman, 2020). Does the aura felt when perceiving an ‘original’ work of art then disappear when it is found to be fake? The work itself has not changed, only the knowledge of its creation. The fake works of art and their forged provenance information, then, have been designed to reinforce their own acceptance in the art world. These ‘original’ works would have initially been considered to have an

aura, as they were originals situated in their own time and space, with provenance information therefore being used in opposition to the art world, deceiving professionals into considering them 'legitimate' works of art. Take, for instance, a comparison between a Myatt 'Giacometti' and an original Giacometti (Figure 1). Presented as both being Giacometti's, before being outed as a fake, Myatt's Giacometti was accepted as genuine and therefore possessed an aura of its own. What then happens when this authentic label is stripped? To aid comprehension of this dilemma, Nelson Goodman's *Languages of Art: An Approach to a Theory of Symbols* (1976) can afford an understanding of the differences in aesthetics regarding originals and fakes. Goodman hypothesises that there is a distinct disparity in aesthetics between a forgery and an original, even if it is not immediately obvious which one is which. For Goodman, there is an inherent epistemological facet to aesthetics which is foregrounded in a symbolic, and at times iconographic, methodology, linking directly back to the role of authenticity and intrinsic artistic value. When contemplating perceiving a forgery and an authentic work of art, he states:

Nothing depends here upon my ever actually perceiving or being able to perceive a difference between the two pictures. What informs the nature and use of my present visual experience is not the fact or the assurance that such a perceptual discrimination is within my reach, but evidence that it may be; and such evidence is provided by the known factual differences between the pictures. Thus the pictures differ aesthetically for me now even if no one will ever be able to tell them apart merely by looking at them. (pp. 105, 106)

The ability for authenticity to alter perceptions, then, is highlighted through this cognitive shift in which the aesthetics of a painting are modified through the knowledge of their falseness. Goodman hypothesises that when perceiving a forgery and an original, there is an inherent aesthetic difference even if the two images appear to be identical. This difference may not always be apparent from the outset,



**Fig. 1** Image showing Myatt's fake Giacometti (left) next to a genuine Giacometti (right).

however, as Goodman (1976) argues: "My knowledge of the difference between the two pictures, just because it affects the relationship of the present to future lookings, informs the very character of my present looking" (p. 104). This awareness, he affirms, forces him to perceive and acknowledge the two images differently, even if their physical qualities are the same. Subsequently, it is indicated that it is not the physical images which are bound to alter, but that there is a psychological shift which takes place in the mind of the perceiver when standing before a known fake. Correlating to notions of the auratic authorial and the importance of authenticity, it would seem as though perceptions are subject to alter upon knowledge of the works legitimacy. With Myatt's Giacometti fake, then, it is hypothesised that the painting is still in possession of its own aura as the painting itself is still an original. Whereas if the fake work of art had been copied exactly from another original, the fake would not possess an aura as it is not unique. It is therefore the perception of the Myatt fake that has been altered, as it is now considered disingenuous.



Contemplating Goodman's theory, there have been numerous psychological studies that delve into the understanding of perception and aesthetics when considering fakes and originals. For instance, Helmut Leder discusses an experiment which delved into the effects of artistic appreciation. Participants perceived both original and fake Van Goghs in order to investigate the effects of authenticity and how this pertained to familiarity, appreciation and by extension, aura. (Wolz & Carbon, 2014). There were five studies carried out with this goal, the results of which are thus:

Studies 1 and 2 revealed that positive correlations existed for liking and familiarity ratings even when it was possible that some of the stimuli seen were not original paintings. The correlations were significantly reduced when the beholder was told that all stimuli were fakes of van Gogh paintings (study 3) and that they were fakes or non-van Goghs (Study 4). In Study 5, the correlation was reduced when inspection time was increased, thus, simple familiarity-liking relations are weakened by knowledge and are greater in spontaneous judgements. (Leder, 2001, p. 201)

This experiment proved its hypothesis to be correct, with the copies of paintings categorically devaluated in comparison to the originals. Without delving too far into the realm of psychology, which is not the aim of this study, it is apparent that perceptions do alter when perceiving a known fake. Equally, "[w]hen depictions of paintings were labelled as 'copies', participants showed a decreased appraisal on variables concerning cognitive as well as emotional dimensions, despite the fact that the 'copy' and the 'original' were physically identical" (Wolz & Carbon, 2014, p. 472). This links directly to Benjamin's aura, as it is the concept of originality which possesses the status of aura. When perceiving a work that is known to be fake, the aura could hypothetically become stripped from the image as it is perceived in a divergent light. Perceiving a fake consequently alters the perceivers perception of the object as it is no longer considered to have the aura of an original, reiterating the concept of the artist as

genius and Foucault's discussion regarding famed authors. As Josh Sims (2019) illustrates: "Psychological studies suggest we value the original over the identical forgery, less because of the art itself, but because we appreciate the originality of the artist's idea and have some gut sense of a connection to their creative process." It has been established, then, that the original work of art alone can possess an aura. If this aura is connected to the original and is consequently also attached to the provenance and object biography of said original, then Drewe's ability to forge a fake history for Myatt's work intensifies the importance of the symbolic value embedded in originality. The Leder experiment compliments the theoretical underpinnings explored here. When put to the test, it is apparent that it is not simply the physical qualities that contribute to artistic appreciation, but that "the symbolic value [which] is increased by a famous artist's name and the artist's association with the concept of 'the great genius'" also plays a significant role in artistic appreciation (Wolz & Carbon, 2014, p. 467). Ultimately, when perceiving a work that is known to be inauthentic, as Goodman stipulates, there is a cognitive shift which takes place in the mind of the perceiver, forcing them to view it differently now that they are aware of its falseness. It is knowledge of the works history, provenance, and object biography that brings about this awareness to the lack of authenticity, highlighting the fundamental intrinsic nature of provenance and how when taken into the wrong hands, it can be utilised as a vehicle for manipulation to create a false lineage, altering the history of works of art.

Subsequently, when Myatt's paintings were found to be fake, there would have been a shift in cognitive perception when viewing the work, its aura stripped as it is discovered that the painting is pretending to be something which it is not. This large-scale infiltration of the art world has highlighted many pitfalls: predominantly, a lack of skepticism and further research when it comes to provenance. Carter (2007) suggests that there are three predominant tools that should be utilised when dealing with authentication and attribution

of artworks: namely connoisseurship, scholarly documentation (including provenance) and physical and technical examinations (p. 84). By utilising a triad of due diligence methods, the opportunity for fakes to pass through the artworld to be considered as genuine is lessened, creating a larger opportunity for unveiling fake works of art and stripping them of the aura with which they falsely intended to imbue.

## CONCLUSION

From analysing Benjamin's aura, it is argued that provenance information can also possess an aura of its own, relational to the work of art. As object biographical information is unique to the specific object in which it is related, it can be denoted that this information has its own semblance surrounding it. Combining this theory with the thought of Foucault and Goodman, it is also ostensible that knowledge of this information can alter perceptions of works, as has been evidenced by the Leder experiment. Equally, one of the predominant pitfalls of provenance information is its sometimes lack of authentication. When an object is from a prestigious collection it can be relatively easy to accept the information as fact without conducting additional provenance research as it stems from a seemingly reliable source. This danger of provenance needs to be acknowledged, as aura can be utilised to enhance the objects life-narrative but can also be employed as a vehicle through which to deny the truth of the object. It is therefore paramount that professional research is conducted into the biographies of objects and that nothing is taken as fact without verifying this information. In order to decrease the possibility of similar scams occurring in the future, a triad of due diligence should be employed to bring about a more thorough investigation into the works in question. As has been mentioned, however, this is ostensibly dependent upon funding and resources. The example of Myatt and Drewe highlights this pitfall of provenance, as

their infiltration of the art world proved successful to such an extent that many more unfound Myatt fakes are still in circulation today. Deliberating fakes and forgeries therefore brings about a new dimension to the debate. These objects have tales of their own, which illustrates how each and every object possesses a unique narrative; it is apparent, however, that perceptions of fakes are subject to alteration upon discovery of their inauthenticity. While this reiterates notions of aura and the artist as genius, this is not to say that fakes absolutely cannot possess their own aura: indeed, as aura pertains to originality, biographies of objects possess auras that are unique to them, irrespective of whether they are considered legitimate works or not.

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**Article available at**

DOI: 10.6092/issn.2724-2463/12651

**How to cite**

**as article**

Murphy, A. (2021). Aura, Provenance, Fakes & Forgeries. Exploring the pitfalls of provenance and how this can enhance the agenda of fakes and forgeries in the art world. *img journal*, 4, 224-241.

**as contribution in book**

Murphy, A. (2021). Aura, Provenance, Fakes & Forgeries. Exploring the pitfalls of provenance and how this can enhance the agenda of fakes and forgeries in the art world. In M. Ghizzoni, E. Musiani (Eds.), *img journal 04/2021 Copy / False / Fake* (pp. 224-241). Alghero, IT: Publica. ISBN 9788899586195



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# USING 3D REPRODUCTIONS OF ARCHAEOLOGICAL OBJECTS IN MUSEUM EDUCATION CONTEXT A LEARNING EXPERIENCE WITHIN AN ETRUSCAN MUSICAL COLLECTION

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## ESSAY 77/04

3D REPRODUCTIONS

MUSEUM EDUCATION

PRIMARY SCHOOL

ETRUSCAN COLLECTION

TRANSVERSE COMPETENCES

Archaeological museum exhibitions are made up of collections that represent complex cultural systems. Consequently, museum education has the role of mediating these objects to different categories of users, clarifying the relationships between the collections and the cultural system they belong to. However, for some kinds of pieces, such as musical ones, this activity includes a 'performative' part, where the object is an instrument to perform an action. For centuries, museum studies have been split between the conservation of objects and the preservation of their performative capacities and, in the case of musical instruments, in order to use them in educational and research contexts (ICOM CIMCIM, 2019). The use of reproductions, such as digital model-

ing, has been widely discussed, sometimes controversially; however, scientific studies have demonstrated the effectiveness of active teaching methodologies, such as Object-based Learning, in museum contexts for active users' engagement (Duhs, 2019), promotion of soft skills (Poce et al., 2020), social inclusion, and well-being (Kador & Chatterjee, 2021). Starting from these assumptions, the paper describes the first results of a museum education pilot study carried out through the 3D-printed reproductions of ancient Etruscan musical instruments. The learning pathway, addressed to primary school pupils, is aimed at the integration and enhancement of 4C skills (Trilling & Fadel, 2009) in education from an inclusive perspective.



## INTRODUCTION

The use of the artistic and cultural heritage for transverse skills promotion, especially in school-aged visitors, has surely become a traditional topic in museum education context. The demand, underlined by different researchers, of stimulating soft and transverse skills meets the educational needs of younger users and, at the same time, supports the realization of inclusive educational pathways in terms of lifelong learning and active citizenship (Del Gobbo, 2018; Morse, 2020). The literature in the field identifies active learning methodologies, such as 'Object-based Learning', 'Visual Thinking', and 'Storytelling' (Poce, 2018; Re, 2019), as the most effective at stimulating users' transverse skills.

From the museum's point of view, curators, conservators and educators everyday deal with the more fragile exhibits, which, due to their intrinsic characteristics, are difficult to insert in workshops or educational pathways based on active interactions with museum objects. At the same time, while many empirical studies concerning the creation of copies or the use of digital modelling have been conducted, there are few indications referring to the pedagogical and cognitive consequences, particularly relating to the promotion of transverse skills and social inclusion.

Therefore, starting from the results of the experience here presented, this paper sets out to investigate the relation between musical and archaeological cultural heritage and the stimulation of transverse skills in primary school pupils, defining different learning activities aimed at promoting social inclusion through heritage education.

### **The role of art**

In Italy, the debate on the role of heritage education in contemporary society has led to the amendment of the *First plan for heritage education* (2015-2016) and to its extensions (*Second plan for heritage education*, 2016-2017; *Third plan for heritage education*, 2018-2019). These fundamental legislative documents

were signed between the Ministry of Cultural Heritage and Activities and Tourism and the Ministry of Education, University and Research, officially setting out the pivotal role of culture and artistic heritage in the development of the individual.

Heritage education is more and more based on the idea that heritage evokes in students the possibility of participating directly in learning experiences. Through active learning methodologies, users learn to not only recognise a specific cultural environment, but they also access, through heritage, a social context in which they can develop a wide set of skills. Therefore, artistic and cultural heritage represents the best tool to promote the skills within different categories of users (Poce, 2018). The artistic and cultural heritage inherently carries with it and promotes skills that are significant to a person's life (Poce & Re, 2017): works of art and historical monuments communicate with the past and the present user, in a dialogue which is at the same time continuous and unique. In addition, engaging with the works of great authors and those of past civilizations allows for the development of both academic knowledge (such as history or art history) and transverse skills, such as Creativity (Van Boxtel, 2009).

In the light of XXI century skills promotion (Trilling & Fadel, 2009), the educational focus needs to be brought to the opportunity of a use digital technologies within cultural heritage context. The application of digital resources in the artistic and cultural heritage field definitely presents a challenge for innovation since it supports the use of digital technologies in informal education contexts and of learning methodologies that exploit the opportunities afforded by digital resources, thus strengthening learning results (Poce, 2018). During the last few years, different pedagogical approaches, which combine transverse competences promotion with cultural heritage, have been developed, such as *Object Based Learning* (Paris, 2002), *Visual Thinking* (Hubard, 2011), and *Digital Story Telling* (Liguori & Rappoport, 2018). *Object Based Learning* (OBL) is defined as an active learning

methodology (Freeman et al., 2014) thanks to which users can build new knowledge starting from their direct experiences with an object (Chatterjee & Hannan, 2015). This approach allows pupils to explore ideas, processes, and events and to link their observations to complex and abstract concepts (Kolb, 1984). During an OBL session at a museum, participants are asked to touch, handle, probe, and explore a museum object or a 3D reproduction; they are encouraged to make observations on its shape, to make meaning about it, to compare it to other objects or to discuss its function. The inquiry approach solicits a series of skills and competencies that foster deep and active learning, especially observation and analysis skills, metacognition, critical thinking, communication and problem-solving. Moreover, since OBL encourages also cooperation and interaction, it has proved to be a very effective strategy in terms of students with Special Educational Needs engagement, allowing them to reaching a condition of emotional well-being (Chatterjee et al., 2013). 'Visual Thinking Strategy' (VTS) was theorized by Rudolf Arnheim, with the book *Visual Thinking* (1969) and by Abigail Housen, author of the study *Highlights of Findings – San Diego: Aesthetic Development and Creative and Critical Thinking Skills Study* (2007). Following the definition made by Yenawine (1997), VTS is:

the ability to find meaning in imagery. It involves a set of skills ranging from simple identification –naming what one sees– to complex interpretation on contextual, metaphoric and philosophical levels. Many aspects of cognition are called upon, such as personal association, questioning, speculating, analyzing, fact-finding, and categorizing. Objective understanding is the premise of much of this literacy, but subjective and affective aspects of knowing are equally important. Visual literacy usually begins to develop as a viewer finds his/her own relative understanding of what s/he confronts, usually based on concrete and circumstantial evidence. (p. 845)

VTS is clearly aimed at the development of transverse skills, such as critical thinking, communication and collaboration (Re, 2019); it refines oral and written abilities, and it encourages argumentative abilities.

Pupils' narrative capability can be stimulated through the 'Storytelling' methodology, starting from the museum object. 'Storytelling' is an educational practice that, according to the philosopher Roland Barthes, allows learners to understand and organize the world through the categories of knowledge constituted by the narration. It can be applied to numerous fields, taking into consideration, as Bruner states, the human disposition to tell stories, since ancient times: storytelling "represents a powerful practice, which stabilizes and renews social life" (Bruner, 1994, p. 67). Telling stories starting from the museum object enables the storyteller to identify with the object itself, to become the main character, together with it, of a story about shared actions and identities. The ways in which pupils come in contact with the past, therefore, facilitate the development of cross-curricular skills, especially the transverse ones, encouraging a critical approach to events and a conscious acquisition of the role of active citizens (Poce, 2018).

Starting from these assumptions, the research group designed, realized and evaluated a learning experience aimed at promoting 4C skills through the use of 3D museum objects reproductions.

### **Research hypothesis, questions and goals**

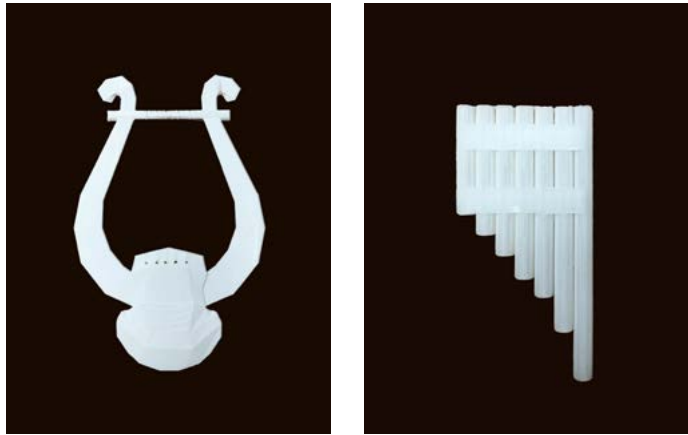
The starting hypothesis aims at assessing if the museum and the Etruscan artistic and musical heritage, as educational media, can promote and encourage the development of '4C skills', active citizenship and social inclusion in primary school pupils.

Starting from this hypothesis, the aim of the pilot experience was to assess the following research questions:

What impact does the Etruscan artistic and musical heritage have on the development of 4C skills in primary school pupils?

Which sort of objects from the Etruscan artistic and musical heritage can be used as education media and why?

**Figs. 1, 2** Two examples of 3D-printed reproductions used within the pilot experience.



Does the manipulation and the interaction with 3D reproduced artistic objects facilitate the ‘building of relationship’ and the identification of the pupils with the object itself? Does it stimulate pupils’ storytelling ability?

Some objectives to be achieved by the pupils are the following:

- to encourage ‘4C skills’ through museum experience, cultural heritage and Etruscan musical culture;
- to develop the analysis of museum objects through the OBL methodology and to learn how to ‘tell’ about the museum object itself.

## MATERIALS AND METHODS

### Teaching methodologies

The application of specific methodologies in the field of educational activities is functional to create an inclusive and cooperative teaching method in formal and informal learning contexts, where the realisation of individual rights, community participation, as well as equal opportunities to success are the primary goals of educational activity.

Moreover, taking as a reference the theoretical guidelines of the *Indicazioni nazionali per il curricolo della scuola dell’infanzia e del primo ciclo d’istruzione 2012*<sup>1</sup>, the pilot research activities were designed in order to create learning environments that

could promote the acquisition of meaningful knowledge and guarantee the acquisition of a certain level of knowledge and skills for all the pupils involved (p. 34).

For that reason, methodologies normally used in artistic and cultural heritage education field (Durbin, 1990; Wiley, 2000; Paris, 2002; Lane & Wallace, 2007) were employed within the pilot experience: *Object Based Learning* (OBL), *Visual Thinking Strategy* (VTS) and *Storytelling*.

### **The use of 3D printing for OBL activities**

For the OBL section, the research team selected and reproduced some ancient Etruscan musical instruments presently collected at the National Etruscan Museum of Villa Giulia. The models were taken from various online repositories, choosing only the *Creative Commons* licensed ones. To optimize the printing process and avoid artefacts, the models were built with the 3D modelling software *Blender*<sup>2</sup>, creating the needed supports for a successful printing and emptying the internal structures to quicken the procedure and save on PLA (the material used by the printer to realize the objects) consumed. The slicing software *CURA*<sup>3</sup> was used to create the necessary gcode files to print the objects, through which the models were reconducted to instructions for the 3D printer. The average period of time to print each instrument with a *Crealty3D* printer *CR-10* was from 4 to 6 hours.

The choice of the methodologies to be applied is in line with the research purposes, the pilot experience goals and the research context.

### **Participants**

For the experimentation, a fifth-grade class of the *Comprehensive Institute Simonetta Salacone* in Rome was selected. The class had a total of 21 pupils: 11 males and 9 females, and it was chosen for its heterogeneity, according to the project's purposes. The class group included, in fact, the following challenges: three foreign students, one of them with mental disabilities and mentored by a support teacher; a document-

ed case of SEN; two students with difficult family situations and a student with oppositional defiant disorder.

### **Educational activities**

Four meetings were planned, three of them at school and one at the *Museo Nazionale Etrusco di Villa Giulia*.

The first meeting was aimed at introducing pupils and teachers to the project and assessing the skills owned by the pupils at the beginning of the experience. After the presentation of the pilot experience and of the researchers involved, two pre-tests were conducted:

- pre-test on divergent thinking, aimed at assessing the level of creativity within pupils at the beginning of the experience;
- pre-test on communication, collaboration and critical thinking skills.

During the second meeting, the pupils had the possibility to be active characters of the learning activities. Starting from the Etruscan civilization contents, the themes of music, musical practices and instruments that accompanied the daily actions of Etruscan people were explored. Moreover, the value placed today on music was discussed, in order to understand who among the pupils played an instrument and to promote argumentation on the value, meaning and memories attached to music. The meeting ended with a preparatory activity for the following one at the museum.

During the third meeting, the pupils actively took part in the museum experience. The research group formulated a specific itinerary for the pupils, involving them in a journey through Etruscan musical culture, with tales, stories and riddles collected in a small guide which was given to each young user and that made the visit interactive and participatory. Seven museum objects have been selected from the museum's collection: three of them are original Etruscan musical instruments and four are scenes of musicians playing various instruments and painted on vases and frescoed walls. The museum activity, which helped pupils to be in contact with the museum site artworks observed, was followed by





**Figs. 3, 4** Educational activities realized at school and at the museum.



workshop of OBL, VST and *Storytelling*. Students were divided into three groups, to each of which a 3D reproduced instrument was assigned. The 3D duplicated instruments were the following: a trumpet, a panpipe, a lyre and a double aulos. Pupils had to conduct an exploratory investigation on the assigned instrument and try to describe its history, by identifying themselves with it. They produced four short-stories which certainly showed how OBL and VTS methodologies were useful to create a relationship between the given instrument and the students, facilitating the identification with the cultural heritage.

During the fourth meeting, two different post-tests were assigned to pupils. The evaluation activities were planned with the same activities and instructions given during the first meeting, but with different stimuli.

### **Assessment tools**

Two tests were developed and assigned at the first and last meeting of the learning experience:

The first test was on divergent thinking and it involved a simple task: in one minute, with a break of two minutes between one word and another, the names of three objects were pronounced and the students were asked to find all the possible uses they knew without the help of the teacher or other students.

The second, test aimed to assess collaboration, communication and critical thinking, was developed through the Tinkering methodology: pupils were divided into two subgroups of four/five members to which was asked to make some musical instruments by using recycled materials given them.

A particular evaluation grid, based on indicators and scores of the *KSAVE* model, were used in order to assess collaboration, communication and critical thinking (Griffin et al., 2012). The acronym *KSAVE* model stands for Knowledge, Skills, Attitudes, Values and Ethics stemmed from the need to define and group Twenty-first century competences and describes them in detail in order to provide teachers, educators from different fields and educational institutions with fundamental indicators for the transverse skills assessment (Poce, 2018). Within the pilot experience here presented, researchers used the transverse skills indicators to define the following grids.

**Tab. 1** Evaluation grid of the incoming /outgoing Communication competences.

Indicators	Low score	Medium score	High score
1. The student takes part efficiently in the discussions, respecting interlocutors and conversational rules	1	2	3
2. The student participates expressing his/her thoughts and presents the facts with an appropriate register for the context	1	2	3
3. The student asks pertinent questions to the educator and his/her classmate	1	2	3
4. The student tells the story in a chronological order	1	2	3
5. The student pays attention when his/her classmates and/or the educator participate	1	2	3

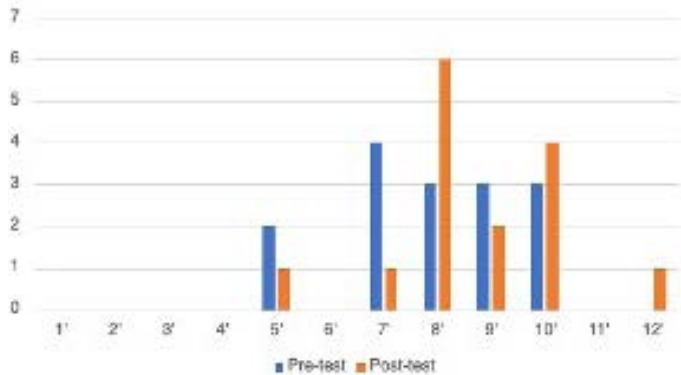
**Tab. 2** Evaluation grid of the incoming/outgoing Critical thinking competencies.

	<b>Indicators</b>	<b>Low score</b>	<b>Medium score</b>	<b>High score</b>
1.	The student recognizes the most important parts of proofs/data	1	2	3
2.	The student makes connections between different information	1	2	3
3.	The student re-evaluates his/her statements if they come into conflict with proofs or each other	1	2	3
4.	The student elaborates data	1	2	3
5.	The student self-corrects his/herself	1	2	3
6.	The student understands/ accepts different points of view even if different from your own	1	2	3
7.	The student ask questions to clarify different point of views	1	2	3

**Tab. 3** Evaluation grid of the incoming/outgoing Cooperation competences.

	<b>Indicators</b>	<b>Low score</b>	<b>Medium score</b>	<b>High score</b>
1.	The student spontaneously offers its own help to others	1	2	3
2.	The student contributes with his/her own ideas	1	2	3
3.	The student accepts the rules and his/her role	1	2	3
4.	The student listens without interrupting and imposing himself/herself on others	1	2	3
5.	The student equally considers both his/her or other's point of view	1	2	3
6.	The student divides tasks in order to achieve a common purpose	1	2	3

**Fig. 5** Scores obtained by the pupils in the pre and post-test on the divergent thinking (N. 15).



Indicators were selected from the *KSAVE* model on the basis of the objectives of the pilot experience. In particular, regarding the Communication competence, importance was given both to the communicative competence of the student and to the communication in relation to the other class peers. The central role of the relationship also comes to light from the indicators chosen in order to analyse the Critical thinking competence; in fact, not only they assess the own aspects of the critical thinking (thinking skills, conceptualizing, making inferences capacity, metacognition, self-regulation) but they are also always considered in a relational and comparative –with peers– perspective. Finally, the indicators of the Collaboration competence chosen to generate the grids were used to examine the relation to others and the teamwork, altruism and self-regulation. The grids obtained through these operations were used by researchers to observe and assess the above-mentioned competences, assessing the pupils' level before the educational-teaching intervention and after the pilot experience.

As regards the Creativity competence, the research group used the test on divergent thinking, assessed through a specific evaluation grid with three different indicators: fluency, flexibility and elaboration. The evaluation tool was inspired by the indicators suggested by specific studies on creativity tests (Guilford, 1954; Torrance, 1959; Meeker, 1969; Williams, 1994). The indicator of fluency assessed the capacity of the pupils to give the maxi-

imum number of possible solutions to one question/problem; with the flexibility, the number of conceptual categories to which the answers of the subject can be connected was assessed; with the indicator elaboration, the ability of making pupils' ideas concrete was measured.

## RESULTS AND DISCUSSION

### **Divergent thinking test**

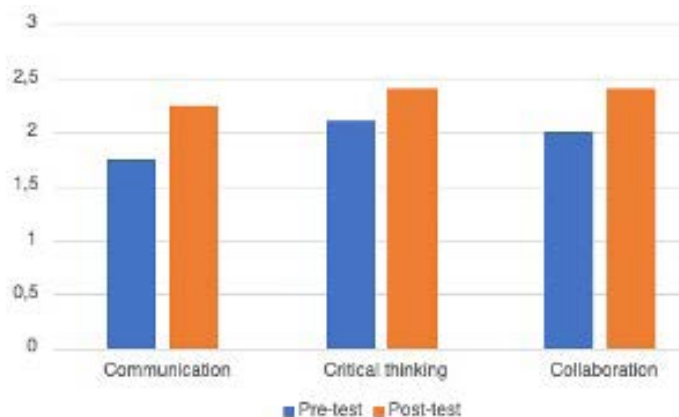
A total of 15 pupils participated in both the divergent thinking tests. The obtained data were analysed through basic statistical analysis on 30 test, 15 pre-test and 15 post-test. The final score obtained by the pupils increases about 1 point from the pre-test (7,87) to the post-test (8,60), however with an increase of the standard deviation (from 1,56 points in the pre-test phase to 1,70 in the post-test phase).

Two indicators out of three, fluency and elaboration, improved at the end of the pilot experience, going respectively from 4,47 points (d.s. 1,41) to 5,24 points (d.s. 1,81) and from 1,80 (d.s. 0,94) to 1,95 (d.s. 0,54). The asymmetry changes in all three indicators and the distribution of the scores becomes leptokurtic during the post-test phase, with respect to the indicator of fluency (kurtosis = 1,33), and slightly platykurtic in the indicators of flexibility (kurtosis = -1,16) and elaboration (kurtosis = -0,11). The distribution of the total scores of the test on the divergent thinking goes from slightly platykurtic in the pretest (kurtosis = -0,17) to leptokurtic in the post-test (kurtosis = 1,53). The average total score increase is statistically significant according to the T student test with dependent samples ( $p < 0,05$ ).

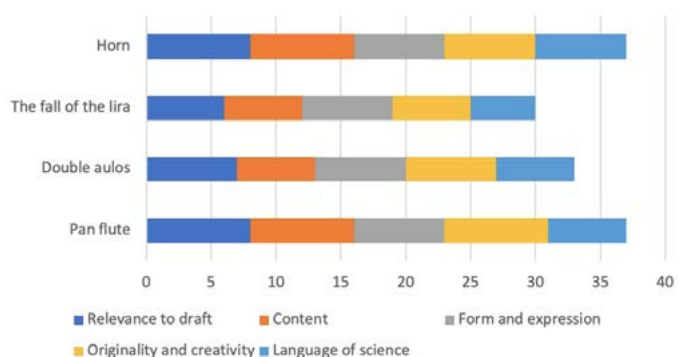
### **Communication, Critical thinking and Collaboration**

The analysis of the competences of Communication, Critical thinking and Collaboration were realized by taking into consideration 15 pupils out of 22, who participated in both the assessment activities (pre and post-test). Three evaluators filled out the observation grids through a blind-review pro-

**Fig. 6** Average scores assigned Communication, Critical thinking and Collaboration skills in pre-test and post-test (N.15).



**Fig. 7** Evaluation's mean scores assigned to the 4 short-stories developed by pupils.



cess, during the first and the last meeting with the class. The average of the scores given by the evaluators was analysed through basic statistical analysis.

Pupils' Communication competence shows an average increase of almost 0.50 points, going from 1.82 (SD = 0.31) to 2.33 (SD = 0.55): the maximum score goes from 2.30 points to 2.80 in the post-test while the average score remains at 1. The median of the scores is considerably more shifted to the right in the post-test, going from 1.90 to 2.60. The comparison between pre-test and post-test data related to the asymmetry and the kurtosis index shows, in both cases, a distribution of values which are mostly grouped in the part of the high scores, forming a leptokurtic curve.

Pupils' Critical thinking level also seems to increase at the end of the pilot experience: the average score assigned by the

three evaluators goes from 2.08 points (SD = 0.41) in the pre-test to 2.43 points in the post-test (SD = 0.43). The minimum score increases by 0.35 points and the maximum by 0.25 points; the median goes from 2.20 to 2.60. There is no variation in terms of asymmetry of scores distribution between the pre-test and the post-test (-1.66); the shape of the distribution, on the other hand, is less leptokurtic in the post-test (from 2.54 to 1.80).

The scores related to Collaboration competence also show improvements: the average score goes from 2.13 in the pre-test to 2.40 points in the post-test and the median from 2.33 to 2.50. The minimum score assigned on average to students increases at the end of the activities by 0.50 points and the maximum by 0.17 points. The standard deviation slightly decreases, going from 0.50 at the beginning of the pilot experience to 0.36 at the end of it. An analysis of the average scores carried out with the T-student test shows that the improvement in Communication skills is statistically significant ( $p < 0.01$ ).

### **Evaluation of the short-stories realized by students**

The short-stories collaboratively written by the students and elaborated during the third meeting were evaluated through a specific evaluation tool developed and implemented in a previous research (Poce & Re, 2015). The tool consists of an evaluation rubric composed by 5 main macro-indicators for each of which it is possible to assign from 1 to 10 points: relevance to draft, content, form and expression, originality and creativity, language of science. The four stories developed by the groups of pupils were evaluated through a blind review process; the assessment results were analysed through basic statistical analysis.

Generally, the short-stories reach a good evaluation level: the form and expression indicator is the one that receives the highest average evaluation (7.13 points), while the one related to scientific and sectorial language receives the lowest (6.38 points). This data can presumably be explained by the high level of sectoriality needed by pupils in the creation of short-stories inspired



by Etruscan archaeological works and by the peculiarity of the request, an activity which is definitely not common in the primary school education context. The short-story inspired by the Pan Flute is the one that receives a higher average score from the evaluators (30.5 points), with a level of excellence in relation to the relevance to draft indicator (mean score = 8).

A deeper analysis shows a high positive correlation between the content and the language of science indicators ( $r = 0.95$ ): the higher the result obtained in relation to the elements of the narrative (narrator, structure, time, setting and characters) the more is the level of scientific and sectoral language used by the students.

## CONCLUSIONS

The pilot experience described in this paper aims at highlighting the link between the promotion of transverse skills, in particular the 4Cs, and the use of artistic and cultural heritage objects and reproductions as educational tools. Through the attempt to enhance the skills in primary school pupils, a greater possibility of social inclusion can be reached among participants, starting from a conscious and critical knowledge of heritage as a tool for social life and active citizenship.

The results cannot be generalized given the small number of participants and the limited time of administering. However, they present useful indications for future developments: even in extremely multicultural and heterogeneous contexts, the artistic and cultural heritage proves to be the promoter of transverse skills, through the support of particular didactic methodologies (such as creative and collaborative writing, object manipulation, 3D printing). Starting from a structured and pedagogically rigorous process, the divergent thinking of the students participating in the activities improves in a statistically significant way, as well as Communication competence. The acquisition of deep knowledge and specialized language improves in contexts of heritage education and through active and inno-

vative learning activities, which place pupils at the center of the learning process. The manipulation and interaction with musical museum objects and their 3D reproductions stimulate the storytelling ability of the pupils and encourage their communication, as well as generally promote the capacity for elaboration and imagination.

## NOTES

**1** *National instructions for the kindergarten, primary and lower secondary school curriculum* (2012) pursuant to article 1, paragraph 4, of Presidential Decree no. 89 of March 20, 2009.

**2** [www.blender.org](http://www.blender.org)

**3** [www.ultimaker.com/it/software/ultimaker-cura](http://www.ultimaker.com/it/software/ultimaker-cura)

## ACKNOWLEDGMENTS

Antonella Poce coordinated the research presented in this paper. Research group is composed by the authors of the contribution that was edited in the following order: Antonella Poce (Introduction, The role of art, Research hypothesis, questions and goals, Conclusions), Maria Rosaria Re (Teaching methodologies, Educational activities, Communication, Critical thinking and Collaboration), Mara Valente (Participants, Assessment tools, Evaluation of the short-stories realized by students), Carlo De Medio (The use of 3D printing for OBL activities, Divergent thinking test).

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### Article available at

DOI: 10.6092/issn.2724-2463/12666

### How to cite as article

Poce, A., Re, M. R., Valente, M., & De Medio C. (2021). Using 3D reproductions of archaeological objects in museum education context. A learning experience within an Etruscan musical collection. *img journal*, 4, 242-261.

### as contribution in book

Poce, A., Re, M. R., Valente, M., & De Medio C. (2021). Using 3D reproductions of archaeological objects in museum education context. A learning experience within an Etruscan musical collection. In Ghizzoni, M. & Musiani, E. (Eds.), *img journal 04/2021 Copy / False / Fake* (pp. 242-261). Alghero, IT: Publica. ISBN 9788899586195



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**FROM AUTHENTIC  
TO REALISTIC,  
FROM TRUE  
TO PLAUSIBLE**  
THE DIGITAL  
ARCHITECTURAL SURVEY  
BETWEEN THE REAL  
AND THE VIRTUAL

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## ESSAY 78/04

ARCHITECTURE'S DIGITAL REPRESENTATION

DIGITAL SURVEY

DIGITAL 3D MODEL

OPTIMIZATION OF ARCHITECTURE'S MODELLING

In the digital survey, the traditional opposition between uniqueness, authenticity, originality of reality and the multifaceted structure of multiplicative reproduction typical of the representation of architecture –through synthetic digital 3D models or realistic ones from SFM, interpretative syntheses of data visualization, physical models from rapid prototyping– it loses definition and becomes more and more vanishing.

Although these are technical operations, in fact, in the various processing steps between acquisition and output the data

gradually assumes states of greater or lesser proximity to the real data and a variable verisimilitude.

The paper investigates in theoretical terms how the conceptual domain of the informative artifact declines the cloud populated by the terms 'original' 'copy', 'clone', 'reproduction', 'model' and uses the selected case study with technical exemplification, interrogating it innovatively by means of 'plausible' optimization by algorithms currently in the betaversion phase of development by the authors.

## INTRODUCTION

Any reflection on the relationship between the authentic and the false cannot ignore the already widely discussed relationship between originals and copies, assuming the respective etymological meanings<sup>1</sup> as the conceptual origin, and with a clear limitation of the field to Western European culture<sup>2</sup>. The subject of this paper is the digital architectural survey, where we focus on technological artefacts, although we reference some studies concerning artistic artefacts, which have been investigated much more in this sense, and subsequently will apply the necessary epistemological and disciplinary shifts. The paper proposes a reflection on the disciplinary field of architectural survey to deal with the theme of the relationship between source, process, and output characteristics. We theoretically frame the etymological and conceptual cloud populated by the terms 'original', 'copy', 'clone', 'reproduction', and 'false'. As a subsequent technical example, we innovatively investigate the selected case study through 'plausibility' optimization algorithms, which are currently in the beta version phase of development.

## FRAMEWORK AND DISCUSSION

Many studies have explored the problem of the copy in the art history and criticism, highlighting how the myth of the originality of work is overall a relatively recent concept, in extreme synthesis linked to Romanticism, and it must also deal with a positive meaning of the term coming from antiquity and linked to the function of transmitting cultural value between the eras as well as increasing the value of the original itself. In fact, we have an undoubted debt to copies and copying, which is constituted by the transmission of works and knowledge. For example, just think of the copies of Roman statuary taken from the surviving Greek works, or the immense patrimony that came to us from scribes and medi-



**Fig. 1** JR, *Real and realistic*, 2021.  
Picture of the monumental  
photographic collage  
installation *The wound*, ph.  
Puma, P., Palazzo Strozzi in  
Firenze, 2021.



eval copyists that have copied and transcribed ancient manuscripts and codices for centuries before the invention of printing<sup>3</sup>. Other examples are the continuous recreation carried out by Renaissance collectors in search of classical canons and, more recently, the fundamental didactic function that saw the exercise of copying as an indisputable basis of artists' training, even beyond the nineteenth century (Belardi et al., 2014; Belardi, 2017; Latour et al., 2011).

Therefore, if accompanied by a detailed critical analysis, the apparent monolithicity of the negative meaning that ac-

companies the copy in our culture can be questioned under various profiles (Preciado, 1989).

Among various social, economic, and commercial factors conferring a copy of an artwork an augmentative status on the original, the knowledge is the reasons peculiar to the broad disciplinary spectrum of process modalities (copying) and product (copy). However, leaving aside the analogy with the aforementioned studies, at least a couple of problems must be focused on in some detrimental aspects because they directly concern the specific discipline of the architectural survey. Technical artefacts are produced using partly automatic processes aimed at seriality, where the copy is even an aspiration, and programmatically designed with a function. In what terms can the dialectic between original and copy be dissolved when we are not talking about artistic artefacts but about technical artefacts born as serial products? In addition, has all the augmentation potential of digital clones coming from the architectural survey been identified and deployed as already has occurred in the case of art copies?

### **Originals and copies in digital architectural surveys**

A first deepening of this topic would immediately bring up the question of the Renaissance differentiation between *ars* and *téchne*, which are referenced in other studies and we will not deal with here. As is almost inevitable, starting from Benjamin's paraphrase (Benjamin, 2011), in the era of the very easy technical reproducibility of digital artefacts, the authentic/fake contrast<sup>4</sup> makes a further leap in meaning. It happens not only because technical artefacts make no difference in using the original or the copy, much more than for serialisable artworks, but also because our digital multilingualism does not limit itself to reproducing, but rather places the artefact in a context that is different each time from the original one by actually modifying its statute to each 'phase passage' and, using the versatility of the reproductions, further meaning and added value are given to each passage (which could perhaps create a different 'aura' each time)

(Lichty, 2009). Like the digital society and infoculture, moreover, for some time also many scientific fields such as digital architectural survey have been characterized by a growing media convergence, which allows fluidity in the process of close integration between the real and the virtual based on the gnosiological and operational chain of data acquisition, processing, restitution, and communication. It also allows easy coproduction of ideas and sharing of contents (Cao, 2018; Daly et al., 2019).

Above all, in this framework characterized by co-authorship and cooperative working methods, becomes more and more blurred lose their definition and vanishes the traditional contrast between authenticity and originality of reality and the multiform structure of its multiplicative reproduction now consolidated and typical of the representation of architecture, and carried out through digital 3D models synthesis or photorealistic from SFM, interpretative synthesis of data visualization, physical models from rapid prototyping, and so on (Puma, 2019) (Figure 1).

Finally, with respect to the first question, it is also necessary to divide the field with respect to the decisive element of the size of the object detected. On the scale of architecture and of the city, a 'copy' is never really a copy, at least in the sense of a faithful replica made by a different author, but more properly, we must speak of reproduction<sup>5</sup>. It is only when the survey documents objects of limited size that we can use the terms 'copy' and 'clone'<sup>6</sup>, even using the terminological and conceptual categories of artwork.

### **Augmentative potential of the digital clone**

With regard to the second point, it is necessary to start from the consideration that, as in the past, the copy has always constituted the possibility of establishing a bridge between epochs. Even today, multiplicative reproduction under certain conditions already provides a powerful bridge function between the past and the future that is not free from critical aspects.

Although, in fact, in the technical domain, reproducibility is an added value as the versatility of digital data allows the narrative context to be continuously varied and renewed, in the age of easy falsification, the problem of *auctoritas* arises with even greater rigor.

By repositioning the elements involved, a redefinition of the *auctoritas* could be framed in this context by the declination of the reliability requirements of the digital architectural survey in taxonomic terms: the original/copy pair actually has different modalities of declination in the survey process (measurable through precision), in the product of the survey (measurable in accuracy), and in the use of the clone (governed by the disciplinary statutes).

And if this qualification is maintained with vertical continuity, it could represent the reconstitution of an alias of *auctoritas* originally deriving from uniqueness and originality that is now also valid for the digital context.

In this sense, the digital artefact becomes an informative artefact that assumes a role of knowledge multiplier even superior to the artwork copy, provided that the cultural motive unfolds in the knowledge society while reconciling the dynamic adaptation to the contexts of use to rigorous scientific qualification.

Our transcription and data processing abilities are speeding up, expanding, and automating. One example is the creation of many types of fakes through AI starting from real and authentic primitives.

The more this happens, the more our commitment must increase to scientifically qualifying the processes, products, and finalization (Sacchi, 2018; Salerno, 2018). This intent takes different forms, ranging from those of a statutory order to those of a more strictly technical type, such as the sample case set out below. The case concerns the application of algorithms to the 2D graphical processing of a part of an architectural plan survey (Sgherri, 2016) of the castle of Riolo Terme (Ravenna, Italy) for optimizing the 'plausibility' to the initial and origin data.

## MATERIALS AND METHODS

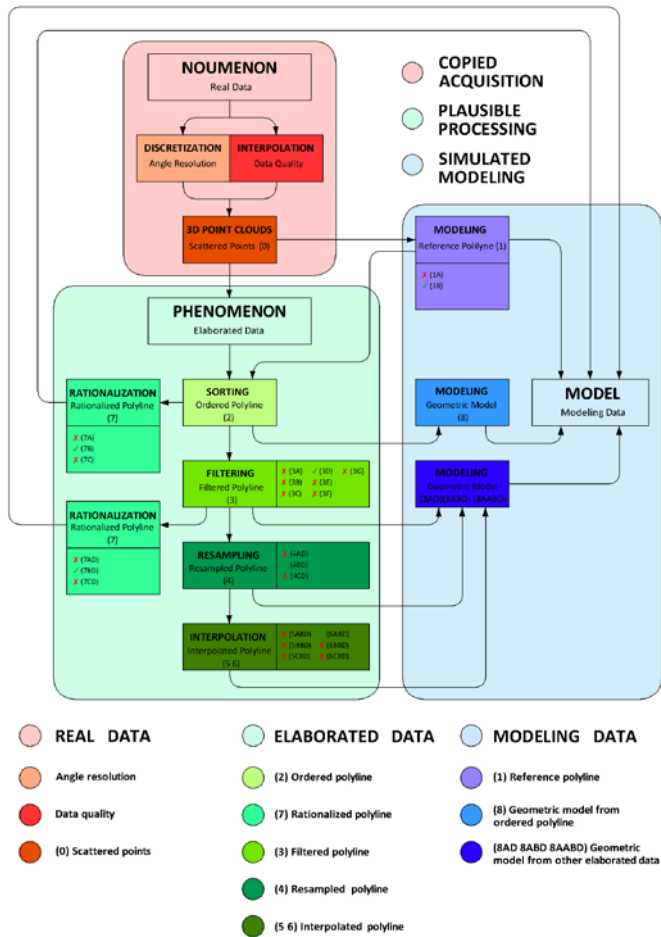
In an emblematic sense, below we decline the triad of ‘copied’, ‘plausible’, and ‘simulated’ in application practice of the digital survey LS, which show a correspondence with the three distinguishable moments of ‘acquisition’, ‘processing’, and ‘modelling’ of data.

The term ‘simulated’<sup>7</sup> is intended both in its technical-specialist meaning in operational research in statistical mathematics, as the analysis of a process or system through the construction of a mathematical model that can be solved by means of an electronic computer, and its common use as the modelling of a phenomenon.

Below, we show examples of the distinction between the terms of ‘copy’, ‘reproduction’, and ‘model’ in relation to the corresponding three phases indicated above (Figure 2). The above description reveals an interesting methodological synthesis of the process in Kantian philosophy, meaning that the real datum represents the thing in itself, the Kantian noumenon that is by definition unattainable and asymptotic for scientific knowledge (which will never be able to give a complete and exact representation). In the action of acquiring the data copied from reality in a virtual copy, it would become a phenomenon that realistically represents reality.

Through the application of categories (such as methods of processing data by human intellect) and with the identification of the attributes deemed necessary from time to time, it is represented in a reliably plausible manner. Finally, through its modelling, the data becomes communicable as a simulated model related to the ‘real’. The triad of the ‘noumenon’, ‘phenomenon’, and ‘model’ will find within its terms some processes of acquisition, processing, and modelling, such as to generate products –starting from an initial product with initial data and progressing to a final product containing new data.

Fig. 2 Anzani, G., *Methodological synthesis of the process*, 2021.



## RESULTS

### Noumenon

In the acquisition phase of real data, assuming the use of an LS equipment virtually free of acquisition errors, we obtain a virtual copy of the original. We will never be able to achieve a certified copy by making a comparison between the corresponding data, even when limiting the comparison to only the category of a geometric positioning of points in 3D Cartesian coordinates. The uneludible discretization and interpolation processes inherent in the technology of data-

acquisition equipment leads to only an asymptotic tendency for the copied virtual data to faithfully and completely represent reality.

Even if we want to limit ourselves to considering only the category of the 3D positions of points of reality as the true one by depriving it of all the other categories, we will obtain at most a partial copy of reality:

Specifically, the acquisition through LS, the processes indicated above translate as follows.

- Given the rotation on the azimuth and zenith axes of an LS station during data acquisition between successive acquisitions of single points, the discretization translates into the angular resolution of the data angle resolution (A.R.) measured in pixels/360°, or rather in the definition of a spherical grid for the acquisition of points. The choice of the appropriate A.R. will therefore be essential to obtain a good compromise between the quality of the digital architectural survey and the size of the file generated.
- Given the inevitable systematic error of the instrumentation, ingenerating during the acquisition of each single point a range of noise (R.N.) measured in mm, the interpolation translates into accuracy of the data that is data quality (D.Q.), or rather, the determination on a statistical basis of an average value between a variable number between 2 and 16 of several repeated acquisitions.
- Doubling or halving D.Q. decreases or increases the R.N. of the pixel by 40%. R.N. is proportional to the distance of a single point from the LS acquisition station and varies between 0.4 mm and 4 mm when considering acquisition distances between 10 m and 100 m. The execution times of the survey measured in minutes will proportionally depend on the settings chosen for A.R. and D.Q. This gives rise to a Data Rate (D.R.) measured in pixels / seconds that is characteristic for each set scan, as well as a maximum quantity of points that can be acquired in a given scan (Table 1).



**Phenomenon**

In the elaboration phase of the acquired data, a more advanced and complex series of further opportune processes of data transformation will take place (Asperl et

<b>NOUMENON</b>				
○ Angle Resolution	● Data Quality			
	Less 2	Normal 4	High 8	Premium 16
Preview - 1.250		0:26 min		
Low - 2.500	0:26 min	0:52 min	1:44 min	
Middle - 5.000	0:52 min	1:44 min	3:22 min	6:44 min
High - 10.000	1:44 min	3:22 min	6:44 min	13:28 min
Super high - 20.000	3:22 min	6:44 min	13:28 min	26:56 min
Ultra high - 40.000		13:28 min	26:56 min	53:20 min

**Tab. 1** Anzani, G., *Noumenon*, 2021.

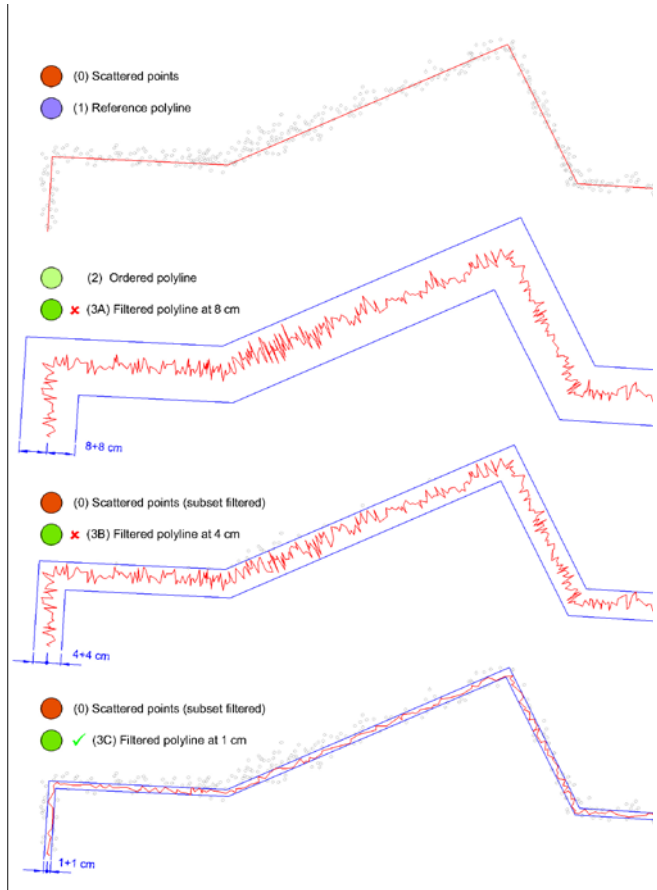
al., 2007). In order to evaluate the greater or lesser adherence of the various transformations carried out on the acquired data, the mean squared difference (M.S.D.) will be adopted as an indicator<sup>8</sup> (Ventsel, 1983). Some examples of applicable transformation processes applicable to the acquired data to obtain conversion products are described below. These processes can be applied in cascade or independently of each other starting from different products<sup>9</sup>.

- *Process: sorting; initial intermediate and final product: scattered points (0), reference polyline (1), ordered polyline (2); goal: to process the data.* A set of scattered points is transformed into ordered polylines passing through suitable sub-sets of points according to paths defined by reference polylines. These polylines are defined manually and designed to allow for the identification of underlying geometries and generate an appropriate ordering of the points. This will allow us to better process the data in the subsequent phases and to increase its communicability. The definition of a suitable reference polyline, albeit brief, is a prerequisite for the suc-

cess of the subsequent phases (see in Table 2 for the difference of M.S.D. between 1A and 1B).

- *Process: filtering; initial and final product: ordered polyline (2), filtered polyline (3); goal: to clean the data.* Ordered polylines containing erroneous data both in terms of erroneously or unintentionally scanned artefacts and R.N. are transformed into filtered polylines obtained by filtering the vertices to clean the data. This eliminates any vertices where the transverse distance with respect to the indicated reference polyline is beyond a certain tolerance limit. Cases are reported in Table 2 with distances between a maximum of 50 cm (3A) and a minimum of 5 mm (3G), which filter between 0% (3A) and 80% (3G) with values of M.S.D. between 0.000 (3A) and 40.227 (3G). Given the acquisition parameters and the manual determination of the reference polyline used, it is convenient to use a filtering distance on the order of 5 cm, which will limit the filtering percentage to a value lower than 10%. This allows us to maintain the filtering adhesion (SQM) within acceptable values (3D) (Figure 3).
- *Process: resampling; initial and final product: filtered polyline (3), resampled polyline (4); goal: to decimate the data.* Filtered polylines containing an enormous amount of vertices are transformed into resampled polylines by resampling the vertices to decimate the data based on the longitudinal distance between two successive vertices along the same polyline. The cases reported in Table 2 were obtained with resampling distances between a maximum of 10 cm and a minimum of 5 mm and filter between 79% (4AD) and 14% (4CD) with M.D.S. values between 32,086 (4AD) and 27,814 (4CD). Given the acquisition parameters and the choices made for filtering, it is convenient to use a resampling distance on the order of 5 cm, which will result in a significant percentage of filtering higher than 50%. This allows us to keep the M.S.D. of resampling adherence within acceptable values (4BD).

**Fig. 3** Anzani, G., *View of some of the products related to filtering process obtained by varying the setting parameters, 2021.*



- *Process: interpolation; initial and final product: resampled polyline (4), interpolated polyline (5, 6); goal: to smooth the data.* Resampled polylines that are too corrugated and jagged are transformed into interpolated polylines by interpolating the vertices to smooth the data. This is done using specific algorithms based on Lagrange and Bézier interpolation, as well as calculation of the moving averages of various types and orders. The cases reported in Table 2 adopt both linear and geometric interpolations of order between 3 and 7. These cases carry out negligible reductions of the starting data and give rise to interpolation adherence values of M.S.D. between 31.905 (6ABD) and

34.150 (5CBD), and all decrement values from the initial resampling adhesion have an M.S.D. of 29,386 (4BD). It is essential to note that unlike all the other conversions listed here, resampling is a process that produces falsified polylines whose vertices derive from calculations carried out on the vertices of their neighbourhood and not a selection of acquired vertices. The calculations show that geometric interpolation is preferable to linear and low values for the order of the moving average. In both cases, geometric interpolation limits the smoothing produced in the vertices of the underlying geometries.

- *Process: rationalization; initial and final product: various possibilities (2, 3), rationalized polyline (7); objectives: to lighten the data and improve its quality.* Ordered polylines or filtered polylines containing data that are not rationally selected are transformed into rationalized polylines by rationalizing the vertices derived from only data acquisition to increase both the lightness of the data and the quality of the data. This is done using more advanced algorithms than the previous ones. For example, the Douglas-Peucker algorithm allows us to rationally resample a polyline with a very faithful perceptual representation of the original (Douglas et al., 1973; Hershberger et al., 1992; Wu et al., 2003). In the more linear sections, the quantity of points will be reduced, while in the more variable sections, the number of points will be kept higher.

Thus, it will be possible to obtain an incredible percentage of filtering between 81% (7C) and 99% (7AD) when adopting resampling distances between a maximum of 10 cm and a minimum of 5 mm. M.S.D. values between 11.549 (7c) and 47,786 (7ad) are obtained.

Considering the acquisition parameters, the choices already carried out in the previous filtering phase, and the aim of maintaining the adherence of resampling M.S.D. within acceptable values, it is convenient to use a rationalization distance on the order of 5 cm (7b) (7bd).

PHENOMENON							
ID			Description of the process and value of the setting parameter	number of vertices in the product obtained and M.S.D.			
				number	percentage	M.S.D.	
<b>0</b>	✓	●	Scattered Points from LS		<b>7210</b>	----	----
<b>2B</b>	✓	●	Sorting with refer. polyline (1B)		<b>7210</b>	----	----
3A	✗		Filtering whit reference polyline (1B)	0,5	7210	0,00%	0
3B	✗			0,25	7190	0,28%	5,99
3C	✗			0,1	7087	1,71%	20,311
<b>3D</b>	✓	●		<b>0,05</b>	<b>6769</b>	<b>6,12%</b>	<b>26,701</b>
3E	✗			0,025	5325	26,14%	32,92
3F	✗			0,01	2747	61,90%	38,639
3G	✗			0,005	1440	80,03%	40,227
4AD	✗			Resampling from filtered polyline (3D)	0,1	1548	78,53%
<b>4BD</b>	✓	●	<b>0,05</b>		<b>3094</b>	<b>57,09%</b>	<b>29,386</b>
4CD	✗			0,025	6187	14,19%	27,814
5ABD	✗		Linear or Geometric Interpolation from resampled polyline (4BD)	3	3092	57,12%	32,329
5BBD	✗			5	3090	57,14%	33,333
5CBD	✗			7	3088	57,17%	34,15
<b>6ABD</b>	✓	●		<b>3</b>	<b>3092</b>	<b>57,12%</b>	<b>31,905</b>
6BBD	✗			5	3090	57,14%	32,638
6CBD	✗			7	3088	57,17%	33,107
7A	✗			Rationalization (Douglas Pecker) from ordered polyline (2B)	0,1	108	98,50%
<b>7B</b>	✓		<b>0,05</b>		<b>466</b>	<b>93,54%</b>	<b>22,071</b>
7C	✗		0,025		1379	80,87%	11,549
7AD	✗		Rationalization (Douglas Pecker) from filtered polyline (3D)	0,1	38	99,47%	47,786
<b>7BD</b>	✓	●		<b>0,05</b>	<b>313</b>	<b>95,66%</b>	<b>36,711</b>
7CD	✗			0,025	1223	83,04%	29,276

Tab. 2 Anzani, G., *Phenomenon*, 2021.

### Model

In the modelling phase of the acquired and possibly processed data, possible simulation processes will take place. In this case, subjective choices and operations will be introduced and carried out directly by the operator or by means of specific algorithms (Anzani, 2011).

The aim is idealizing what is represented by categorizing the data into a mathematical, statistical model to replace the previous data. Examples include the conversion of a polyline

into a line (if with a distinctly linear trend) or into arcs of a circle or ellipse (if with a curved trend). This is done using appropriate mathematical calculations that are mainly based on approximation of the data by means of applying M.S.D. to the known vertices of the polyline under examination. Its adherence is optimized to the ideal geometric model chosen for modelling (Gini et al., 1976).

In this way, we obtain a modelled polyline (8), which is an idealized representation of the original data. Given the procedures used, it will also be a plausible and reproducible polyline as its vertices derive from automatic and repeatable calculations (Krawczyk, 2009; Togores, 2018).

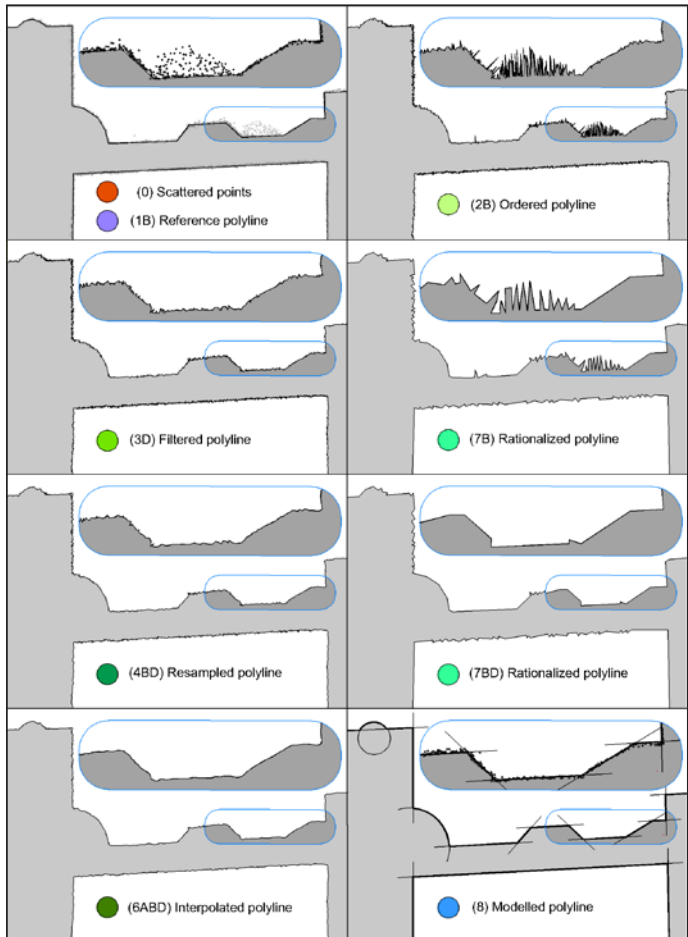
In conclusion, a total reasoning about the triad of the noumenon, phenomenon, and model can be interesting, and the reference polyline (1) described only summarily in the initial phase can be compared with the modelled polyline (8) of the final phase. Both are plausible polylines that do not use actually detected points except for special cases. The first is a single polyline drawn by manual actions that cannot be reproducible, and the second is a reproducible polyline that is drawn by algorithms that allow us to obtain the same result with the same parameters provided. Both cases are modelled polylines that derive from the identification of underlying geometries as corresponding to mental models. However, in the first case, the identification takes place synchronically upon the manual design, and in the second

Tab. 3 Anzani, G., *Model*, 2021.

MODEL							
ID			Description of the process and value of the setting parameter		number of vertices in the product obtained and M.S.D.		
					number	percentage	M.S.D.
1A	X		Reference polyline from (0)	A	25	99,65%	119,371
1B	✓	●		B	45	99,38%	40,504
8	✓	●	Modelled polyline from (2B)	A	31	99,57%	37,985
8AD	X		Modelled polyline from (3D)				
8ABD	X	●	Modelled polyline from (4BD)				
8AABD	X		Modelled polyline from (6ABD)				

case, it takes place diachronically upon application of the appropriate modelling algorithms. Both are light polylines of 45 and 31 vertices, respectively, which represent 7210 acquired points, and both are polylines adhering to acquired data M.S.D. values of equal to 40,504 and 37,985, respectively (table 3). Given the narrow kinship between the two, it is possible to hypothesize an iterative process that allows the modelled polyline (8) to be re-entered (8) for subsequent refinements, as reference polyline (1). It obtains refinement in cascade polylines in the various phases until a new modelled polyline of greater refinement is achieved (Figure 4).

**Fig. 4** Anzani, G., *View of some of the products related to the chosen application case and resulting from the application of specific processes (related data in Table 2), 2021.*





## CONCLUSIONS

As argued above, in the subsequent processing steps of a digital two-dimensional or three-dimensional architectural survey model, the optimization operations can be done by manually reinterpreting the primitives or, conversely, in a completely automated way ultimately obtaining results of similar reliability. The AI finds its vocational use above all in the automation of iterative operations but does not actually give sufficient guarantees in terms of critical control of the dataset. However, it is not excluded that in the future, machine learning may at least first develop discretization support, such as in the case of OCR or voice dictation software.

For what has been said above, the hermeneutical implications are doubled according to the type of text in question, which remain the same in both the case of digital and physical artefacts (3D visual models or maquettes).

In the case of the real data constituted by the architectural text, in the presence of a reproduction, the value of direct experience and the aura of the *hic et nunc* conferred by the relationship with the scale and quality of the context are lost and this quality does not need protection from copyright even in the world of the internet and it does not fear copying.

However, the digital artefact allows to create contexts that are unattainable in space and time and add information layers (as now consolidated in AR and VR applications) more and more customizable (Maldonado, 1992; Campanelli, 2016; Vercellone, 2017; Puma, 2019a). On the other hand, in the case of object-scale artefacts, as in the case of an archaeological finds or industrial design products, the clone maintains the correct scale relationship with the observer and can be enjoyed in a multichannel manner (with increasing plausibility from the smartphone screen to the VR and the maquette). If musealised without damaging the context, which can be recalled and reconstructed by corroboration in the digital environment, it supports and flanks the museographical narrative, being already intrinsically deprived of the original context.

In the transformations from the authentic to the realistic, from the real to the probable, the recreation of the context is therefore central to the creation of digital contents and will increasingly be so in the future.

Thus, this constitutes the added value to aim for as an 'auralization' of the informative artefact. This especially in the case of historicized architectural heritage, characterizes what architecture has always been: art for public use, with no distance between work and people.

### ACKNOWLEDGMENTS

The editorial and scientific responsibility of the paragraphs is recognized to: Paola Puma for *Introduction, Framework and discussion, Conclusions*; Giovanni Anzani for *Materials and methods* and *Results*.

### NOTES

**1** Original [adj. Der. of lat. *originalis*, from *origo* -*inis* 'origin'], relative to the cause or place of origin, and then also original, or, more often, derived from a specific process of origin and unchanged in the following, as to say a unique product of ingenuity or a machine, unaffected by anything extraneous. copy: Drawing, painting, sculpture that more or less faithfully reproduces a work of art. The difference between copy and replication (repetition by the same author of his own work), even making variations, widespread use even in the contemporary age; the copy it must also be distinguished from the fake, due to its non-fraudulent intentionality. (Treccani, n.d., *Originale, Copia*) (translation by authors).

**2** To cite just one example, in Chinese culture, copying means with a completely different value that is not at all negative.

**3** It inserts in the theme, that had already been open in ancient times (suffice it to mention the opposition between 'archetype' (original) and 'anti-graph' (copy), which recurs in Luciano), the question of the limit between copy and interpretation as, "for the purposes of textual criticism the work of the professional amanuensis, very faithful to the copy he transcribes, is generally more certain than that of the occasional and learned copyist, who often interprets the text" (Treccani, n.d., *Amanuense*) (translation by authors).

**4** Forgery: counterfeiting of a document, work of art, or other, mostly for the purpose of fraud ((Treccani, n.d., *Falsificazione*) (translation by authors).

**5** Reproduction: copies with different characteristics and in variable number of copies as desired (Treccani, n.d., *Riproduzione*) (translation by authors).

**6** Clone: apparatus of various kinds, or other product, which identically reproduces another, as a perfect copy or with the same characteristics (Treccani, n.d., Clone) (translation by authors).

**7** The term 'simulated' refers to the Italian meaning "simulato nella sua accezione tecnico-specialistica e d'uso comune nella ricerca operativa in ambito matematico statistico, di analisi di un processo o di un sistema attraverso la costruzione di un modello matematico risolubile per mezzo di un calcolatore elettronico – modellizzazione di un fenomeno" (De Mauro, 2000, p. 2460).

**8** The Mean Squared Difference (M.S.D.) or Standard Deviation is a mathematical method for the determination of statistical dispersion; that is, an estimate of the variability of a set of data or some variable. It can be adopted to express the dispersion of data around a reference model to which the data must tend, such as the arithmetic mean or the adherence to a specific curve. It has the same unit of measurement as the values taken into consideration. In statistics, the precision of the data or the adherence of the data to a specific model can therefore be expressed as the M.S.D. A lower M.S.D. will indicate a greater adherence of the data to the model, and vice versa.

**9** In each row, Table 2 indicates the identification codes (ID) for each conversion product (1st column). The transformation processes (2nd column) and their configuration parameters (3rd column) are described. The number of vertices present [and removed] and the relative percentage are considered as evaluation elements (4th, 5th, [6th] column). In order to evaluate the adherence of the product obtained from the process to the starting data, the M.S.D. is considered (6th column).

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#### Article available at

DOI: 10.6092/issn.2724-2463/12708

#### How to cite as article

Puma, P., & Anzani, G. (2021). From authentic to realistic, from true to plausible: the digital architectural survey between the real and the virtual. *img journal*, 4, 262-283.

#### as contribution in book

Puma, P., & Anzani, G. (2021). From authentic to realistic, from true to plausible: the digital architectural survey between the real and the virtual. In M. Ghizzoni, Musiani, E. (Eds.), *img journal 04/2021 Copy/False/Fake* (pp. 262-283). Alghero, IT: Publica. ISBN 9788899586195



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# ABOUT BUYING A FAKE VERSION OF A COUNTERFEIT £10 NOTE

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## ESSAY 79/04

COUNTERFEIT

FORGERY

MONEY

BANKSY

ART

During the 2010 documentary *Exit Through the Gift Shop*, the English artist Banksy, speaking with an altered voice, shows to the cameraman and co-star of the film Thierry Guetta boxes full of fake £10 banknotes. On the note instead of Queen Elizabeth is depicted Lady Diana. After the movie, the *Di-Faced Tenner* becomes an object particularly coveted by art enthusiasts or simple last hour fans of Banksy. Fake Tenners started circulating on *eBay*: full-fledged fake fakes. The boundary between authentic and fake in Banksy's work becomes very blurred. The *Di-Faced Tenner's* story be-

comes just one of many examples of how the whole of the English artist's work moves on that border, making his fortune, but also that of others. The paper covers the entire history of the Tenner through articles, archive news and specialized forums. The false *Di-Faced Tenner*, which is the counterfeiting of a counterfeit, is just one of the many pieces that allow the Bristol artist to sell his originals at such high prices. Through the Tenner's path, the research attempts to demonstrate how the concept of Fake in Banksy's work is a fundamental aspect of his commercial success.



In 2004, the English artist Banksy produced a particularly interesting artwork: a fake 10 Pounds banknote<sup>1</sup>. Instead of Queen Elizabeth, he inserted the face of a character of English history that is opposite to the regnant: Lady Diana (Figure 1). The counterfeit banknote takes the name of *Di-Faced Tenner*, to recall both the 'Di' of Lady Di and the term defaced. But the changes to the original do not end here, instead of Bank of England the artist wrote Banksy of England. The sentence below, in the original "I promise to pay the bearer on demand the sum of" becomes "I promise to pay the bearer on demand the ultimate price" recalling the tragic end of the Princess of Wales. The back, on the other hand, apparently remains unchanged, with the face of Charles Darwin. But if we give a closer look, it is possible to notice a small writing in the lower right that says "Trust No One". It can be said that this work is an evolution of the disfigurement of the queen's image, which had already occurred a few years earlier when

**Fig. 1** Banksy, *Di-Faced Tenner*, 2004, offset lithograph print, 7.62 x 14.61 cm. Retrieved March 23, 2021 from <https://www.sothebys.com/en/buy/auction/2020/banksy-online/banksy-di-faced-tenners>.



Banksy created stamps of the queen with a gas mask and a stencil of the queen with a monkey face (Figure 2).

Banksy in 2004 was not yet the millionaire artist he is today. He had just a couple of personal exhibitions under his belt, but he was slowly building a solid credibility and an aura of mystery that will make his fortune. In 2003 he performed one of his first stunts, which consisted in attacking one of his framed works inside a museum. He pasted a painting inside the Tate Gallery, complete with a plate with a caption without being seen. It was only noticed when the glue no longer held and the painting fell to the ground. By the time he makes the Tenner, Banksy is therefore in the mood for jokes. He prints 1 million pounds in £10 notes. Presumably offset lithograph printing on double-sided sheets that collect two columns of five banknotes, then he cuts out the individual banknotes. Banksy's goal is to open a briefcase full of money in a very crowded place, making the money fly in the air and creating confusion among the people. Banksy selects two particularly well-known and crowded events in the London area, the Reading Festival and the Notting Hill Carnival. They are two events close to each other, the first from August 27 to the 29 and the second from 29 to 30. The prank would have been remembered and reported in the news, but there is no trace of it. The reason is simple: it never happened. In a 2016 video

**Fig. 2** Banksy, *Deride & Conquer*  
/ *Who sacked all the clowns?*  
(Banksy, 2001, pp. 46, 47).



promoting an exhibition on Banksy, photographer and curator Steve Lazarides makes the following statement:

There was supposed to be a stunt. So what he wanted to do was get a quarter-million pounds of money in a suitcase and get dressed like a security guard and fall down the stairs in Liverpool Station, and then the case flings up and the money comes out. [...] Instead of doing that he decided to get drunk and throw a handful at Notting Hill Carnival and Reading Festival. There are still several boxes lying around. (Lazarides, 2016)

Banksy himself says, during the documentary he directed *Exit Through the Gift Shop*, that he only handed out a small number of tenners during these two events.

We can therefore take as accurate the words of Lazarides, Banksy's former collaborator and photographer. In the documentary, Banksy says:

I took some out, and I handed some out first of all, and people spent them, and people were like 'yeah two beers, a couple beers'. Nobody noticed, because when you got them like this [wrinkled], you can actually spend them. And they won't know. And when that happened, it was like, 'holy shit. We just forged a million quid.' And obviously, for that, you go to jail for ten years. (Figure 3)

In saying this, he suggests to the viewer that the reason why he did not perform his prank is for fear of being investigated for money counterfeiting<sup>2</sup>. It is definitely a severe



**Fig. 3** Banksy, *Exit Through The GiftShop*, 2010, movie still.

**Fig. 4** Banksy, *Di-Faced Tenner* (Banksy, 2004, pp. 62, 63).



charge, which becomes almost a contradiction if you think of the aura of illegality that surrounds the street artist. The fact is this: in the end, Banksy does not perform any of the stunts mentioned above; therefore, the only original *Di-Faced Tenner* are those hundreds of banknotes that the artist circulated during a handful of evenings in August 2004. All the others are crammed inside boxes, as Banksy himself shows during the documentary.

*Di-Faced Tenner* also appears in his latest official books, *Cut It Out* and *Wall and Piece*. In the first, there is a simple double-page image of a wrinkled tenner with the caption “It’s going to take one very special lady, or a whole load of average ones, to get over you” (Figure 4). In the second, it appears twice. First, as a paste-up inside a stencil made in Farringdon (London) in 2005 where an ATM makes several banknotes fly out of its mouth (Figure 5). Secondly, as part of a single sheet of banknotes ready to be cut. In addition, in his 2004 exhibition, *Santa’s Ghetto*, a briefcase containing several wads of tenners appears, as if to recall the Liverpool Station prank that never took place (Figure 6). It does not appear that single banknotes have ever been sold. The only *Di-Faced Tenner* that can be purchased and authenticated is a series of prints that Banksy began to sell as early as 2007. The prints do not depict a single banknote but a sheet ready to be cut, therefore two columns of five banknotes with Lady D on the right



**Fig. 5** Banksy, *Cashpoint with Di-Faced Tenners* (Banksy, 2005, p. 97).





**Fig. 6** Banksy, Suitcase with *Di-Faced Tenners*, from the Exhibition *Santa's Ghetto 4* (2004). Retrieved March 23, 2021 from <https://banksyunofficial.com/2017/04/17/santas-ghetto-04-london-december-2004/>.

**Fig. 7** Banksy, *Di-Faced Tenners*, Offset lithograph printed in colours on both sides of the sheet, signed in black pen, 450 by 315mm 17¾ by 12¾in. Retrieved March 23, 2021 from <https://www.sothebys.com/en/buy/auction/2020/banksy-online/banksy-di-faced-tenners>.

and Darwin on the left (Figure 7). Several series have been produced (in offset or screen printing), with no more than 50 prints, and sold for between 10,000 and 30,000 Pounds. These variants are authenticated and undoubtedly original. When dealing with the single banknote, the matter becomes more complicated.

It can be said that the original *Di-Faced Tenners* are only the 'found objects' collected in a few evenings in August 2004. If we estimate, we are talking about a few hundred pieces. Perhaps we are approaching a thousand. Back in 2011, after seeing the documentary, I ventured to eBay to find an original one. I found several results, several hundred, with prices ranging from € 50 for the cheapest up to € 700 for those with certificates of authenticity. None of them was close to an original. The sales were very numerous. The situation is pretty similar nowadays.

Like me, many collectors and aspiring collectors have also sought out an authentic *Di-Faced Tenner*. On many forums,



subreddits and specialized pages there are small guides to check if the banknote in your possession is an original or a fake. The characteristics it must have are:

- Thin paper, under 250 gsm.
- Lithograph offset print (distinguishable rosette).
- Dimensions of exactly 7.62 x 14.61 cm.
- A colouring as close as possible to that seen in the film (not too bright, not too faded).

The fundamental advice, however, is to contact a specialized and recognized gallery. I, therefore, decided to speak with Edoardo Marcenaro, a lawyer and collector, in possession of a *Di-Faced Tenner* recently exhibited in a Roman art gallery. Marcenaro tells of his passion for artist money, starting with Warhol, who signed dollar bills, passing by Keith Haring and J.S.G. Boggs, a poet of counterfeiting. He begins to follow Banksy as early as 2005, and after purchasing some originals directly from his website, he discovers the existence of the Tenner and buys one at an auction. He is not sure of the authenticity of the piece. Still, having purchased it in early times certainly provides him with more possibilities of authenticity than a tenner purchased in 2021. However, the impossibility of having a certificate of authenticity always leaves some doubt. Marcenaro himself explains how in recent years, due to the numerous counterfeits in circulation, all modern art has become more a collection of COA than actual artworks.

Banksy is one of the first to realize this trend, and in 2009 he launches Pest Control, a company tasked with verifying the authenticity of works of art passed off as original Banksy. Already in 2009, the number of prints and artefacts associated with the well-known street artist clog eBay but above all different art galleries around the world. Pest Control, therefore, becomes the only way to check if the artwork is an original or a fake. It would be the perfect opportunity to finally authenticate a tenner bought a long ago on the internet. Still, a problem arises: Pest Control only authenticates Banksy's commercial work, which is everything that was designed for sale from the start. Instead, anything that is pure street art,



conceived as part of a stunt or as a simple stencil on a wall or a sculpture, is not part of the service. Thanks to Pest Control, Banksy was able to control better and manage all of his originals, trying to avoid or slow down the phenomenon of fakes as well as that of cutting the walls where his stencils appeared<sup>3</sup>. Every work performed on the street must continue to be enjoyed by all. This is Banksy's thought.

Having said that, one immediately realizes that owning a *Di-Faced Tenner*, so a legitimate counterfeit banknote is something that seems almost impossible. Yet a few years ago, Steve Lazarides, through his Laz Emporium gallery, began to sell some banknotes which, accompanied by a certificate of authenticity issued by himself (with fingerprint and hologram), appear to be originals. Of course, the Lazarides certificate was also forged in online sales, becoming part of the forgery package. However, there is a way to get an authentic fake tenner, which is to buy it directly from Laz Emporium. Occasionally some tenners are available again on the gallery's website for 2,250 Pounds, followed by the following description: "Back in 2004 he made a whole briefcase full, and Banksy made them rain at the Reading and Notting Hill festivals. And on Liverpool Street Tube station platform".

This description inevitably clashes with the words of Lazarides himself pronounced in a 2016 video where he denies that Banksy has ever carried out these actions. It is, therefore, possible that even the Lazarides banknotes are fakes since he has no longer had a relationship with Banksy for several years; or we are simply talking about a description that has not been carefully written. However, considering all these variants, it is possible to see how the *Di-Faced Tenner* is actually a controversial artwork.

The fact of being a small object and reproduced in so many quantities becomes a fertile ground for anyone who wants to make money on the name of Banksy. In addition, the fact of appearing in the film has allowed the Tenner to become very popular, making the market crowded with fakes. Even more so when, in 2019, the British Museum acquires Banksy's first

artwork for its collection: naturally a *Di-Faced Tenner*<sup>4</sup>. It is a historic moment for the English museum, which actually had already hosted a work by Banksy when the latter had pasted it without permission inside the gallery during one of his pranks. At this point the question is: how does the British Museum know that the acquired banknote is an original? In an article by *The Guardian*, a museum curator named Tom Hockenhull, who had been looking for an original copy for years, says: “The problem is, because [Banksy] was effectively producing them as photocopies, anyone else could do that as well, so there was no way to really verify they were from Banksy or not” (Hockenhull, 2019).

This is a focal point of Banksy’s production. As reported in the article, the banknote was donated to the British Museum by Pest Control itself, specifically by “someone who runs Banksy’s currency exchange”. We can therefore say with certainty that it is an original. The question that Hockenhull raises is, to all intents and purposes, the core of the matter. Anyone can, with a minimum of skill, create a fake Banksy. The art historian and expert in forgery Noah Charnay in an article, tells how the Bristol artist is the easiest and cheapest to replicate. He goes so far as to say that it is possible to make a copy of a Banksy with less than \$10: “You could get a stencil made using Photoshop and trace one of the designs. It’s a piece of cake. [...] It’ll look exactly the same, it’ll be forensically identical” (Charnay, 2019).

His extreme popularity and the ease with which it is possible to counterfeit his works, on walls as well as on cardboard or paper, make him an ideal lens for anyone who wants to make money with his images. It is precisely on this last concept that one of his stunts from a few years ago is based. In October 2013, Banksy began to make a different work appear every day in the area of New York. It started from simple stencils up to particularly complex installations. On October 13, however, he produced one of his most interesting stunts: he set up a banquet near Central Park where his most famous stencils are sold and reproduced on canvas. His name does



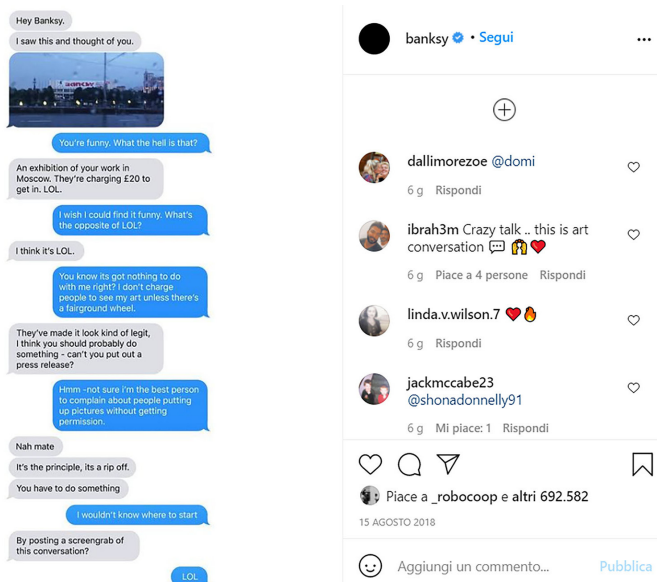
**Fig. 8**  
 Wall Street Journal, *Original Banksy Canvasses Sell for \$60 Each Video*, movie still.  
 Retrieved March 23, 2021 from  
<https://www.youtube.com/watch?v=7mXJT2uXtrE>.

not appear, only a couple of signs with the writing: “Spray Art” and “\$ 60”. A nice old man is selling the canvasses (Figure 8). At the end of the day, only eight canvasses were sold for a total gain of \$ 420 (a lady bargained to spend less). Also on this occasion Banksy makes fun of the public, but mostly he makes fun of his counterfeiters, who sell his works without authorization, and he does it by impersonating one of them. Passers-by, accustomed to those images now reproduced on all types of merchandising, pass the banquet without even noticing them. We are talking about the same passers-by who then presumably crowd the numerous unauthorized exhibitions on Banksy.

This is also an interesting topic. If we go to Banksy’s official website ([banksy.co.uk](http://banksy.co.uk)), the following writing appears in the Shows section: “Members of the public should be aware there has been a recent spate of Banksy exhibitions none of which are consensual. They’ve been organized entirely without the artist’s knowledge or involvement. Please treat them accordingly”.

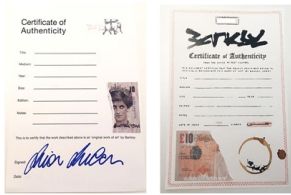
Below a series of posters of numerous exhibitions on Banksy open around the world, with the relative price of the ticket next to it. At the top stands the word FAKE. In fact, every year a blunder of exhibitions are inaugurated where the Bristol artist is the greatest attraction but to which he has not given any authorization.

**Fig. 9** Instagram post from Banksy official account. Retrieved March 23, 2021 from <https://www.instagram.com/p/BmgWwO9BwwT/>.



The fact of being an artist (or a collective) of which the identity is not known and that fact that he moves in illegality makes this kind of initiative flourish. Banksy, however, does not seem to hinder them in any way, he simply marks them as false, and the game ends there. It is as if this proliferation of fakes all in all amused him. By delegitimizing others' initiatives, he manages to increase and nourish his own credibility and fame (Figure 9). Also, on his website, it is not uncommon to find among the images of his works some commercial reinterpretation of one of his artworks which, placed next to the original, immediately becomes comic. In short, Banksy appropriates the fake, making it become the driving force of his success<sup>5</sup>.

The *Di-Faced Tenner* is, in many ways, the emblem of his game. A false banknote, which is then forged by someone else, and which he himself refuses to authenticate even if it is authentic. It almost looks like a tongue twister. The question becomes even more paradoxical when you receive a COA from Pest Control for the authentication of any Banksy's artworks. Staped to the certificate, you will find a ripped *Di-Faced Tenner*. Marcenaro defines this gesture as an oxymoron: "authenticating a work with a fake". An authentic counterfeit



**Fig. 10** Signed COA from Pest Control. Retrieved March 23, 2021 from <https://hanguppictures.com/news/pest-control-all-you-need-to-know>.

banknote by Banksy, but not whole: the other half (with the same serial number) is in fact in possession of Pest Control. A delight for any art lover (Figure 10).

In conclusion, buying an authentic Banksy tenner is today more than ever a difficult undertaking. Those sold by Lazarides are probably original, but the only way to verify this would be to obtain any Banksy work, get a COA from Pest Control, and compare half of the Tenner with that of Lazarides. Definitely not an economical operation. A cheaper option would be to buy one at random on *eBay*, even at a low price, with the simple aim of hanging it in the living room. As Noah Charney says: “the question is: do you want something on the walls that is authentic?”. If the answer is no, this could be the right option. For the author of this paper, the matter of authenticity, at least in art, is particularly important. Unable to buy one, you could also choose a third option: making it yourself, with *Photoshop*, a color printer and light paper. In the end, “It’s a piece of cake” (Figure 11).

## NOTES

- 1 In Jargon: a Tenner.
- 2 The MOCO catalogue on Banksy confirms this theory.



**Fig. 11** X Y (after Banksy), Home printed *Di-Faced Tenner*, Digital print, 7.62 x 14.61 cm.

- 3 Famously the cutting of a wall in Syria, on which the documentary *The Man Who Stole Banksy* is based.
- 4 A few months later the MOCO in Amsterdam will also do the same, then hosting an unauthorized show on him.
- 5 The argument naturally applies mainly to works of art, the risk of acquiring a fake makes authentic Banksy even more expensive.

## ACKNOWLEDGEMENTS

Special Thanks to Edoardo Marcenaro for the catalogues and the chat.

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**Article available at**

DOI: 10.6092/issn.2724-2463/12605

**How to cite**

**as article**

Rebecchini, F. (2021). About buying a fake version of a counterfeit £10 note. *img journal*, 4, 284-299.

**as contribution in book**

Rebecchini, F. (2021). About buying a fake version of a counterfeit £10 note. In M. Ghizzoni, Musiani, E. (Eds.), *img journal 04/2021 Copy/False/Fake* (pp. 284-299). Alghero, IT: Publica. ISBN 9788899586195



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# **SEDUCTION OR PROOF?** REVEALING ASSUMPTIONS IN THE NEGOTIATION OF PERCEIVED REALITY THROUGH IMAGES

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## ESSAY 80/04

REPRESENTATION

DRAWING

PHOTOGRAPHY

MATERIALITY

ARCHITECTURE

Throughout the history of Western thought, images are dismissed in the search for truth claiming their seductive nature (Plinius, 2007) and at the same time they are used as proof e.g., in Geometry (Nelsen, 1999), documentary photography (Sontag, 1973) or political argumentation (King, 2014).

All images are objects which represent a selection of what we perceive as reality. They would be clones, if they would represent all aspects of what we can perceive (Jonas, 1961). Some images declare their selective nature of representation. Other images are deceptive because they are pretending to be what they represent. In comparison to language, using propositional argumentation, images can provide evidence (Mersch, 2005). This contribution provides

a closer look at how we preconceive the relationship of images to reality.

In the first part of the contribution, we refer to experimental drawings of landscapes and portraits. We analyze their relationship to four levels of what we can define as a reality perceived in images. In the second part we continue the inquiry into the relationship between images and reality in the context of architectural photography. We refer to experimental photographic image series, which focus on the materiality of photography and propose to overcome the hierarchical order between original building and fake copy of architecture in the photographic image, by making the photograph to a material object. In a third and final section of the paper the findings of the previous two sections are discussed.

## INTRODUCTION

In reference to early sources of reflection upon the agency of images, there is a recurring binary-coded description of them.

1. The image understood as being a seductive copy of what we perceive as reality (Plato; Nietzsche, 1954; Heidegger, 2010);
2. the image as an inscription of what we perceive as proof of an instance in reality (Sontag, 1973; Nelsen, 2016).

The image and its deceptive agency is already described for example in Pliny the Elder's *Natural History* (Plinius, 2007). He elaborates on the competition of two painters, Parrhasios and Zeuxis. When they met to present their paintings to each other, the one by Zeuxis represented grapes in such a naturalistic fashion that birds were deceived and tried to pick them. In response, Zeuxis asked Parrhasios to unveil his painting and realized, afterwards, that the cloth covering of the painting actually was the painting itself. Since deceiving a person is considered to be more difficult than deceiving a bird, Parrashios was called the winner of the competition.

Also, Pliny the Elder already addressed the aspect of a process of inscription in his *Natural History* (Plinius, 2007). He refers to the portrait as a means to prove the historical existence of an individual person and describes the beginning of portraiture as a technical process. The daughter of Sykion, a potter, wanted to preserve the memory of the young man she loved, since he had to leave her for a while. With a candle she cast his profile on the wall and traced his silhouette. Even though the anecdote does not describe the process of preserving the memory as proof, the silhouette, and the method to represent it, is proving the presence of a specific young man at the location where the silhouette was cast. Until today, the effect to inscribe reality into an image is usually attributed to technical processes of image generation (Flusser, 1994; Daston & Galison, 2007). The photographic process was compared to a "pencil of nature" suggesting an objective rela-

tionship to what it represents (Talbot, 2011). Even though we know that, today, a photorealistic continuous tone image can be achieved through processes of algorithmic calculations, it is still assumed that a photographic image directly correlates with a specific situation of reality. This kind of preconception is the starting point of this contribution. What kind of preconceived notions do we share when interpreting images as regards their relationship to the real. Beyond the photographic image—which is considered to be the most transparent medium (Barthes, 1993) since it does not reveal the materiality of its medium—we will inquire in the first section of the paper into the field of images created through the trace of a bodily gesture—landscapes, portraits, and individual signatures. In the second section, we will return to photography and its relation to built architecture.

But how can we discuss the relationship between images and perceived reality? What is the relationship of a real experience and its representation by an image?

In his *Phenomenology of Perception*, Maurice Merleau-Ponty (2013) points out that our perception is not bound to a specific point of view. Rather, it is a conceptual schema which is derived from looking at something from all angles.

I see the next-door house from a certain angle, but it would be seen differently from the right bank of the Seine, or from the inside, or again from an airplane: the house *itself* is none of these appearances: it is ... the perspectiveless position from which all can be derived ... the house itself is not the house seen from nowhere, but the house seen from everywhere. The completed object is translucent, being shot through from all sides by an infinite number of present scrutinies which intersect in its depths, leaving nothing hidden. (p. xx)

Even though the author refers in this quote to visual perception, the schema is formed by a multisensory experience encompassing all our sensuous perceptions such as vision, audition, olfaction, gustation, and tactition. Images are not conventional signs the way linguistic terms are. Even though

they have to entail generalization, they have to refer to a concrete experience in reality in order to create meaning. They have to imitate, represent, simulate, exemplify, and copy the characteristic aspects of an experience. They are imitating selected qualities of our perceived reality but cannot imitate its entirety. Otherwise, images would become clones of reality (Jonas, 1961). In the mode of an exemplification of reality, the perception of images can have the agency of a deceptive illusion or of proving a real situation. In the following two sections, we critically inquire into this binary division of images in reference to concrete examples of drawing and photography.

#### THE REALITIES WE PERCEIVE THROUGH DRAWING

A drawing consists of lines which are material traces resulting from the gestural process of the designer. In its difference to the visually perceived reality, the drawing reveals its status as an interpretation through its material constellation. Nevertheless, there is a relationship to reality, and we can differentiate the dependency of drawings on four notions of reality by asking the following questions: (1) What is the relationship of the traces to our perceived reality? (2) What kind of shared understanding does a socio-cultural context contain of the representation of reality in a drawing? (3) What is the reference of the drawing to the individual identity of the designer? (4) What reality is created through the materiality contained in the tools used for drawing?

In order to elicit an answer to these questions, we can turn to a set of experiments conducted with a group of Master students in Visual Communication. When asked to draw a fictional mountain range, which makes a beholder believe that it is the representation of an existing landscape, it is part of the exercise that there is no direct relationship between this drawing and a landscape (Question 1). None of the lines is attempting to resemble an interpretation of an observa-



**Fig. 1** Class Project, *Imaginary Mountain Scapes*, 2020, Charcoal in Sketchbooks, A3 Spread. Five results from a class experiment which show a dominance of a triangular shape in the representation of fictional mountains. Hochschule für Gestaltung und Kunst FHNW, Archive Institute of Visual Communication 2020.

tion. Rather, it is the internal ‘accuracy’ of lines and planes to each other which makes us believe that there is a relationship between the drawing and a visually perceived reality. The relationship of the iconic elements and their quality makes us question or believe that the drawing we look at is the result of an observation, a fictional imagination, or a representation related to a convention. By comparing a first set of sketches, it becomes apparent that the majority of drawings are clinging to a shared schematic preconception of a mountain range as an arrangement of triangular shapes (Figure 1).

This observation points to the relationship between the drawing and a shared understanding within a socio-cultural context. The mountains represented by a stereotypical triangular shape is comparable to a conventional sign. Even though we can claim that a drawing follows the visual experience memorized over time and that its conventional aspect is less engrained through social exchange, it becomes obvious that, in the context of a representation through drawing, we also find a shared understanding of what the representation of a visual experience actually is. In reference to Merleau-Ponty’s (2013) description of perceiving a house, we can claim, that the triangular shape is addressing a slice of the shared schema of looking at a mountain from all sides. In this way, the triangle refers to a shared understanding of reality. This kind of reality is a precondition so that a representation is able to develop meaning and is not read as a mere accumulation of lines on paper. The mountains depicted as triangles are not deceiving their beholder, they are shared ideas of how mountains look like. They are readable without simulating their appearance in a naturalistic manner (Question 2).

Beyond the above-described similarities of the results, each drawing shows an individual approach. The lines may

tentatively be placed in large number in order to find the definite form. The representation of light and shadow is achieved by using a wide spectrum of grey values. Or the description of the landscape is achieved by using a textural approach which refers to the qualities of rock, snow or meadows. Beyond the description of these different approaches, the quality of the traces in each drawing is situated within a certain range of contingencies and refers to an individual designer. Just as much as a signature counts as proof of the presence of an individual person at a certain time and space, the individuality expressed in the lines of a drawing are proof of the presence of the designer (Question 3).

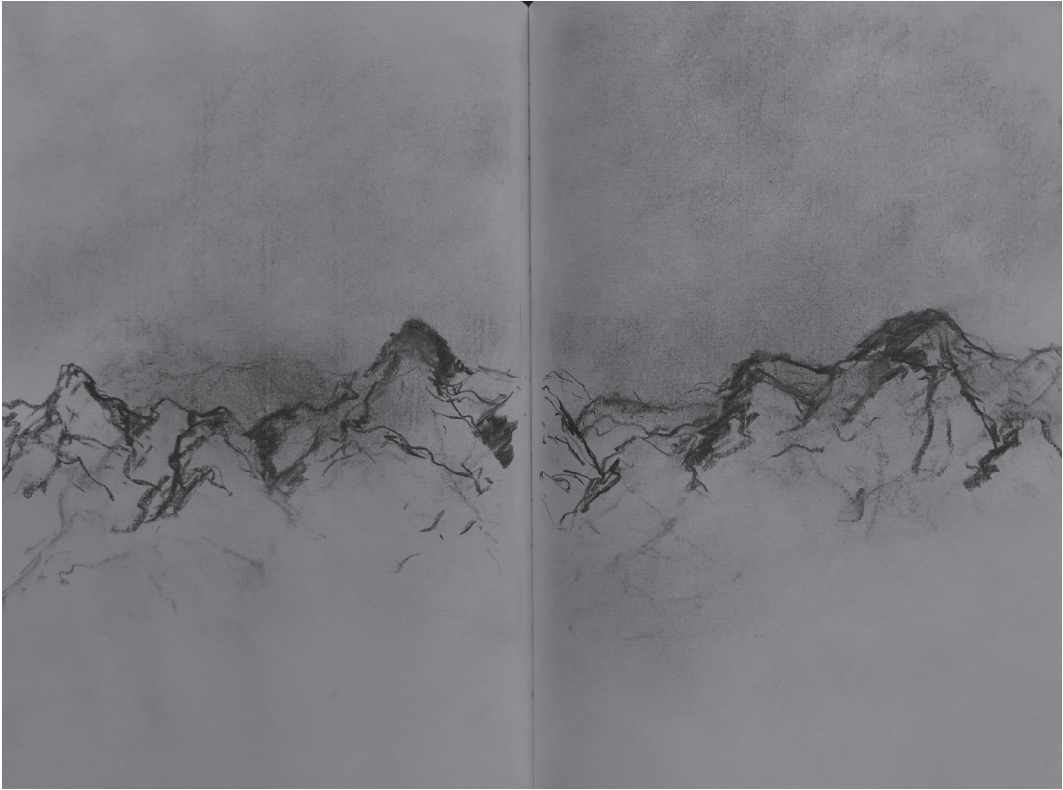
Thus, the interpretation of the signature by Derrida (1988) is transferrable to the individual trace of the designer.

From this point of view, let us attempt to analyze signatures, their relation to the present and to the source. I shall consider it as an implication of the analysis that every predicate established will be equally valid for that oral 'signature' constituted –or aspired to– by the presence of the 'author' as a 'person who utters,' as a 'source,' to the production of the utterance.

By definition, a written signature implies the actual or empirical non presence of the signer. But, it will be claimed, the signature also marks and retains his having-been present in a past now or present [maintenant] which will remain a future now or present [maintenant], thus in a general maintenant, in the transcendental form of presentness [maintenance]. That general maintenance is in some way inscribed, pinpointed in the always evident and Singular present punctuality of the form of the signature. Such is the enigmatic originality of every paraph. For the tethering to the source to occur, what must be retained is the absolute singularity of a signature-event and a Signature-form: the pure reproducibility of a pure event. (p. xx)

In addition, the tool of natural charcoal, the materiality of the paper and the object of the sketch book form a framework and a reality to which the drawings of the Invented





**Fig. 2** Nicole Salnikov, *Imaginary Mountain Scapes*, 2020, Charcoal in Sketchbooks, A3 Spread. An example from the class experiment which shows a believable representation of the landscape. Hochschule für Gestaltung und Kunst FHNW, Archive Institute of Visual Communication 2020.

Mountain Scape exercise also refer to. The charcoal allows us to draw precise lines, to smudge them and erase them, to create a wide range of grey values, to drag the tool at an angle so that it leaves a textural mark on the paper. Even though these possibilities are allowing a large variety to create gestural traces we cannot let the charcoal bleed like ink into water or use the charcoal to develop greys through cross hatching such as achieved with a drawing pen. If we now turn to a result of the Invented Mountain Scape exercise which is successful in convincing us to be a 'true' representation of a landscape, we can once again go through the above discussed aspects of negotiating reality (Figure 2).

Even though the triangular aspect of the shared preconception of a mountain is still recognizable in the successful drawing, the variation of forms is higher, symmetry is avoid-

ed and the description is less predictable (Question 2). The strokes of the drawing are energetic and confident and appear to be traces of a spontaneous gesture. Their use is consistent throughout the drawing without being repetitive. The different means of representation –lines, grey values, and textures– are used to convey a logical spatial relationship of the landscape. The consistent use of marks and traces in the drawing emphasizes the presence of the individual designer leaving a personal interpretation observing the landscape (Question 3). Through the application of the tools and their affordances in a pragmatic way, the medium becomes less apparent. Even though the gutter of the sketch book is interrupting the illusion of the represented landscape, the drawing successfully overcomes these material restrictions (Question 4). The tools and materials are employed appropriately and we may ask in how far this appropriateness is again influenced by a shared understanding of the tools of representation.

If we now return to the assessment of the agency of images –being on the one hand deceiving and on the other one providing proof of a real situation– the differentiation into the four realities has been discussed with the example of fictional drawings of mountain landscapes. This approach has eliminated a ‘true’ relationship of the drawing to the represented object from the beginning. In order to evaluate what a deceptive drawing of a mountain range is, we can draw the following conclusion from the discussion: To a certain degree, the representation has to follow a schema shared in our collective memory. This schema is related to the form of what is represented in the drawing as well as to the appropriate and consistent use of tools and materials. The drawing, which is pretending to be a result of observation, has to relate, through the individuality of its gestural traces, to the presence of a designer who provides the interpretation of the observation. The relationship to a shared schema, the appropriate use of tools and materials, the individuality of gestural traces and their reference to a designer’s identity, unpredictable lines, avoidance of symmetry and repetition,

contribute in combination to the assumption that the fictional drawing is an interpretation in view of the depicted object. We can now turn to a category of images which have been described, as mentioned above, by Pliny the Elder as proof of the existence of an individual person. In contrast to landscape drawings, portraits are much less forgiving. In daily communication, we are continuously interpreting faces and are, therefore, trained to detect any inaccuracy of a representation of a face in a portrait (Renner, 2014). Here, we shall return to Merleau-Ponty's description of our perception resulting in schemas, which entails the object seen from everywhere. We can also find in the representation of faces drawings that refer to a schema or drawings that refer to a singular occasion of an existing face depending on the intention of the designer. In an architectural illustration, the schematic representation of a person and his/her face is of advantage, since the purpose of the representation is the communication of scale and inhabitable space. In another situation, we want to remember the presence of an individual person and, therefore, another kind of accuracy as to the existing face has to be achieved. But what kind of accuracy is required, so we may take a portrait as proof of the presence of an existing person? In contrast to the representation of landscapes or objects, the schema from experiencing a person is not just formed by looking at a person from all sides. The individuality we expect is beyond the spatial organization of the face and has to be individually invented for each person by the designer. Gadamer (2004) distinguishes between the model and the portrait and claims the necessity of "occasionality" for the portrait. In view of invented portrait drawings, which pretend to be representations of living people in the presence of the designer (Figure 3), we may ask, what leads to the effect of occasionality in these fictional portraits.

Recapitulating the analysis of the fictional landscape drawings from above, we may refer to the same qualities. But in comparison to the landscape drawing, the reference to the individuality of the designer through his/her signature has



**Fig. 3** Yaao Jiang, *Imaginary Mountain Scapes*, 2020, Charcoal in Sketchbooks, A3 Spread. Two examples from the class experiment which show a believable representation of the presence of individual faces. Hochschule für Gestaltung und Kunst FHNW, Archive Institute of Visual Communication 2020.

more significance than in a landscape drawing. In the consistent use of an individual trace by the designer, we seem to perceive non-visual qualities of the sitter's character. In these fictional portraits, the individuality of the designers' traces significantly contributes to the idea of the presence of an individual sitter at a specific time and space.

Having concluded with the necessity of a reference to the designer in drawings to make them 'true' representations and qualifying them as individual testimonies of perceived reality, we could look at images of visual communication which are hiding, at first glance, the authorship of a designer. In opposition to drawings, information graphics, data visualizations, maps and plan projections are considered to be objective means of information. Photographs, as mentioned above, are also considered closer to perceived reality than drawings.

But is their normative appearance, pretending to be the one and only representation, not as deceiving as a drawing which is a declared and individual testimony in time and space by a designer? In how far can we then talk about photography as a 'true' representation of architecture?

#### THE REALITIES OF ARCHITECTURE WE PERCEIVE THROUGH PHOTOGRAPHS

Related to the four notions of reality conveyed through images discussed in the context of drawing, we may also ask those questions in regard to photography. At first glance, we may answer the questions asked above as follows: we can state that the relationship of the photograph to a visually perceived experience is mimetic as it can be in a process of flattening the three-dimensional space into a plane (Question 1). The quality of similarity between photograph and perceived reality, as well as the delegation of the image creation to a technical apparatus, lead to the shared assumption of an objective representation with the potential of proof (Flusser, 1994) (Question 2). Therefore, the influence of the photographer is often overlooked. Selection of image content, choice of lens, framing the scene, lighting, timing of exposure, selection of the image from a series of images, etc. can and has been discussed as individual traces of the photographer (Question 3). But what reality is actually provided by the materiality of the photograph? And what is the relationship of the materiality of the photograph to the representation of materiality and space in architecture?

One way of challenging the binary order of reality versus a seductive representation through a materialist view in the field of representing architecture is to go to the very root of photography by studying its invention. An invention that belongs to the realm of chemistry and matter rather than arts, crafts, or philosophy.



In the field of architecture, the deceptive nature of photographic images has resulted in many criticisms of the role they play in both projection and documentation of built space (Frampton, 1990). The question is why does the exchange between architecture and photography fail?

To answer this question, we need to understand what exactly happens between the moment a photograph is taken and the moment that it is viewed. As described with the portrait and the signature above, at its most fundamental form, a photograph of a building conveys presence at the site – at least the presence of the camera and the photographer. Therefore, we can say that the photograph participates in an act of displacement which aims at bridging the gap between the moment and the place of its recording and the moment and the place of its viewing. The most problematic question when dealing with this displacement is the hierarchical difference between architecture and its image. Here architecture is accepted to be the original and the photograph as a second order representation of it.

Therefore, our central question becomes: is being present at the site the only way to be linked to its original? Of course, this question brings us to a fundamental debate of Western philosophy. For example, Plato's comparison between the truth of speech over writing as something that is mediated. Here again we deal with the question of being present. Based on Plato, it is the presence of the speaker that shapes the unmediated truth and in writing the same presence is mediated and of second order. Therefore, we have to think of the architectonic presence as the truth and any other form of architecture as models, writings, or images as mediations of this presence.

But is the presence of architecture, just like speech, which is mediated by written language, not conveyed by the presence of construction materials and how they are juxtaposed, too? If so, what if we use materials themselves as a mediator between architecture and its image? Would this help us in finding an alternative middle ground between the binary



**Fig. 4** Kambiz Shafei, *Stone N°12*, 2019, photography, laser print and stone. Basel, Switzerland. Archive of Kambiz Shafei.

modes of the real and its representation? Would this approach help us in the ambitious task of challenging the privileged position of the original?

Mediating photography through its materiality asks for a reconsideration of some of the theoretical basis of the medium. Roland Barthes in his book *Camera Lucida* (1993) describes photography as a signifier which does not have a signified. He writes: “a photograph is always invisible: It is not it that we see” also “the photograph is never distinguished from its referent” (p. xx) Barthes describes that we do not see a photograph, but we see through it. The beholder of a photograph is deceived since the medium is hidden in comparison to a drawing, where the mediality is declared. For Barthes, the photograph is not an object, it does not really exist. We can challenge this position when we compare an object and its photograph next to one another (Figure 4).

Here two types of materials are present. Four stone fragments on the one hand and four photographic copies of these



stones on the other one. The fragments of the photograph are made of several layers of laser prints glued together in order to create an impression of thickness and depth. When we deal with visibility in general, we mainly consider the surface of things. This experiment narrows the gap between the stone surface and the surface of the photograph by exploring similar tensions in both subjects. The photograph is no longer an invisible surface but it rather is a simulation which participates in the three-dimensional world.

The goal of this contribution cannot be to write a material theory of photography. Looking at photography through its material does not try to replace any philosophical reflections on it. However, what it does try to do is to move beyond the traditional dualisms of original and image. Adopting the materialist approach, we can say that the photograph exists regardless of its reference. This approach questions the essence of a photograph by bringing its autonomy to the foreground. The photograph is an object and, therefore, it occupies a physical space and has its own physical space. As a result, the photograph can be freed from the representational task which is imposed on it. The photograph, on the other hand, gains something very significant by participating in the material exchange of the material world. It becomes a part of the material world and it can, therefore, have a direct impact on the material world.

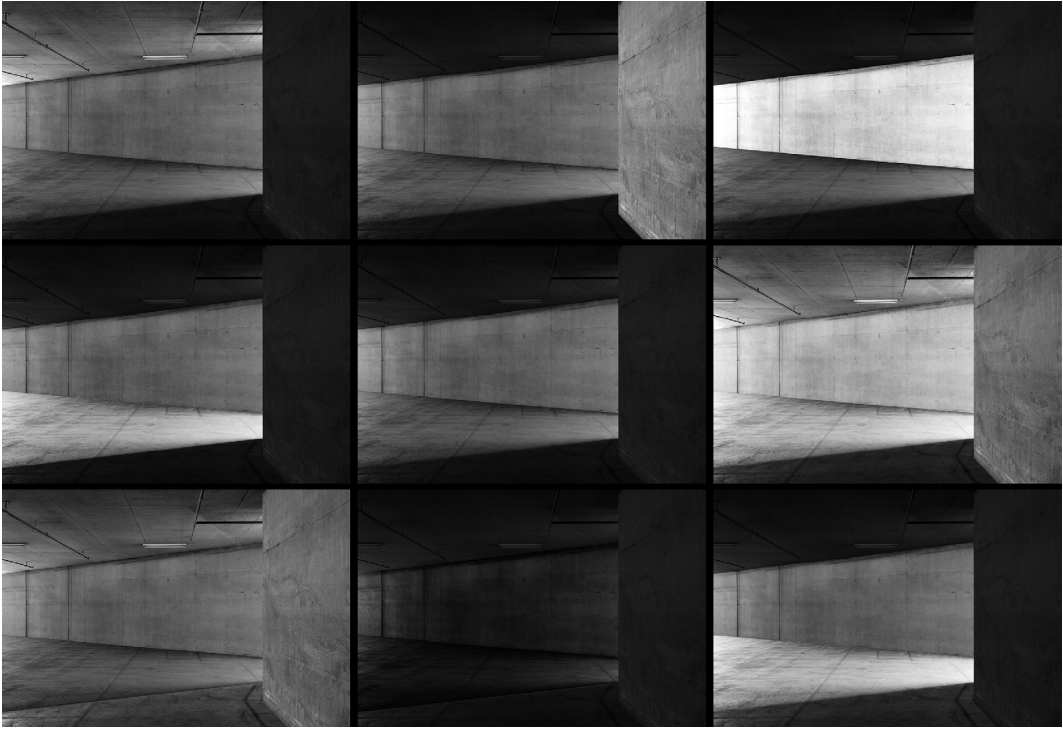
This approach is particularly important when we are dealing with a discipline like architecture. During the design process of architecture, it is a common practice to use photographs. They represent other buildings and, in particular, their materials as a source of inspiration. In this process, photographs next to the real material can be seen as agencies that help define the materials of future built environments. Such photographs are also used to assemble collages and renderings in order to study both natural and artificial light at different times of the day. These studies guide the design process when it comes to the positioning of the windows as well as any other light sources. What these observations tell

us, is that a photograph is not an inert object waiting to be filled with meaning from outside. On the contrary, in this case a photograph participates in a process of negotiation which informs other materials. This quality is embedded within the photographic process as opposed to being imposed from outside by the genius of the form giver – in this case the photographer.

Therefore, we can say that the entire photographic process can be interpreted as a new and materialist event (Barad, 2007; Ingold, 2013). Consequently, we can change our question from what the reality that an image represents is, to what the realities of material translations involved in the shaping of a photograph are? This allows us to open an entirely new way of understanding built space through its material translation into images.

Deleuze's 'system of differences' (Deleuze, 1995) can be interpreted as a mechanism in the material exchange between photography and architecture. The system is an active process, since it deals with the unfixed phenomena of architecture containing its own temporalities. It results in simulations that need to be considered in sequences. Therefore, the photographs within the sequence have to relate to the original exactly by being different to one another in the way that they expose materials. Just like Merleau-Ponty's (2013) "infinite number of present scrutinies" (p. xx), these different images need to be experienced individually as well as in their totality as sequences.

In the 9 photographs of Figure 5, the experiment focuses on the reflection of light on concrete. Several photographs of the same scene at different times of the day are the starting point for digital manipulations. By collaging different parts of different photos together at both shadows/highlights and joins between the walls and the floor, several illusions of lighting are conveyed. Here we can see how a photographic image can be seen in the binary of a technical means that aims at representing a certain kind of reality and on the other hand as something that creates illusions



**Fig. 5** Kambiz Shafei, *Room N°8*, 2018, photography. Basel, Switzerland. Archive of Kambiz Shafei.

of reality. Neither of the represented temporalities is real in its singular form. Rather, it is the totality of the photographs as a sequence which comes close to the representation of reality by illustrating architectonic space as a fluid process. The architectonic materials would not be perceived, experienced and, therefore, understood in the same way if they would have not gone through this process; or in other words, if they were experienced directly. It is under these circumstances, that the privileged position of architecture, as the only reality of the building, can be questioned. Simulating architecture into other things such as images can add to this reality. To borrow from Deleuze, we can say that it is this process of simulation that challenges the 'privileged position' of the original (Deleuze, 1995).

Figs. 6a and 6b are another image pair presenting a certain type of material exchange through photographs in



**Fig. 6a, 6b** Kambiz Shafei,  
*Concrete Blocks*, 2019,  
 Photography, laser print, and  
 concrete. Basel, Switzerland.  
 Archive of Kambiz Shafei.

order to explore different types of meanings. On the left photograph, a printed copy of a concrete block is placed on top of it. On this photograph, the different materials of the two blocks, namely the weights of neither the block nor the paper copy are understandable. In the right photograph, once the position of the model and the image are switched, the materiality of each becomes evident. The illusion of reality of the left photo is unveiled through the photograph on the right. This is the result of a material exchange through the deconstruction of a three-dimensional photograph. These photos are once again proof of the deceptive nature of photographs. It is only after juxtaposing the materialities of the original and the copy that the reality of a photograph as an object is revealed. The crushed photo is a singular simulation which is not repeatable like a two-dimensional reprinted photograph. It is no

more a copy but rather a simulation that becomes a part of the material world maintaining its own reality.

## CONCLUSION

We have approached the issue of the relationship to a perceived reality in landscape and portrait drawings, as well as in architectural photography, through the creation of image series. We have set the creation of image series and their interpretation in relation to the historical discourse in the humanities affected by a strong binary preconception of images as either seduction or proof.

With the deictic quality of the visual experiments, their quality to point at something, to present, reveal or provide insight, a distinction between images and the propositional structure of language can be drawn. With the employment of practice-led iconic research (Renner et al., 2017), we assume that images are able to provide evidence (Mersch, 2005). As we have demonstrated above, the image series serve as visual arguments, which can be described through language in view of the outcome of the material experiments. In this sense, the methodology exemplified above is another aspect of how the agency of images can go beyond seduction or proof. The images employed are interpreted by the authors of this contribution. In a hermeneutic sense, they can be viewed, interpreted by any reader/ beholder – and the interpretation of the images by the authors can be critically evaluated. Coming back to the initial aim of this contribution to “reveal assumptions in the negotiation of perceived reality through images,” we can refer back to the four realities which images can refer to: relation to the formal mimetic quality of the visual experience, the relation to the collectively shared schema, the relation to the reality of the individual form giver, and the reality of materiality.

It is surprising though that in both image categories – drawing and photography – the mimetic aspect is the least

important relation of an image to reality. In the context of landscape drawings, it is the consistently applied unique trace of the individual designer which we conceive under the described formal aspects to be a testimony of the designer's observation in the presence of the landscape or sitter.

In the context of architectural photography, we have shown that a practical investigation of the materiality of photography lets the photograph become a physical object in space, overcoming its transparency and second-order destiny as a copy by becoming a physical object in its own right. The relation to architectural reality has been demonstrated as being successful by the necessity of image series. And the two images representing two cubes each (Figures 6a, 6b) are presenting a visual proof of the materiality of the cubes.

With these differentiations and the range presented in which images can relate to reality, we can conclude, that the dualism of seduction and proof is a remnant of Platonism, which we have to overcome in order to improve our ability to interpret images in the context of communication.

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**Article available at**

DOI: 10.6092/issn.2724-2463/12649

**How to cite**

**as article**

Renner, M., Kambiz, S. (2021). Seduction or Proof? Revealing assumptions in the negotiation of perceived reality through images. *img journal*, 4, 300-321.

**as contribution in book**

Renner, M., Kambiz, S. (2021). Seduction or Proof? Revealing assumptions in the negotiation of perceived reality through images. In M. Ghizzoni, E. Musiani (Eds.), *img journal 04/2021 Copy / False / Fake* (pp. 300-321). Alghero, IT: Publica. ISBN 9788899586195



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# THE AESTHETIC OF RIGHT HOW HISTORICAL FAKE FEEDS POPULIST AGENDAS

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## ESSAY 81/04

POST-TRUTH

IDEOLOGY

REVISIONISM

REVIVALISM

SPACE AND POWER.

Fake News as propaganda is not a novel creation by the former President of the United States (POTUS) and the use of architecture as propaganda to propel populist agendas is no different. This article will observe two case studies, *Skopje 2014* implemented by the nationalist conservative party VMRO-DPMNE of Macedonia and the *Promoting Beautiful Federal Civic Architecture* Executive Order no. 13967 by Donald Trump, former POTUS. These Two case

studies will be discussed in how architecture feeds the populist agendas through two different types of political administration. The term fake will be associated with misinformation, mistruth and through a historical sweep and comparisons. This article argues how the use of neoclassicism as an architectural style outside of its historical context coupled with the political agendas would be considered propaganda and in turn fake.

## INTRODUCTION

In an era where people can choose to falsify and question factual truth, tendentious fakes present a dangerous future for humanity. The rise of alternative news sources and the resurgent ideology of 'fake news' enables certain political movements to construe truth in many forms. Truth is no longer defined as singular but relatively plural and open for interpretation. Like any form of communication, architecture has always been one of the main platforms for political movements to assert their agendas. Architectural styles, aesthetics and forms take on different meanings and symbolism throughout history. In the West, the architecture of power is especially characterized by the use of features from the Greco-Roman period (Therborn, 2017). Architecture and the act of building can be observed as an exercise of power and forming an identity for a city or nation. When the former US president Donald Trump released the order of any federal building to be built and designed within the neoclassical style, known as the *Promoting Beautiful Federal Civic Architecture* order (President of the United States of America, 2020), it prompted alarming connotations of similar approach to propaganda by past populist leaders. The *Skopje 2014* initiative by the VMRO-DPMNE in Macedonia was used to 'beautify' the existing built environment that consists of buildings from the socialist era and the Ottoman era. Thus, rewriting its social and political history in an attempt to re-assert a euro-centric identity that links back to Alexander the Great (Vangeli, 2011). The narrative of reshaping and covering an existing building is a communication of power from sovereign leaders towards their national subjects. The approach of the Trump Administration and the Macedonian Government in their identity making efforts through the use of neo-classical and baroque architecture can be examined as false representation of their respective societies. Representation and meaning that a building can convey is important as it shapes the narrative of its context. This paper explores

how architecture is used as a form of propaganda through the two case studies of the *Promoting Beautiful Federal Civic Architecture* and *Skopje 2014* (Figure 1).



**Figure 1** Giuseppe Resta, *Skopje 2014 project – the centre*, 2017, Skopje, Republic of Macedonia.

## METHODOLOGY

The choice of revivalism in architecture bears a wide range of reasons, which vary across different cultural milieus (Bann, 1984; Beiser, 2011). Athena Leoussi (1998) explains that classical revival has been a common reference point for progress in western Europe from the late eighteenth century to the early twentieth century, but it is still an aesthetic canon today. Rediscovery of the past exposes what Rancière (2013) calls the relationship between history and historicity in his *The politics of aesthetics*. The first is the historical agent itself, the second is how history is narrated. The Romantic era,

which can be regarded as the initiator of revivalism in all arts, has separated the logic of facts from that of stories (Rancière, 2013). Through an analysis and a historical sweep of how the neoclassical style has been used in the past will reveal the politicisation of architectural aesthetic as a tool in creating alternative narratives. In other words, how politics can shape and re-shape the idea of tradition (Hobsbawm, 1992) to serve their agenda.

First, we survey the *Skopje 2014* project of antiquization in the Macedonian capital, whose main revivalist intent is based on a calculated historical inaccuracy. Then we analyse the revoked *Promoting Beautiful Federal Civic Architecture* order issued under the Trump administration as a form of propaganda aiming to impose the neoclassical style on all new federal and civic buildings. Finally, an analysis of the link between architecture and propaganda, considering the former a vector of political messages. Hence, it is included a paragraph on the reception of these decisions. It should be noted that the Republic of Macedonia and USA constitute very different contexts. The two distant cases have been selected on purpose in order to see if different nationalist governments, referring to the same represented aesthetics, resort to similar ways of manipulating the historical truth. We have limited our interest to conservative-nationalist cases, but also post-socialist democratic countries struggled with a true recognition of their past (Kopeček & Wciślik, 2015).

#### SKOPJE 2014, A NEW UNIFYING AESTHETICAL CODE

The recent *Skopje 2014* project has been addressed as the product of a 'nationalist planning doctrine' (Grcheva, 2019). In the 2010s, after only two decades from the proclamation of independence of the Republic of Macedonia, the nationalist conservative party VMRO-DPMNE promoted

identitarian policies based on the assumption that there is a direct link between today's ethnic Macedonians and An-

**Figure 2** Giuseppe Resta, *Skopje 2014 project - detail*, 2017, Skopje, Republic of Macedonia.



cient Macedonians. Government officially commenced the antiquization by renaming the Skopje Airport ‘Alexander the Great’ and later took other institutional measures in the same direction. Additionally, civil society impulses have complemented governmental efforts. (Vangeli, 2011, p. 13)

In this process of creating an ancient image in Skopje, buildings had been wrapped with plasterboard columns and cornices in an attempt to reclaim a proud sense of patriotism (Figure 2). The foundation of this alternative narration, which contested the long established utilization of the myth of Alexander to inject Macedonians under Greek origins, could be integrated to the invention of a tradition (Hobsbawm, 1992). Therefore, Similarities can be easily drawn with nationalist regimes of the 20th century (Sudjic, 2005; Therborn, 2017).

The project *Skopje 2014* resulted in a ridiculous pantheon of supposedly identity-making landmarks, but it was founded on a very serious political scheme to differentiate Macedonia from Greece with the re-appropriation of historical symbols and style. Some commentators addressed Skopje as Europe’s new capital of kitsch (Gillet, 2015). This act of covering, in a way, rewrites the narrative of the urban fabric. The use of neoclassical architectural elements in contemporary era assimilates the ideology of its historical preconception





**Figure 3** Giuseppe Resta, *Skopje 2014 project*, 2017, Skopje, Republic of Macedonia.

of an idealized time. The construction of these façades also plays an important role in the false narrative. The use of polystyrene moulding with cement render is a fake representation of masonry type construction (Figure 3). A capital that is fragmented by nature is being treated with a unifying aesthetical code. For instance, the building of Electric Power Company of Macedonia (ESM), built in 1962 and designed by Branko Petričić who was trained in the office of Le Corbusier, was an example of the International Style and featured the first curtain wall in Macedonia (Shulevska, 2015, pp. 36-43). In 2015, it has been wrapped with a skin made of cornices, capitals, and columns. Another landmark case is the transformation of the central Republic Dispatch TC Center, built in 1989 by architect Zoran Shtaklev. The building was part of the post-earthquake reconstruction plan of the city centre by Kenzō Tange (Shulevska, 2015, pp. 54-59). Disguised as the

others as maintenance works, *Skopje 2014* actually re-shaped the exteriors keeping the interior as they were. What mattered was the urban scene. This renewal project implied the creation of a rulebook, new principles on city planning, architecture, and the design, created by the ruling political party leaders (Grcheva, 2019). While initially the stylistic direction of *Skopje 2014* was only suggested, it gradually became a legal requirement. Thus it imposed an architectural style to architects which then influenced non-government buildings through an incentivised conditional tax cuts (Grcheva, 2019, p. 142). Façadism has been used as a subtle device not only to compete with the post-socialist heritage, but also to overwrite what has been built before. The government covered the past, literally, with a new layer (Figure 4).

**Figure 4** Giuseppe Resta, *Skopje 2014 project – the centre*, 2017, Skopje, Republic of Macedonia.



## PROMOTING BEAUTIFUL FEDERAL CIVIC ARCHITECTURE

Revival as a methodology of invention of the past is not a peculiarity of recently formed European republics of the East. Proof is what happened under the Trump administration. The former President of the United States released the order of any federal building to be built and designed within the neoclassical style, known as the *Promoting Beautiful Federal Civic Architecture* order (President of the United States of America, 2020). In Section one of the executive order, it referred to the notable founding fathers placing importance on the civic and federal buildings: “They wanted America’s public buildings to inspire the American people and encourage civic virtue” (Exec. Order no. 13967, 2020).

This reference was to bring justification in modelling future Federal and Civic buildings to be like those built around the founding of the United States of America. An example of a building that was built during the Trump Administration was the White House Tennis Pavilion which the former First Lady Melania Trump co-designed in a neo-classical style (Figure 5).

**Figure 5** White House, *White House Tennis Pavilion*, 2019, Washington DC, United States of America. Retrieved April 30, 2021 from <[https://commons.wikimedia.org/wiki/File:White\\_House\\_tennis\\_pavilion.jpg](https://commons.wikimedia.org/wiki/File:White_House_tennis_pavilion.jpg)>.





This would be a precursor in promoting this style for Federal and Civic buildings. Around at the same time, the White House gardens were renovated and changed which sparked controversy to the removal of historical importance of the gardens such as the rose garden that was planted during the Kennedy Administration. The idea of creating a new image is a form of political propaganda and in a way creating a new form of reality by removing the past and instilling the present.

During the 1950's onward in the USA, the use of neoclassical style was replaced to favour modern and contemporary designs. During the 50's, 60's and the 70's, there was a large number of new federal buildings that were built and designed by renowned architects of the modernist era (Robinson & Foell, 2003). These become reflections of the stylistic ideals of that time but it also reflects the context of a changing socio-cultural and economic environment post World War II. The 1959 Public Building Act, reviewed by the Kennedy administration, aimed for efficient and economical builds that favoured creative design and the implementation of art (Robinson & Foell, 2003, pp. 43, 44). The act also sought to seek the direction of the architectural profession with current trends rather than the government. Buildings

**Figure 6** Photographs in the Carol M. Highsmith Archive, Library of Congress, Prints and Photographs Division, *Robert C. Weaver Federal Building*, Washington, DC. Retrieved April 30, 2021 from <<https://www.loc.gov/pictures/item/2011633627/>>.





**Figure 7** Frank Schulenburg, *Smithsonian National Museum of African American History and Culture*, 2020, Washington DC, United States of America. Retrieved April 30, 2021 from <[https://commons.wikimedia.org/wiki/File:National\\_Museum\\_of\\_African\\_American\\_History\\_and\\_Culture\\_in\\_February\\_2020.jpg](https://commons.wikimedia.org/wiki/File:National_Museum_of_African_American_History_and_Culture_in_February_2020.jpg)>.

such as the Mies Van Der Rohe's Kluczynski Federal Building (Chicago, IL), the Marcel Breuer's Robert C. Weaver Federal Building (Washington, DC) and the Walter Gropius' John F. Kennedy Federal Building (Boston, MA), built at the time were examples of design that were current representation of the discourse (Figure 6). The positive impact of not prescribing a style can still be observed in the contemporary era, most notably with the Smithsonian National Museum of African American History and Culture (Figure 7). This building built under the Obama administration with the design led by David Adjaye are a reflection of the changing socio-cultural vanguard around African-American history and culture. This is vastly different to what the Executive Order given by the Trump administration where it sought to undo these architectural freedoms. The 1959 Public Building Act gave agency for the architectural profession to use their creative expertise to reflect onto the building of their context by incorporating

art and design thought that they see fit. The Executive order 13967 sought to remove this power and impose a singular style that limited the representation of the broader United States, thus becomes authoritative and misrepresents the current architectural profession.

#### ANALYSIS: ARCHITECTURE THROUGH POWER AND PROPAGANDA

In year 2020, the surge of the pandemic provided a fertile environment for politicising the global situation. The formula 'Fake News' was disseminated in 2016 by Donald Trump who was at the time a candidate running for the presidency. As Trump rose to power, the terminology of 'fake news' also became a powerful weapon. The following year in 2017, in response to the growing weaponization of the term 'fake news' by some world leaders, a joint declaration by the UN Special Rapporteur for Freedom of Opinion and Expression, the OSCE's Representative on Freedom of the Media, the Organization of American States' Special Rapporteur on Freedom of Expression, and the African Commission on Human and People's Rights Special Rapporteur on Freedom of Expression and Access to Information to express their concern on the impact towards the integrity of journalism (Kaye, 2017). Around the same time, UNESCO produced a handbook outlining to journalists, students of journalism and journalist educators/trainers on how to navigate the surge of 'fake news' (Ireton & Posetti, 2018). The idea of fake news is not novel. It is simply another form of disinformation, misinformation and propaganda. The first recorded smear campaign was at the time of Mark Antony and Cleopatra in 44 BC. Kaminska (2017) colourfully wrote that Octavian produced 'tweet' like propaganda in the form of small coins. The goal was to brand Mark Antony as Cleopatra's puppet, a drunkard, philanderer and not fit to lead the Roman Empire. Octavian was successful in his propaganda and spread of misinformation despite the lack of evidence against Mark Antony (Sifuentes, 2019). Therefore, the





**Figure 8** Darmon Richter, *Construction of Skopje 2014*, Skopje Administrative Court, Republic of Macedonia. Retrieved April 30, 2021 from <<https://www.exutopia.com/skopjes-colourful-revolution-fighting-tyranny-with-street-art/>>.

ability to acknowledge real information from fake information gets blurred through propaganda. In the case of the *Skopje 2014*, the buildings were wrapped with lightweight structures and plaster to mask the existing concrete structures, as seen in Figures 8-10 of the Administrative Court. The act of masking with an architectural skin coupled with agendas of the VMRO-DPMNE made it propagandist. Whilst, the *Promoting Beautiful Federal Civic Architecture* limits new building to be within the appointed style through authoritative requirements. Therefore, the built environment and its architecture can be used as a form of media for political propaganda.

The historical context of Neoclassicism and the revival of the ancient world has been twisted to serve certain ideals that have evolved over time. The interest towards the past was re-ignited after the discovery of the ancient ruins in Herculaneum (1738) and Pompeii (1748). This unveiled an unprecedented source of aesthetical, and eventually, philo-





**Figure 9** Darmon Richter, *Construction of Skopje 2014*, Skopje Administrative Court, Republic of Macedonia. Retrieved April 30, 2021 from <<https://www.exutopia.com/skopjes-colourful-revolution-fighting-tyranny-with-street-art/>>.

sophical references of the classical revival movement during the 18th century as they idealised and romanticised the past as the perfected society (Irwin, 1997; Leoussi, 1998). The classicism set forth by Winckelmann and the Grand Tour exemplify how historical revisionism can create a snowball effect on the contemporary society just discovering and sharing image-based ideals. In other cases, revivalism can be an ad-hoc strategy to support the ideology of national identity, with a top-down direction. It is especially the problem of the definition of an identity that creates a connection between political propaganda and architecture (Leoussi, 1998; Pandya, 2020). The propaganda of fascist/populist political movements created a new context for this architectural style.

The drive to associate government building within the style of Neoclassicism has changed overtime through political agendas that used the architectural style as an imposition of power and the association of an idealised society.

**Figure 10** Darmon Richter, *Construction of Skopje 2014*, Skopje Administrative Court, Republic of Macedonia. Retrieved April 30, 2021 from <<https://www.exutopia.com/skopjes-colourful-revolution-fighting-tyranny-with-street-art/>>.



The assertion of a nationalist identity with architecture can be seen through the patronage of Adolf Hitler to Albert Speer in the conceptualisation and design of New Germania (Therborn, 2017). It was clear that there was an intent to impose a global dominance through designs that would reference and rival in scale and grandeur the Roman Pantheon and St Peter's Basilica (Vale, 2014). Power plays an important role in architecture and in turn architecture plays an important role in asserting and establishing a powerful national identity. In the same period, the Italian fascist regime was concerned with the re-elaboration of the Roman tradition as Piacentini (1933) looked for *italianissimi* and *romanissimi* building designs. Moreover, authoritarian regimes employed neoclassical tropes to westernise colonies (Deane et al., 2012) as it accompanied the acquisition of distant lands (Pieris, 2012). Thus, the architecture created became cultural landmarks through the formation of a new nation-state (Calace et al., 2017; Pantelić, 1997). Narrative within a built environment is power at its best. Therefore, contemporary neoclassical façades can be viewed with Western nationalism in the act of imposing their agendas with a connotation of power and dominance. The connotation of the neoclassical style has evolved from romanticising the ancient world into weaponizing the style.

As a reaction, protests and demonstrations opposed both policies. In Skopje, the realization was so fast that the local community was left unprepared in front of the renewal project. Among these protests, the 2016 *Colourful Revolution* involved citizens, art experts, architects, writers, sculptors, university professors, politicians, in colouring plaster skins with paint and coloured balloons (Buleski, 2017). Social mobilization weakened the image of the ruling party, leading eventually to an election loss, but the consensus of the population on *Skopje 2014* was nonetheless consistent and today the capital still faces the aftermath of that project (Grcheva, 2019). In USA, president Joe Biden has revoked Trump's executive order four days after he sworn as the 46th president of the United States. When it was announced and during its 69-day of activity, the order provoked many opposing voices from professional organizations and media (McGuigan, 2020). The American Institute of Architects (AIA) president Peter Exley commended Biden's overturning of the policy saying that he "has restored communities with the freedom of design choice that is essential to designing federal buildings that best serve the public" (Dafoe, 2021).

It can be said that, in both cases, public mobilization has effectively opposed aesthetic revivals, extending the stylistic problem to the political domain. In Macedonia, the protest has been taken to the street, while the USA act has been hindered at an institutional level.

## CONCLUSION

Extravagance and ornamentation, under the reassuring guise of a widely accepted aesthetic, are believed to be universally applicable, beyond the boundaries of place and time. Nevertheless, when revival is associated with the search for identity, then looking for a congruent unity between politics, the nation, and a style, historical fakes can feed nationalistic propaganda. Buildings being a representation of the nation

and of the people that use them needs to consider the image and the historical implications when appropriating a certain style. It is clear that when the Macedonian Capital Skopje began masking the existing modernist government building with classical features it signalled an attempt to rewrite history. Buildings as seen as both a visual representation as well as a vessel of socio-cultural meaning and symbols need to be placed with importance. The aesthetical and stylistic image will have a direct narrative in how they will be perceived. Thus, a building that has been plastered over to hide another building beneath its thin polystyrene skin tells a story of an attempt to deceive the viewer. This is the fakery and the fallacy demonstrated in Skopje is a deception of a narrative that tries to re-invent an image of a nation. Furthermore, federal and government buildings hold power in the identity of a nation and when the Executive Order 13967 it was not an attempt to reflect the ideals of the citizens as it imposed a singular aesthetic that rendered the role of the architectural profession to a subsidiary level compared to the 1959 Public Building Act that sought to foster creativity and agency outside Government control. Therefore, a misrepresentation of the discourse.

This article is no means to demonise the neoclassical movement as it is a representation of the 18th and 19th century Western European ideals of art, architecture and philosophy. However, it must be questioned whether this aesthetic is a relevant style for the 21st century where the socio-cultural ideals are vastly different and whether its association with populist agenda is appropriate. Although trends and style change through architectural history, their meaning and representation remain a marker in time of their context. Buildings are vessels of information and like many forms of information it can be construed and misrepresented. Thus, architecture as a tool for communication is susceptible to the spread of misinformation and propaganda. In brief, we argue that fake classicism, like employment of fake news, is propagandist that is used as a tool to change the shape of a community. Thus, shifting and altering the narrative of a city.

## ACKNOWLEDGEMENTS AND DECLARATION OF INTEREST

Authors declare no potential conflict of interest. We would like to thank prof. Slobodan Velevski for his help and Darmon Richter for providing photographs of Skopje.

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**Article available at**

DOI: 10.6092/issn.2724-2463/12711

**How to cite**

**as article**

Resta, G., Gatip, J., (2021). The aesthetic of right. How historical fake feeds populist agendas. *img journal*, 4, 322-341.

**as contribution in book**

Resta, G., Gatip, J., (2021). The aesthetic of right. How historical fake feeds populist agendas. In M. Ghizzoni, E. Musiani (Eds.), *img journal 04/2021 Copy/False/Fake* (pp. 322-341). Alghero, IT: Publica. ISBN 9788899586195



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# THE "MEMO" PROJECT: THE STUDY, DIGITALISATION AND VALUE ENHANCEMENT OF GREEK AND SOUTH-ITALIAN POTTERY IN VENETO THE ISSUE OF FORGERY

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## ESSAY 77/04

GREEK AND SOUTH-ITALIAN POTTERY  
COLLECTIONS  
AUTHENTICATION  
FORGERY  
LABORATORY

In archaeology, the topic of fakes, copies, and imitations has been around since the 18th century. Recent studies have found that the phenomenon of counterfeit pottery worked in the ancient Greek world is very present in private and public collections, thus showing the extent of an issue that, in fact, pervades the history of archaeology.

One of the MemO Project pillars, launched in March 2018 by the Department of Cultural Heritage of the University of Padova, stems from an awareness of this reality. The MemO Project is dedicated to enhancing the effectuation of archaeological artefacts (especially ceramics) within academic training and research.

Accessing the technical, formal and iconographic universe of objects made thousands of years ago requires a wide-

ranging apprenticeship: this is why the "Laboratory of Authentication of Archaeological Heritage" was created, an absolute novelty in the Italian academic panorama. Through the analysis of concrete cases, teachers and students can work systematically on each artefact using techniques that integrate humanistic diagnostics with the most advanced analytical and digital imaging techniques. The workshop experience is an essential practical activity essential to which students are introduced to the drawing up of concrete expert reports to training increasing professionals to defend the genuineness of art.

In addition, all materials inspected in the Laboratory and archived due to forgeries will be included in an accessible database. This tool will contribute to the defence of cultural heritage.

## INTRODUCTION: COLLECTIONS, FORGERIES AND THE MEMO PROJECT

Venice and the Veneto Region witnessed a very early form of Greek and South-Italian vase collecting and, as these items were considered a symbol of cultural and social distinction, their presence in the collections of several Venetian notables was documented as early as the XVI century (De Paoli, 2006): in Padua, in the collection of jurist Marco Mantova Benavides; in Venice, in the collections of the Grimani di Santa Maria Formosa family, Apostolo Zeno, Jacopo Contarini and Onorio Arrigoni; in Verona, in Scipione Maffei's collection; in Adria, in the Bocchi collection and Rovigo, in the Silvestri collection.

While most of these items now belong to several European museums, some have contributed to the formation of the Veneto Region museums, which have become, at least in some cases, "recipients of private collections" over the years.

During the last decades of the 20th century, the study of the vases belonging to the historical collections of the museums of Veneto was started at the University of Padua (Favaretto, 2001, 2004) and focused, among other things, on the controversial question—still open and perhaps unresolvable—whether the origin of these artefacts in Veneto can be dated to Antiquity or can be attributed to the Modern Age, through an as yet unidentified antiquarian market (Favaretto, 2006; Baggio et al., 2019).

More recently, a new line of research is stimulated by contemporary archaeological collecting, a phenomenon that is still globally very active and organised (Adam, 2017).

In this regard, in December 2015, a legacy has enriched the University of Padova Cultural Heritage. There was the urgency to reflect how an archaeological collection is being created in the contemporary age. It is a considerable collection of presumably archaeological artefacts donated by a well-known family from Veneto.

A preliminary analysis of the materials immediately revealed the need for a multidisciplinary approach to the study and valorisation of this collection: it is a miscellaneous collection of over

three hundred and fifty pieces, belonging to the most varied material classes and from different periods (from the Phoenician pendant to the Etruscan chariot, from the Roman *terra sigillata* cups to the Greek and South-Italian figured vases).

As archaeologists, who consider the context of the artefacts to be fundamental, the burning questions are: how can we study a newly formed collection? How do we study the objects that compose it?

From a practical point of view, we are aware that in starting the scientific analysis of a collection composed of a material whose provenance is not ascertained, two controversies arise: on the one hand, the 'status' of the artefacts in the collection and their informative potential as historical sources (Lippolis & Mazzei, 2005); on the other hand, the problem of looting of antiquities and archaeological forgery. As far as the 'status' of collections is concerned, their study allows us to appreciate the extent of the contemporary circulation of artefacts, analyse the problem of areas of origin better, and increase the sample of forms and iconographies. At the same time, in a broader cultural perspective, precisely because they are part of a collection, collectable antiquities are important testimonies to the tastes, social and cultural values, and commercial and legislative concerns of the time of the revival and/or creation of the collection, thus making it possible to map the practice of art collecting in a diachronic perspective.

It begins, based on these observations, the MemO Project, "The memory of objects. A multidisciplinary approach to the study, digitisation and valorisation of Greek and South Italian pottery in Veneto", supported by the Fondazione Casa di Risparmio di Padova e Rovigo within the call for proposals "Projects of Excellence 2017".

The MemO Project aims to study and valorise the archaeological collections preserved in Veneto, including a rich heritage of Greek and South-Italian vases, whose social and cultural role is significant, both for the history of the classical world and for the search for our identity in the contemporary age. At the same time, the progress of archaeological

studies in recent decades has opened up new possibilities for examining ancient materials, whose semantic and communicative potential can now be analysed in innovative ways. Thus, the great heritage of Greek and South Italian vases, belonging to different museum collections in the Veneto Region, is brought to light through investigation and valorisation, using a multidisciplinary approach that integrates traditional archaeological survey methods with new techniques of high-resolution and photorealistic 3D scanning and digital image processing and archaeometric analysis. Moreover, this interdisciplinary approach, which ranges from traditional comparative archaeological analyses to archaeometric techniques, is essential to distinguish authentic objects from fakes. Recent studies have shown that the phenomenon of forgery of ceramics produced in the ancient Greek world is very present in private and public collections. This shows the extent of a problem that pervades the history of archaeology and sometimes falsifies reconstruction.

In this regard, within the MemO Project, the debate on the issue of forgery has always been very intense, as witnessed by the participation in several conferences and the organisation of two International Winter Schools in 2017 and 2019, as well as the launch of a new dedicated journal (*Authenticity Studies. International Journal of Archaeology and Art*).

Although the Authors firmly believe that forgery is a reprehensible phenomenon, when it involves malicious intent, both because of the economic damage (private collectors, public institutions) and because of its ethical implications and its action of mystifying history, from a social and cultural point of view, forged artefacts represent a valuable source of information regarding the knowledge, tastes, techniques, art market dynamics and epistemological values of the time of their creation.

In a broader perspective, fake objects could lead to an understanding of (and perhaps fighting) the current illicit phenomena adopted on cultural heritage and develop a widespread culture of legality in contemporary society.

In particular, in the eyes of scholars, students and professionals involved in the conservation and promotion of archaeological heritage, counterfeit artefacts could provide an opportunity to develop and train effective, low-cost and non-invasive means of authenticating artefacts for study. We propose to re-evaluate the status of fakes, not from a legal point of view but an anthropological one: by unveiling fakes, we reveal the truth, that is, the instances of cultural, epistemological and aesthetic history that produced them. Reproduction is both 'victim' and 'witness' of those instances and, due to its 'palimpsestic' nature, bears the sign of them.

#### MATERIALS AND METHODS: IDENTIFY, STUDY AND TRAIN ON ARCHAEOLOGICAL FORGERIES

The MemO Project stems from the awareness of the importance that Greek and South-Italian pottery had in Antiquity for the cultural identity of local communities referable to the Veneto region. This importance has been maintained over the centuries by collecting archaeological goods and is still very present today, both in the public and private sectors.

This multi-year (2018-2023) and multidisciplinary research project intends to focus on the phenomenon of collecting and on what can be defined as a direct consequence, namely the falsification of archaeological material.

In the contemporary world, when one speaks of "forgery" (Eco, 1975; Zeri, 2011), it is implicit to also talk of fraud, thus defining "forgery" (action, behaviour, object) only in the presence of deception (otherwise one can speak of imitation).

The term derives from the Latin *falsum* (*fallere*, to put one's foot in the wrong, to deceive). It expresses its primary meaning: partial or total alteration of the truth in documents, literary texts, legal acts, signatures, seals, keys, goods, products, weights, measures, works of art, theories, scientific research, religious and political doctrines.

If one considers 'authentication' (Holtorf & Schadla-Hall, 1999; Scalabroni, 2011) as the operation by which an object is

recognised as authentic and its originality is declared (thus affirming the truth expressed, shown), or its provenance is demonstrated (Casarin, 2015), on the opposite plane is falsification, i.e. the mental, artificial and manual operation by which a technical artifice is designed, created and/or elaborated to make an object appear to be what in reality it can never be, i.e. an authentic good endowed with authority since it is recognised as such (Arnau, 1960; Calaon, 2018).

It seems clear that it is necessary to distinguish forgeries from other types of mimicry, such as copies, replicas, pastiches (which presuppose a condition of freedom from the model), and from mystifications, i.e. fakes created to be revealed at a given moment. Not to mention the products of restoration or revivals and serial productions that were at a specific moment disowned as such.

Therefore, creating a forgery requires artifice in the mystification of the material and the executor's will, who attempts to fit into a tradition that does not belong to him (Brandi, 1977). The actual forger, potentially the most dangerous for the order that would like to be founded on the authenticity of art, is the one who in his work of forgery does not aim to reproduce a simulacrum of already existing objects but attempts to construct a new work, which escapes the comparison of truth that a usual copy has with its original, simulating the very originality of art (Paul, 1995; Dalla Vigna, 2000).

As Marco Bona Castellotti recalls (Zeri, 2011, p. 11), "perfect forgeries do not exist, but dangerous ones do [...], forgeries are not always a bad thing, since sometimes it was thanks to them that a circumstantial process was set in motion that led to the discovery of the original", thus giving rise to history (or archaeology) of forgery (Paul, 1995) and the consequent need to determine the authenticity continually or otherwise of works, or rather the need to train professionals in the identification and evaluation of counterfeits.

If in 1979 Massimo Pallottino (1979) expressed a clear *j'accuse* towards his colleagues guilty, with their lack of inter-



est, of having allowed the spread of fakes in society to worsen, Tommaso Casini recently expressed the need for this field of study, stating that:

“the historicity of the fake, like that of the copy, is still one of the many aspects of European art of the modern and contemporary age, as well as a fundamental element of the history of reception that should be reconsidered with more awareness in a broader art-historical reflection on the variants of forms of expression” (Casini, 2015, p.307).

Again according to Pallottino, whose reflections date back to a period in which artistic forgeries had reached the headlines (the first Italian law to contrast artistic forgeries dates back to 1971), the best way to counter this illicit and dangerous phenomenon is to narrate it to the general public, discussing it as much as possible, to spread sensitivity to the issue and awareness of the risks that even cultural heritage can run. Pallottino’s critical analysis continues on the need for a “systematic documentation of current forgeries” to be collected in a “real archive of news and photographs” (a theme also taken up in Conley, 2004, p. 65), as well as on the need to implement research in this sector, to recognise the sources of manufacture and to identify the routes of sale.

The author concludes his reflections with a sentence that is still valid today:

“activity of this kind does not seem to me to be a foreign or undesirable task for scientific institutions dealing with archaeology and art history. It can not only make a useful contribution to the clarification of historical and critical questions that are still sometimes nebulous but can also be of benefit to culture and society” (Pallottino, 1979, p.1191).

Suppose it seems necessary and proper (from a disciplinary point of view) to study the falsifications reproducing historical, artistic or archaeological goods. In that case, it may also be helpful to outline the profile within which to turn the operations mentioned above. The history (or archaeology) of forgery (Radnóti, 2006; Ferretti, 2009) thus possesses some unique characteristics for bearing witness to the history of

past and contemporary civilisations, not only through the material element (i.e. the objects created) but also through the intangible element (the knowledge on which those same objects depend):

1. it narrates not only the history of taste but also the history of art criticism itself, understanding forgery as a way of reading a work of art and inferring from that reading the style, technique and symbolic scope of a given period;
2. it can rely on the methods of proven disciplines such as the archaeology of production, the archaeology of trade, the archaeology of consumption and archaeometry; in doing so, the object of investigation must always be seen against the background of all those that are close to it in space and time, or those present similar characteristics, and even apparently insignificant individual elements can have informative value as constituents of a complex whole;
3. it can consider not only fakes but also copies and imitations;
4. it can be based on its intrinsic criticism, namely the difficulty of proving fraud (an essential element for the judgement of counterfeiting) and the impossibility of excluding an intentional production of counterfeits (as artefacts of human ingenuity).

It is correct to speak of "history" (Carr, 2000) precisely because of the multifaceted and multidisciplinary value of counterfeit objects, analysed above, as historical documents, emblems of knowledge and technical skills. In the same way, one can speak of the archaeology of forgery (Paul, 1995) precisely because of the methodological characteristics set out above: although the forged objects studied do not possess an archaeological "cultural", they are (and will always be) artefacts, i.e. the material result of a planned activity carried out in a given time and place, in a defined cultural context (Bietti Sestieri, 2009).

In this way (Zamparo, 2019), the stories of those who could not tell them, the technical methods, the knowledge present and exploited in a given space and time are reconstructed solely with material remains, remembering that the archaeo-

logical discourse is not based on evidence but on clues, not on demonstrations but on arguments that cannot always be proven but are nevertheless probable.

The fake, therefore, has its “rights”: it has the “right” to be studied, to be included within the understanding of the social, historical, economic and cultural context that generated it, that put it on the market, that acquired it and, finally, it has the “right” to be protected (Severini, 2012). The fake, once identified and intelligently used, can be a formidable tool for the promotion of lawful behaviour in the cultural heritage sector against unlawful conduct, for the enhancement of authentic material and the training, for example, of the future archaeological class, increasingly multidisciplinary and with an extended vision towards the materiality of objects (Salvadori et al., 2018): as previously advanced, distinguishing originals from copies and fakes is, therefore, a necessity for those who want to trace a new historical panorama, no longer based on acquired and indirect notions but the direct examination of the works (Natale, 2017).

At the same time, forgery (and not the fake object), understood as criminal behaviour involving deception, must be outlawed (Malnati, 2018): our duty is to study it, recognise it and oppose it, precisely because it damages the Community and the very idea of Culture.

Within the MemO Project research group, addressing these issues, especially in the context of Greek and South-Italian pottery, has meant focusing attention on three different aims and three different audiences/users: firstly, research actions have been set up to identify and evaluate forgery in the archaeological field; secondly, training courses have been set up for students and professionals to create a forum for discussion and reflection on these issues; finally, ways have been developed to disseminate a culture of legality to the general public (conferences, publications, videos, exhibitions).

From the outset, specific courses were set up for university students (with the creation of the Laboratory for the Authen-

tication of Archaeological Heritage, now officially included in the curriculum of the master's degree in Archaeological Sciences) and post-graduate students (with the two editions of the International Winter Schools "Anthropology of Forgery") to focus on the theme of authentication, i.e. how to recognise forgeries, how to identify them and how to combat the illegal phenomena associated with them.

The Authentication of Archaeological Heritage Laboratory analyses the role of archaeologists in contemporary society (i.e. their role as experts, as provided for by Ministerial Decree 244/2019), criticises and evaluates the current art market (knowledge of which is necessary for understanding likely future counterfeits), studies authentic archaeological material (from its materiality to its intrinsic cultural, social and economic characteristics) to understand the differences that counterfeit material presents.

Beginning in 2018, analyses of single artefacts or classes of artefacts homogeneous in production have been conducted within undergraduate and graduate theses and, notably, during the Laboratory's teaching experience. It has trained 60 students in three editions, giving rise to 13 different theses, which have investigated the theme of forgery, from the operational methods to achieve a correct authentication to the more theoretical considerations and ethical implications. Three different collections (public and private) have been investigated during these years, in agreement with the above mentioned Soprintendenza, and more than 350 objects have been analysed, 60% of which have been proven to be faked.

The methodological approach to each item is based on the so-called "humanistic diagnostics" (Calcani, 2006), thanks to which the student puts in the field the knowledge he acquired in his university archaeological training (Zamparo, 2019), however, expanding the horizons of investigation towards a still unexplored area.

The operational method developed is then applied in practice thanks to the didactic collections available at the De-

partment of Cultural Heritage and the material made available by the Soprintendenza Archeologia, Belle Arti e Paesaggio for the metropolitan area of Venice and the provinces of Belluno, Padova and Treviso.

The purpose of these moments of in-depth study and comparison lies in the desire to educate the future class of cultural heritage professionals on niche issues in their field of work in such a way as to lead to a non-superficial knowledge of the underlying social and cultural phenomena. In this way, counterfeit objects can be identified to protect the authentic cultural heritage and be appropriately valued by excluding artefacts that could alter its memory and narrative.

#### THE *oou* CASE STUDY (DIDACTIC COLLECTION UNIVERSITY OF PADOVA, INV. 250)

While archaeological research methods have been consolidated for a long time, studying material culture implies an ever-renewed desire to investigate the technical and intrinsic aspects of the artefacts and their external (aesthetic) characteristics.

The archaeological analysis, in fact, must try to reconstruct not only how the objects were made (and therefore understand the knowledge and skills of a particular society in a particular historical period) but must also try to understand where these objects were made, who and how they were used, how they were broken, lost, buried and, finally, how and when they were found.

In concrete terms, the study of the artefacts analysed is done on the visual examination of the archaeological item and the comparative analysis of its formal, iconographic and stylistic constitutive elements and technique (exemplar is Fontannaz, 1999).

For reasons of space, only one vase will be discussed here, that is the case of an egg-shaped red-figure vase (Didactic Collection, inv. 250), that seems to be of Apulian production, supposedly dating back to the second half of the IV century B.C. (Figure 1).

This vase shape, known in archaeological literature under the term *oou*, is very rarely documented in ancient Greek

**Fig. 1** *Oon*, imitazione contemporanea di ceramica apula a figure rosse, metà/ seconda metà del XX secolo. Collezione didattica inv. 250. Università degli Studi di Padova, Dipartimento dei Beni Culturali



pottery and must have struck the curiosity of our collector, who—over time—purchased two of them. To understand the authenticity or non-authenticity of the objects, we based our analysis on a comparative type applied to the vase form, to the ornamental and figurative decorative apparatus (with particular attention to the layout, to the subject, to the theme, to the pattern), to verify the coherence of the object under examination with, at least, the area of production and the chronological horizon of reference.

Accessing the technical, formal and iconographic universe of objects crafted over two thousand years B.C. requires a wide-ranging apprenticeship, which allows comprehending the specificity of a language with peculiar purposes, rules, means of expression and communication: the genuineness of a pottery object will depend on whether data surfacing from an examination of the item converge or not.

The artefact in question has reddish clay, black paint coating, shiny, opaque, spread evenly. The use of overpainting is limited to white and yellow and characterises particular attributes, parts of clothing and architectural elements. The combination of white and yellow combined is found in the accessory decoration, particularly in the rosettes that decorate the free field, in the *ovoli* of the upper decorative band, in the olives that punctuate the branch of leaves (to mark the lower part of the vase). Substantially the artefact is intact.

## DISCUSSION

It is suitable to underline how doubts immediately arose from the observation of the ovoid form, rarely documented in ceramics and for this surprising: it is known that, in ancient times, the egg was attributed a powerful symbolic meaning, related to life that is born (or reborn), fertility and the luxuriance of growth, which is not excluded a funerary purpose of rebirth, as evidenced by the presence of real eggs in Greek tombs, Etruscan and indigenous elites of Magna Graecia, about the funeral ritual both male and female (Bartoloni & Alii, 2001, n. 85). If for these *realia* we cannot exclude a food value, of food prepared for the deceased or offered to the deities of the Underworld, their reproduction in terracotta should be read more likely, in a symbolic key, in an eschatological perspective, with perfect adherence to the forms of religiosity widespread in the second half of the fifth century B.C. (Dionysism, Orphism, myths linked to Demeter and the Eleusinian mysteries: Bottini, 1992).





**Fig. 2** *Oon*, attico a figure rosse, Pittore di Eretria. New York, Metropolitan Museum, 1971.258.3 Chali-Kahil 1955, pl. 5.

Until now, terracotta artefacts of this form appear exclusively in Attic production, both in black-figure and red-figure techniques, but in very few examples. If we owe to M. Nilsson the first attention paid to this type of object (Nilsson, 1951, p. 3), today the Pottery Database section of the Beazley Archive (an online version of the archive of black- and red-figure Attic vases of Sir John Beazley, from now BAPD) counts eight: one egg produced in the Six technique (decorated with animal figures: swan and bird, Königsberg, University, F198: Boardman, 1974, fig. 310, BAPD 511), three exemplars in the black-figure technique (Bonn, Akademisches Kunstmuseum, 846: BAPD 42077); Copenhagen, National Museum, 9078: Beazley, 1971, 315 (BAPD 352377); Athens, National Museum, Acropolis Coll., 2.1496: Graef, Langlotz (1933), II, n. 1496 (BAPD 9017769); lost, Marzabotto, Museo Nazionale Etrusco Po: Baldoni, 2009, p. 58, n. 6, figg. 44-45 (BAPD 9027403), one with a white background (Budapest, Hungarian Museum of Fine Arts: BAPD 43469), three with red figures (New York (N.Y.), Metropolitan Museum, New York (N.Y.), A. Martin, 1971.258.3 BAPD 217055); Athens, National Museum, 332: Beazley, 1963, 1257.2 (BAPD 217056), and Pellegrini, 2009, tav. 28).

The documents dating from the middle of the sixth to the end of the fifth century B.C.

The exact function of this shape is not yet clear: we know that some Attic examples have lids, so it is conceivable that they were used as containers. As far as the use destination, some objects convey a precise and more frequent funerary connotation, evident in the choice of theme (*prothesis* scene) and in the contexts in which they were found.

It is above all in the red-figure production that we find exciting iconographies: an egg shape vase attributed to the manner of the Painter of Eretria, a vase-painter who lived in the second half of the 5th century B.C. and was considered a follower of the Meidias Painter (Figure 2), is decorated with the theme of Helen abducted by Paris (New York, Metropolitan Museum of Art 1971.258.3; Ghali-Kahil, 1988, pp. 498-563; Lezzi Hafter, 1988). The choice of form, in this case, and of the mythological subject is firmly connected. Helen, the Queen of Sparta and King Menelaos' wife, is born from the egg generated from the union of Zeus and Nemesis. The divine nature of the protagonist and her condition as the most beautiful of all women, a gift from Aphrodite to the Trojan prince Paris, make her one of the mythical paradigms of the passage from childhood to female sexual maturity. A second document, dated around 440 B.C., is decorated with a scene in which the protagonist is Aphrodite, who, flanked by Eros, wins –in a sort of game of skill– her mother and initiates a young girl towards her future husband.

In both cases, there is an apparent reference to a ritual of the passage of status: in a nuptial perspective, the choice of the form may well symbolise the fertility desired for the new union.

If compared to what is known from the bibliography of reference, from the beginning, what has made doubtful the originality of our artefact is related primarily to its size. While almost all Attic documents are characterised by small dimensions, ranging between 6 and 10 cm, our eggs measure about 21 cm. Of smaller dimensions are also the ostrich eggs found in tomb contexts of Etruria starting from the 7th century BC (perhaps a natural model of reference), with examples, whole cut to three quarters or half-height, decorated with red painting or

engraved, to which our exemplar would approach for the presence of the hole of evacuation. Painted ostrich eggs have been found in Tarquinia, in high-level tombs, while other fragments of cut eggs with painted decoration come from the emporic sanctuary of Gravisca (Colivicchi, 2007, p. 217).

The Paduan *oon* differs from other products known up to now also for its thematic choice: here, we find the struggle of Heracles against the Pygmies arranged in a frieze that runs around the entire surface. As is well known, this is a minor episode in the myth of Heracles, linked to the struggle with the giant Antaeus. The Pygmies, a race of tiny men living on the borders of Egypt and Libya, sought revenge against Heracles since they were, like Antaeus, children of the Earth, and mourned the death of their brother.

Attacking the hero in his sleep, they attempted to kill him. Heracles awoke, laughed, and, seizing with one hand all the Pygmies, enclosed them in his lion's skin and brought them to Eurystheus (Dasen, 1994, pp. 594-601).

The theme is not unknown to the imagery of the ancient world: we know that *Philostratus* in the *Imagines* (2, 22) describes a painting with Heracles fighting with the Pygmies (comic); however, in the vase production –both Attic and southern Italy– no example with such iconographic solution seems to be documented at the moment.

Serious doubts also arise about the decoration at the end of the frieze: attributable to the series of offerings to the stele, the Paduan *oon*, contrary to what is attested in Apulian pottery production, shows the traditional offerers as they move away from the funerary marker, turning their backs on it rather than, as is usual, approaching it to bring offerings to the tomb.

We think that this solution is perhaps attributable to a misunderstanding of the forger for the theme.

The study of this vase proves that a sort of 'protocol' based on archaeological analysis is a proficient means for the authentication of pseudo-Greek and South-Italian vases that aimed to imitate the ancient style.

## CONCLUSIONS

As has been analysed above, the falsely created object, as a consumer product, is linked –both in the past and today– essentially to the economic law of supply and demand and responds to the desire to possess something one loves to achieve personal satisfaction and recognition, typical of collectors of all times. In a recent in-depth analysis of the contemporary art market, Georgina Adam (2017) argues that fakes are first and foremost

“a supply that corresponds to a demand, the ever-changing reflection of human desires” and that they “do not only harm the rich as they pollute and debase the information we have about art history, which undermines our culture and hurts us all” (Adam, 2017, pp. 121-143).

These considerations are borne out, for example, by the situation in Italy where, between 2015 and 2019, the Carabinieri Command for the Protection of Cultural Heritage reported 935 for counterfeiting cultural goods, leading to the seizure of almost 48,000 fake objects that if placed on the market would have resulted in economic damage of over €4 billion, without mentioning the intrinsic offence to Culture and History.

This is also the opinion of the MemO Project team, which can photograph the situation of archaeological collecting in Veneto thanks to the capillary work in museums, with private collectors and with the Soprintendenza: in this respect, an essential tool is the open-access database of the MemO Project (<https://memo.beniculturali.unipd.it>).

This contribution sought to analyse the role of archaeological (historical, artistic) forgery in contemporary society and, at the same time, the part of the university in preparing its students for the challenges presented by that society.

In conclusion, fake objects can provide different levels of information. They can demonstrate the historical/social/cultural/economic value of the authentic object or reflect the image of the society that produced it (deals, ideas). At the same time,

they can talk about the technical manifestation of the progress of studies on material culture, or they can indicate their authors (knowledge, skills). Furthermore, fake objects answer a question/request (therefore an image of an economic situation) and express a particular social context (status, self-representation). In the end, fake objects allow us to understand the contemporary vision of the past and its transformations.

These objects, then, are used in Paduan school of archaeology for multiple purposes, from a better study of the authentic material (manufacturing technique, technical tricks) to an analysis of the reception of the ancient world in the Modern and Contemporary Age; from the study of the extent and spread of the phenomenon of collecting (and the related art market) to refine investigation techniques for the analysis of authentic material (and therefore of fakes). Furthermore, the fake objects can train students to recognise the contrasting of illegal phenomena on cultural heritage. They can provide society with the tools necessary for the dissemination of lawful conduct.

## ACKNOWLEDGEMENTS

The text results from a collegial work of the authors. However, Monica Salvadori edited the section "Introduction: Collections, Forgeries and The MemO Project"; Luca Zamparo the section "Materials and Methods: Identify, Study and Train on Archaeological Forgeries"; Monica Baggio the sections "The Oon Case Study (Didactic Collection University of Padova, Inv. 250)" and "Discussion". The section "Conclusions" was edited by the three authors.

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**Article available at**

DOI: 10.6092/issn.2724-2463/12664

**How to cite**

**as article**

Salvadori, M., Baggio, M., Zamparo, L. (2021). The "MemO" Project: the study, digitalisation and value enhancement of Greek and South-Italian Pottery in Veneto. The issue of forgery. *img journal*, 4, 342-363.

**as contribution in book**

Salvadori, M., Baggio, M., Zamparo, L. (2021). The "MemO" Project: the study, digitalisation and value enhancement of Greek and South-Italian Pottery in Veneto. The issue of forgery. In Ghizzoni, M. & Musiani, E. (Eds.), *img journal 04/2021 Copy / False / Fake* (pp. 342-363). Alghero, IT: Publica. ISBN 9788899586195



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# HOMOLOGICAL RELATIONS BETWEEN GRAPHIC-GEOMETRIC DESCRIPTIVE / PROJECTIVE MODELS PRINCIPLE OF VIRTUAL WORKS IN DESCRIPTIVE GEOMETRY

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## ESSAY 83/04

DESCRIPTIVE GEOMETRY

GRAPHIC-GEOMETRIC MODELING

REALITY

VIRTUALITY

HOMOLOGICAL RELATIONS

The concept of the model is vast and complex and in its scientific and empirical implications and applications or on an experimental basis refers to various disciplines and knowledge. It essentially concerns questions relating to how to elaborate conjectures, thoughts, observations and geometric graphic operations as well as research spaces where there are considerations that involve and that take as the core of the theme the investigation that directly concerns the concept and the actual implementation of the model. The question relating to the concept of model that can evoke interest and stimulus for further study consists in the fact that thinking about the model in descriptive geometry contains two aspects connected to each other.

The first concerns the structure of the representation system, that is the ordering relative to the representation system on which the method is arranged graphically and geometrically; the second concerns the drawn visualization referred to the descriptive procedure of the represented image and attributed to the outlined object. Descriptive geometry virtually creates these elements using the founding principle of projection and section. In fact, modelling through descriptive geometry allows, in its different forms, for the representation of geometric figures constructed through the operations of projection and congruence. This is, therefore, a concept that determines an inseparable unity that allows one to virtually establish the geometric graphic problem parallel to the reality.

## INTRODUCTION

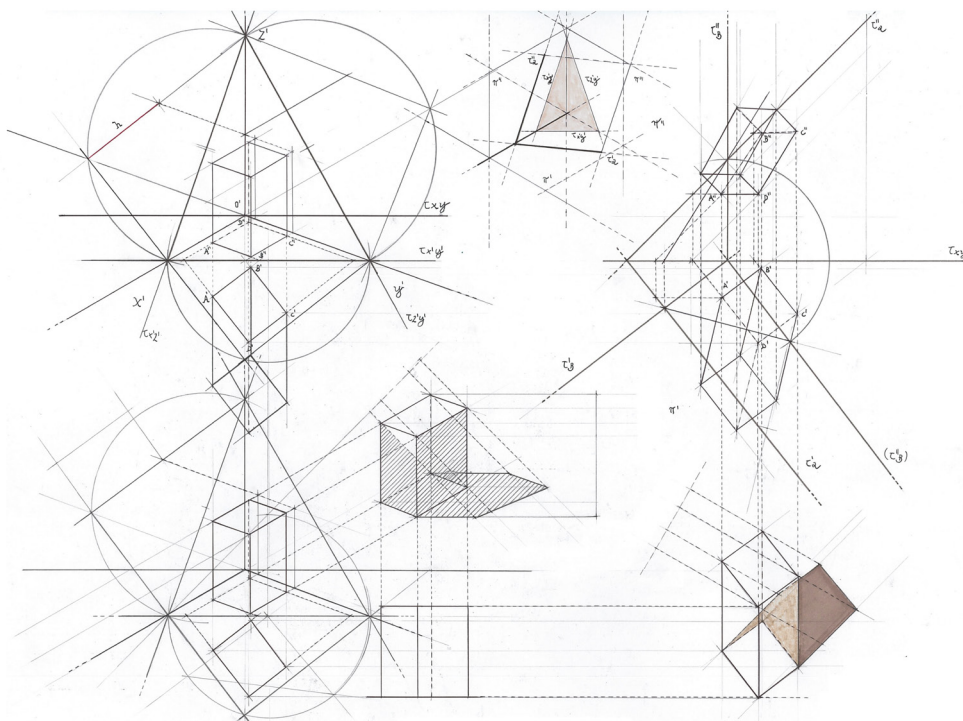
In Descriptive Geometry the rules, laws, and principles that constitute both the foundations of the discipline and its application according to methods and procedures prescribe, in any exercise or demonstration concerning the graphic-geometric representation, the relation of the images, figures or the drawing itself, referring to architecture, through the conjunction of homologies which are completed, thanks to the support of one or more systems connected to the descriptive and projective geometric construction. In this way, the images are subjected to a modelling process whose derivation is the result of precise and foundational rules that are fixed on an order, or on codes and methods that are applied through very specific procedures. In this affirmation, it is possible to include comparisons in the graphic-geometric study; above all, results can be obtained by means of appropriate superimpositions passing from one representation to another for the effects produced by each single exercise corresponding to a method and a specific procedure, which in the same way is also contiguous in helping to determine the very effects of the representation. In this way it is possible, through the geometric articulation obtained through to morphological modelling, to match both the structure of the representation system and the different morphologies which represent the different passages relating to the image or to the different graphic descriptive phases that are intended to be disclosed, since for introspective reasons they are considered to be inherent to the research or specific investigation of a study path related to the architecture. In this aspect a further consideration emerges due to the question of virtuality, since the graphic-geometric modelling elaborated through the images of the architecture thus obtained communicates results that exclude simulation. In fact, between virtuality and simulation there is a distance and a difference that makes them diametrically opposed both in their content and in

the outcomes. In an explicit way, the virtual corresponds to the comparison with reality, and the simulation denies it, therefore it narrates and describes a fake.

## MORPHOLOGICAL MODELLING

Introspection relating to the study of the architectural object or of figures-images of geometric solids and the profound research inherent in their nature-structure presupposes a knowledge of the systems that can investigate them, which are also made explicit in the methods and procedures of representation that throughout the history of descriptive and projective drawing have been codified and become widely used. This last assumption may not yet be sufficient. Investigating the architectural object and

**Fig. 1** Andrea Donelli,  
*Demonstration between separate models referred to the homological relations between the parallel projection and orthogonal projection*, 2021, china, marker, lapis, on cardboard, 29.7x49.0 cm. Author's archive.



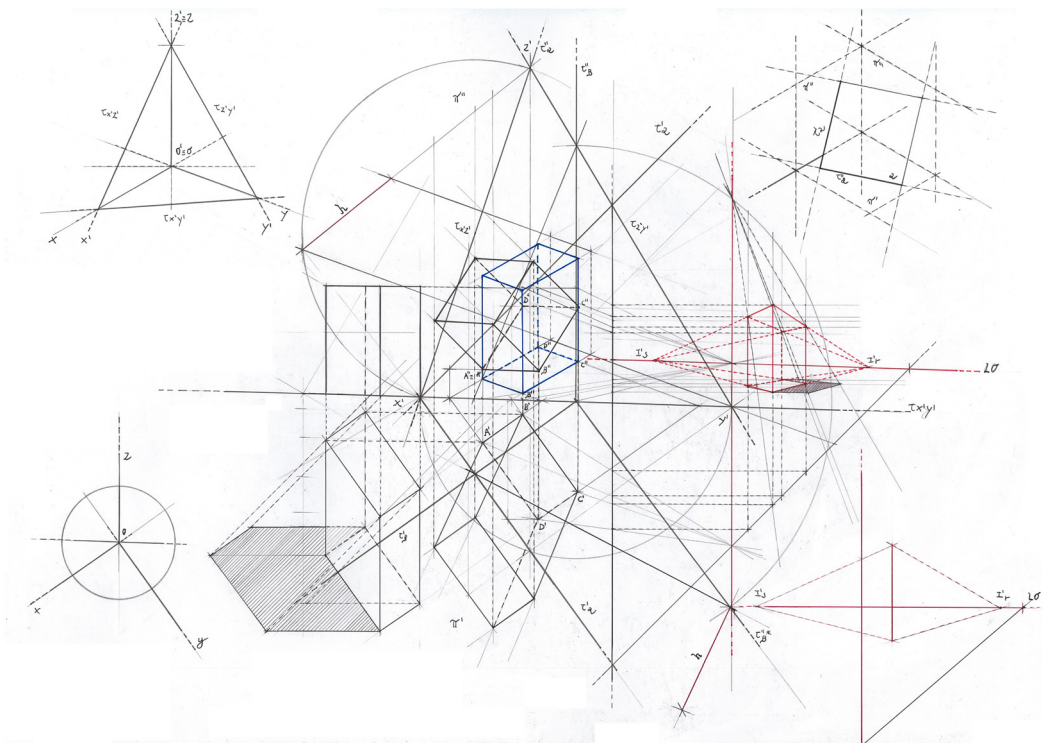
relating it in its different aspects does not mean knowing how to describe it, draw it or having to accurately represent it. Particularly effective in relation to the graphic-geometric operations to draw and represent the object in its specific relations, is to recognize its characteristics and to grasp, graphically and geometrically, its specific homological peculiarities. This consists above all in a particular way in passing from one method of representation to another (Figure 1).

Furthermore, it is not secondary, but rather fundamental, to identify and use a research approach compatible with a form of representation. It is therefore a question of being able to produce a consequential and logical description decreed by the systems of representation and verified with descriptive and projective graphic models. In this regard, the concept of model is more than ever appropriate, since it can be considered in its hypothetical double meaning: indispensable for experiencing a phenomenon, but also a productive datum which involves a certain figurative synthesis projected onto a plane or on several planes. The first concept of the model in architecture and/or descriptive geometry is understood as the structure of the representation system: that is, it concerns the structure itself relative to the method referred to the representation method on which the object is graphically and geometrically arranged, in the way it is intended to be scientifically and technically described. The second concept relating to the model is to be understood in its graphic visualization defined by the representation of the described object and consequently obtained as a result of a visualized and concrete result. In this assumption, the modelling that describes in its complete aspects and in its unitary terms the concept of model in its double meaning explained above is particularly effective. For example, parallel projection or parallel perspective is a scientific and technical system defined by the traces that have a geometric and graphic origin from the proof inferred from the fundamental triangle or of the traces necessary to demonstrate the origin

of the orthogonal axial triple,  $z'-y'-x'$ . Therefore, a structure relative to a representation model is generated in which are arranged the same traces necessary to draw the image relative to another system considered as the figurative model which is the oblique object thus represented as axonometric (Figure 2).

It can be deduced that from a figure positioned in the first projection in true scale, an oblique three-dimensional figure is obtained, capable of describing by continuity and contiguity the model governed by the systematicity defined by the geometric projections or in which homological relations exist. In fact, homology –from the Greek *ὁμολογία*, *homoios* ‘similar’, ‘equal’ and *logos* ‘discourse’, that is, same logic, obviously same discourse– takes on the meaning of a precise logical correspondence between two things, therefore what happens in one happens also in the other

**Fig. 2** Andrea Donelli, *From one system to another: homological relationships between parallel projection, orthogonal projection; perspective and axonometric images*, 2021, china, marker, lapis, on cardboard, 29.7x49.0 cm. Author's archive.





by reason of the same logic. On the basis of this affirmation, we can reiterate that this dual relationship also determines the correspondences relative to the projections between entities, fixing and establishing themselves in all systems of representation as a constant and undisputed homological relationship. These facts indicate from a theoretical and philosophical point of view a concordance and a consequence of connotations of graphic-geometric relations considered fundamental, which tend in their abstraction to become isolated facts for their own sake. The application, or better said, the concretization of these descriptive graphic speculations, finds its implementation through forms of research and investigation as already anticipated in relation to the architectural object. We are urged to investigate the reality of the object and consequently to have to represent it through drawing based on geometric and projective rules. We have seen how these rules originate, in their essence, specific and precise relationships that we cannot escape from. This holds whether they are homological, and therefore continuous and contiguous operations on planes of a geometric nature, or exclusively applicative projections and operations with points and lines. From this constant questioning, knowledge is articulated and developed. The investigation and introspection referred to the architectural object of study produces tension, creativity and curiosity that determine the desire to control the object, reveal its multiple articulations, consider its different components, generic and particular, whether they are objective as well as, subsequently, of a subjective nature. In this way, through these solicitations, we are led to consider the reality of the object. Care must be taken so that this research does not risk signifying and falling into mere subjectivism. To carry out this form of research, descriptive and projective geometry are essential to the technical-scientific drawing that allows us to undertake the specific and appropriate investigations. On this subject, Mauro Lena writes:

there must be no things that are in themselves, what is

produced (the sense of knowledge) is not the object seen by a specific person, in a specific way, which gives a specific interpretation of the object. The object is therefore what emerges from this dual relationship, it is the reality we know, transferred in space, in representation, in judgment, in language. (1994, pp. 177, 178)

It constitutes a fact of induction in the literal meaning of 'bringing in', but also of 'calling to oneself', 'to draw to oneself', and it is a procedure that, starting from individual particular cases, tries to establish a universal law. The object analysed, investigated, and understood in this way is the result decreed by the systems of representation, by the rules and by the 'secret' correspondences or 'suspicious coincidences' as in a sort of inductive inference that gradually becomes constituted in determining the object considered or evaluated in its entirety or in its partiality. The studied object must satisfy the relationship that is established between its own form and the research and thought in which it is represented. How then can the object be described? The form of representation that best reproduces the belonging, the singularity of the facts, also the result of a model visualized in the abstract is orthogonal projection with homology. A question that appears spontaneous is: what can be used to draw and represent an object through an operation of orthogonal projection with homology? This question arises frequently, especially for those who do not know the speculative potential that these exercises constitute in their essence. The operation relating to the orthogonal projection with homology that constitutes its foundations according to Desargues' speculations is determined by the following known properties: Desargues' theorem of homological triangles states that two triangles, ABC and A'B'C', without vertices and sides in common, are prospective with respect to a point if and only if they are prospective with respect to a line. In fact, the homological triangles referring to two triangles of vertices A, B, C and A', B', C', are said to be: perspective with respect to a point if the lines generated by the pairs of

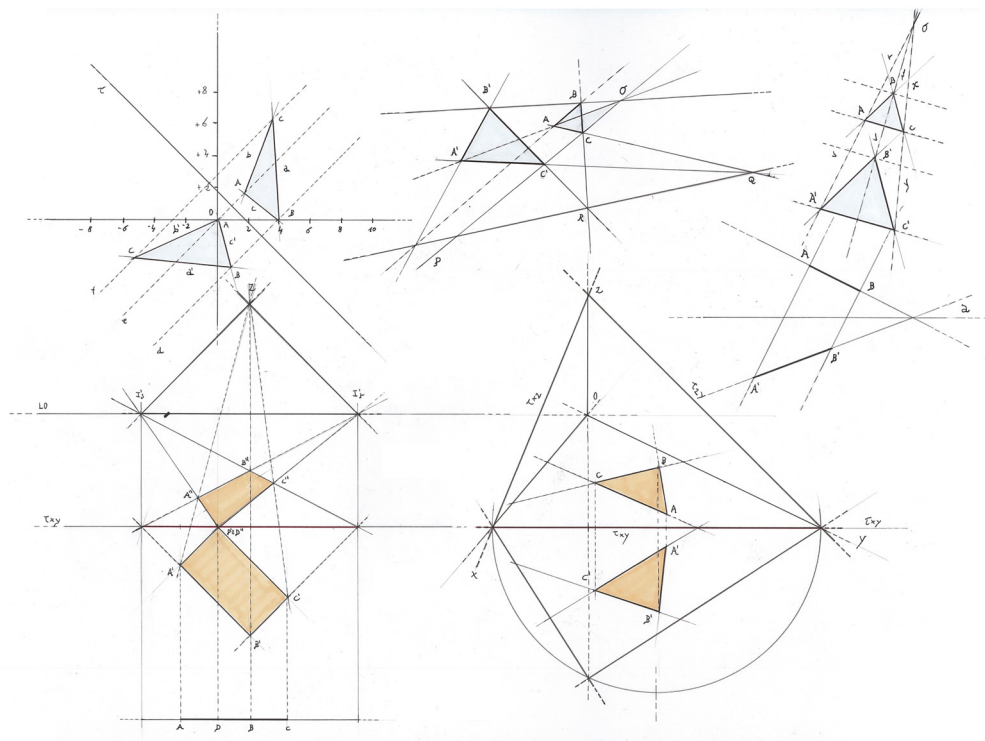
corresponding vertices  $\langle A, A' \rangle$ ;  $\langle B, B' \rangle$ ;  $\langle C, C' \rangle$ , pass through a point  $O$ , which is called the centre of homology; perspective with respect to a line if the pairs of homologous sides  $\langle A, B \rangle$ ,  $\langle A', B' \rangle$ ;  $\langle A, C \rangle$ ,  $\langle A', C' \rangle$ ;  $\langle B, C \rangle$ ,  $\langle B', C' \rangle$ ; intersect at points aligned on a straight line  $r$ , which is called the homology axis. The definition inherent in the theorem of homological triangles by Desargues is thus evermore important. The final result is the obtaining of different positions of the object or figures, whose metric and non-metric values constitute an additional form of abstraction of the object itself, placing it in degrees of extreme synthesis and in virtual contexts (Figure 3).

#### PRINCIPLE OF VIRTUAL WORKS IN DESCRIPTIVE GEOMETRY

With the definition of the 'principle of virtual works' in descriptive geometry, we intend to make, borrowing from the philosophical theory of the science of constructions, a precise reference to the fundamental bases decreed by virtuality which, through their concepts, already set and determined the method from about the second half of the eighteenth century. For example, Desargues' homological triangles theorem constitutes a very important and fundamental datum and result as far as descriptive and projective geometry is concerned. On the basis of this result, further comparable, i.e. virtual, conjectures can be obtained in a set of axioms that govern the use of only three primitive concepts: point, line and incidence. From this we deduce that the principle of Desargues' theorem holds for every coordinatizable projective space, as well as for every projective space whose dimension is different by two and for every projective plane in which Pappus' theorem holds. There are also other so-called non-Desarguesian projective planes, for example the Moulton plane, for which there is no Desargues theorem. From these assumptions it is possible to understand a sort of process of abstraction, or rather the setting of virtual conditions, due

to the fact that in projective geometry the historical quarrel between synthetical and analytical thought reappears in relation to the question of the distinction between geometric properties and those metrics. In fact, taking as an example an exercise relating to the orthogonal projection with homology, the metric value of the image is not recognized after having projected it as a figure on a generic, inclined plane, and subsequently after having carried out the operation of overturning this same generic plane on a horizontal plane of the dihedral. In conclusion, the projected image does not have metric properties, may be proportionate—true form—for effects of relations—harmonic whole—but does not acquire properties in true magnitude. This apparently obvious result, on the other hand, opens up an important question regarding thought about the concrete operations to carry out with orthogonal projection con homology and, consequently, on its

**Fig. 3** Andrea Donelli, *Homological triangles*, 2021, china, marker, lapis, on cardboard, 29.7x49.0 cm. Author's archive.

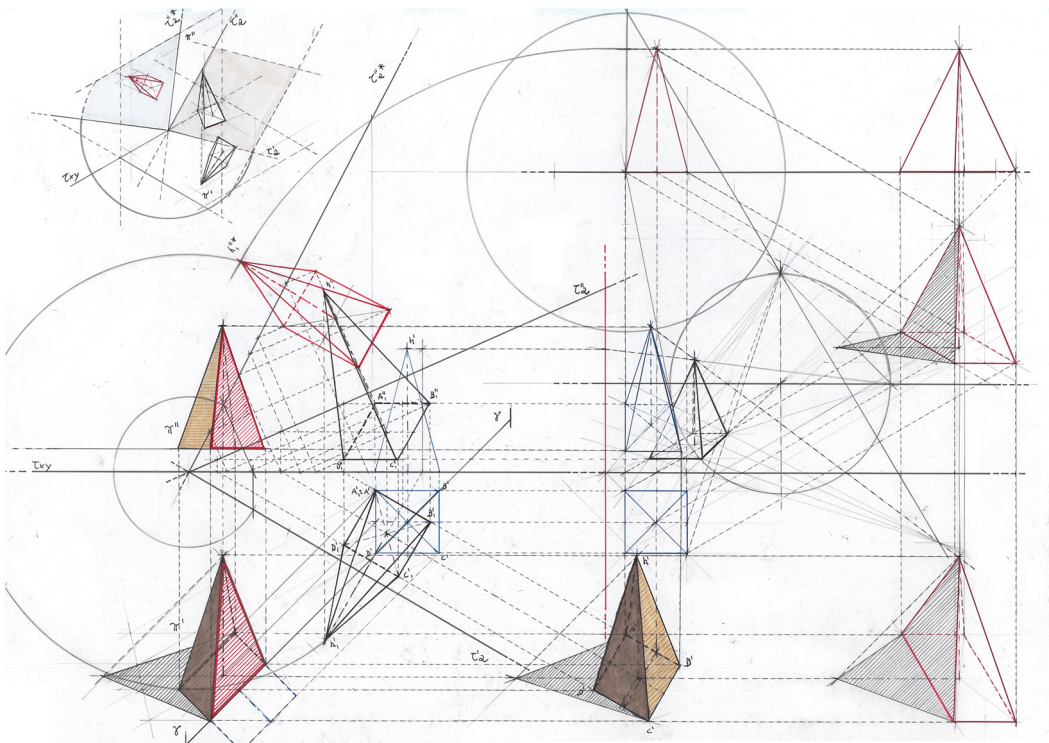


current valid utility and necessity which is often questioned in relation to the means and instruments in place. If historically, on the one hand, the fundamental concept that was used in the synthetic presentation of projective geometry, that is the basic concept defined by the cross-ratio decreed by the four points on a straight line, was introduced using the lengths of the intervals, on the other hand the introduction of projective coordinates was also based on the distances from the sides of the reference triangle or, alternatively, on other concepts of metric structure. In this case the problem arose of rethinking projective geometry without making use of metric concepts. This question attracted the attention of von Staudt, who, like Möbius, a student of Gauss, devoted himself to the attempt to formulate a projective geometry independent of any metric concept. To realize and solve this problem von Staudt started from the observation that if a correspondence between forms of the first kind preserves the properties of harmonic ensembles, then it also preserves the properties of cross ratios. Since harmonic sets are thus definable with exclusively graphic and not specifically analytic constructions, his concept of the definition of projectivity does not use metric concepts. If this aspect resolves the question of the past due to the contrasts between the thinking positions of synthetics with respect to analytics, it still does not fully resolve the usefulness and need to represent an object with the use of homology. The title of this contribution intends to investigate the object that has fallen into its reality, but not an object as it seems to have to be perceived in a purely obvious vision, or, as has already been said, seen by a certain person, in a certain way. The investigated object, while remaining faithful to its reality, needs to be broken down, and therefore also reassembled or compared through virtual passages (Figures 4, 5).

In this way, the research on the whole and on the part in architecture takes on meaning and significance, demonstrated through morphological modelling processes. The object examined in this way is freed from metric issues, while also

**Fig. 4** Andrea Donelli,  
*Morphological modeling inherent  
 to homological and co-homological  
 relations in the representation of  
 solid figures*, 2021, china, marker,  
 lapis, on cardboard, 29.7x49.0 cm.  
 Author's archive.

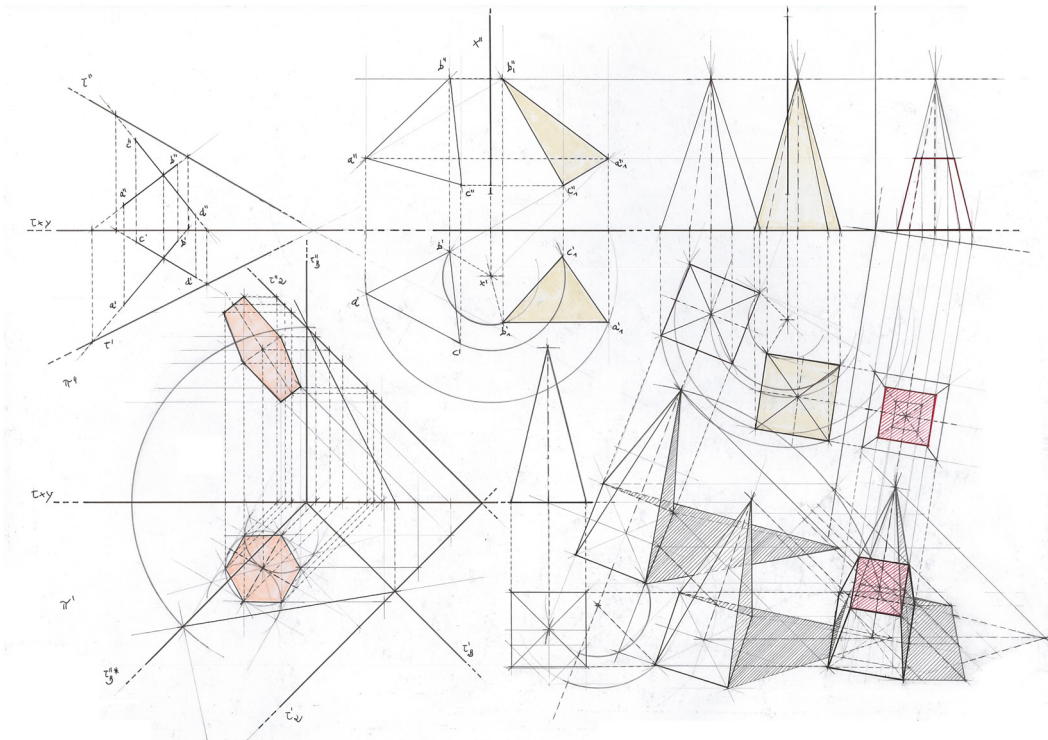
making use of them and benefiting from them when they are deemed indispensable to acquire and consider for the object itself in order to obtain metric values and consequently in true magnitude. The use of orthogonal projection with homology allows us to investigate and penetrate the object in order to take away a specific understanding since its graphic-geometric determination establishes the object in an abstract form but not, for this reason, unreal or as a surrogate for possible and attributable simulative definitions that do not correspond to the concept of virtuality. In this case, the graphic properties of the cross-ratio are confirmed, and a further form of research and non-metric thinking is introduced to which Möbius devoted much attention and in-depth analysis referring to the question of topological geometry. The foundation on which topology is based is defined by the two-way relations. These properties also belong to homology, as they are foundations





and connotations that unite all descriptive, projective and even topological geometric thought. This research is interested in starting a process of investigation, here exposed in its assumptions and in its declarations of intent, to proceed to consider the reality of the object starting from its metric peculiarities but to arrive at a form of abstraction supported by virtual issues and not necessarily metrics. Virtuality is a support of the process that allows us to investigate reality, specifically, to control and reason around the understanding of the object, synthesizing a method of knowledge and therefore of representation. The concept of virtuality should not be confused with that of simulation. It would be a mistake to consider the virtual process to be associated with formalistic and baseless and easily alterable outcomes. In fact, for Jean Baudrillard, simulation is pretending to have what one does not have.

**Fig. 5** Andrea Donelli,  
*Morphological modeling:  
homological relationships between  
orthogonal projection and  
axonometry*, 2021, china, marker,  
lapis, on cardboard, 29.7x49.0 cm.  
Author's archive.





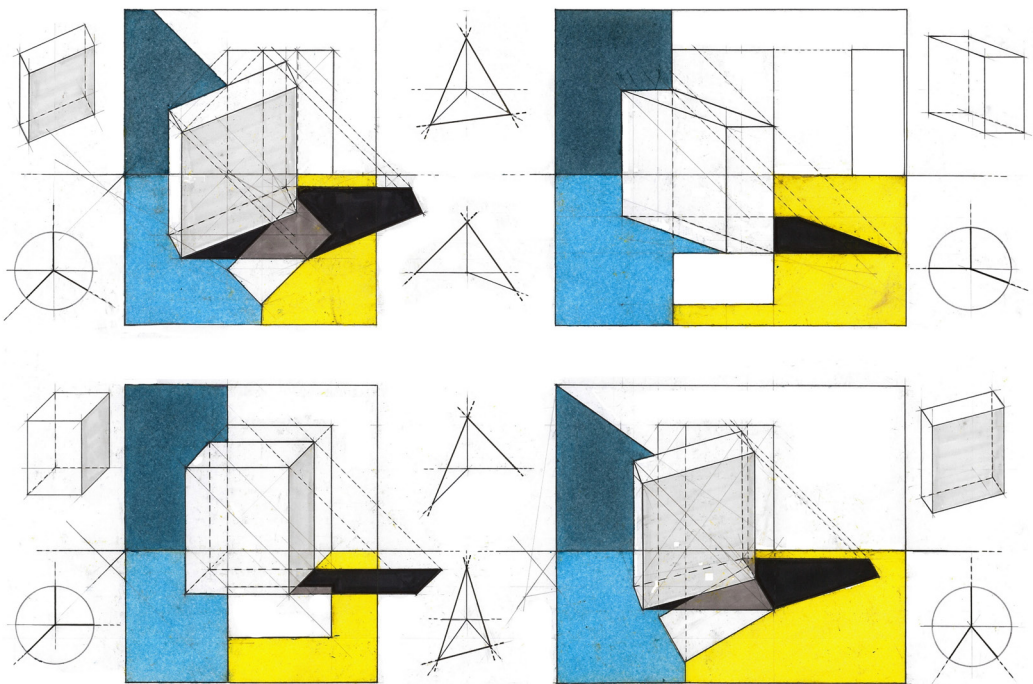
Those who pretend to be ill can simply go to bed and make others believe they are ill. Those who simulate a disease produce some of its symptoms in themselves. So, pretending is only masking; simulation, on the other hand, undermines the difference between 'true' and 'false' and between 'real' and 'imaginary' (Baudrillard, 1994, pp. 2 -5).

## CONCLUSIONS

The concept of homology belongs to all of the graphic-geometric relationships. In fact, "to represent scientifically signifies to acquire and transmit the knowledge of the form of a real or imaginary entity and of the rules that underlie it" (Catalano, 1994, p. 29). Orthogonal projection with homology, like parallel projection, belongs to the category of metric and non-metric representation. Representation in space of an object that is drawn and observed through non-metric applications allows us to also think of abstract forms or images, in this way isolated from a predictable form of subjective judgement. In fact, the analysis of the object, and the deep investigation of its nature-structure, must result in such a way as to be controlled by the forms of representation, whether they are first metric and subsequently non-metric, which involve a particular gnoseological constitution (Figure 6). The object represented through the structure of a graphic-geometric system in non-metric form as an aid to the orthogonal projection and with the comparison with the homology of a regular solid projected on an inclined generic plane, contributes through this experience to represent a very special and unique synthesis. In this way there is a clear demonstration of the uniqueness and unrepeatability of the shape and position of the image, which are defined by the projective geometric properties in space. The relationships or the models that are established between the objects projected on the geometric planes constitute a comparison determined by a principle of virtual works, i.e. by relationships that relate

to each other through the dual exchange due to graphic-geometric modelling, with the important contribution of being able to switch from one representation to another. These transfers generate relationships, virtual models with the reality of the object and with the examination of the images that are returned through the different positions they assume in the geometric planes.

**Fig. 6** Andrea Donelli,  
*Morphological modeling referred to the application of axonometry relating to the different positions of the object between the real and virtual image in contiguity with the projection values of the shadow measurement*, 2021, china, marker, lapis, on cardboard, 29.7x49.0 cm. Author's archive.



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**Article available at**

DOI: 10.6092/issn.2724-2463/12619

**How to cite**

**as article**

Donelli, A. (2021). Homological relationships between graphic/geometric descriptive-projective models: drawing the virtuality and reality of the object. *img journal*, 4, 364-381.

**as contribution in book**

Donelli, A. (2021). Homological relationships between graphic/geometric descriptive-projective models: drawing the virtuality and reality of the object. In M. Ghizzoni, E. Musiani (Eds.), *img journal 04/2021 Copy / False / Fake* (pp. 364-381). Alghero, IT: Publica. ISBN 9788899586195



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***PROSPECTIVA  
PINGENDI,  
PROSPECTIVA  
FINGENDI***

FOR A HISTORY  
OF THE DIFFERENT  
RULES OF PRACTICAL  
PERSPECTIVE

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## ESSAY 84/04

HISTORY OF PERSPECTIVE

LEON BATTISTA ALBERTI

THE TWO RULES OF PRACTICAL PERSPECTIVE

OF JACOPO BAROZZI DA VIGNOLA

EGNAZIO DANTI

AMBROGIO LORENZETTI

The method of perspective representation has consolidated over time, up to its complete formalization, through a series of important and complementary achievements both in the scientific and artistic fields. While the study of the laws of ancient optics, combined with practical experimentation, slowly contributed to the rigorous formalization of the method in Renaissance intellectual circles, the workshop practice required operational rules that quickly and easily enabled artists to produce images in which the depth of the

space and the three-dimensionality of the subjects it contains were evident.

The study presented here intends to focus attention on the procedures practiced by artists, with particular attention to perspective rules that really weren't, in the scientific sense of the term, but which contributed to establish a shared and widespread basis for the development of sensitivity of seeing and representing in perspective, in the intimate and labile boundary between *prospectiva pingendi* and *fingendi*.



## INTRODUCTION TO THE STUDY

The history of perspective has ancient roots, but only in the Renaissance, with illustrious scholars such as Filippo Brunelleschi, Leon Battista Alberti and Piero della Francesca, it begins to find a significant formalization –textual and graphic– in the context of scientific literature, together with the progressive possibility of a widespread diffusion, from the greatest humanist scholars, to workshop artists. As Piero della Francesca points out in the introduction to the third book of *De prospectiva pingendi* (Gizzi et al., 2016), for a correct practice of this art it is necessary to know the laws of perspective, “*senza de la quale non se po alcuna cosa degradare giustamente*” [without which nothing can be rightly degraded]: “*dico essere necessaria la prospectiva, la quale discerne tucte le quantità proportionalmente commo vera scientia, dimostrando il degradare et acrescere de onni quantità per forza de linee*” [I say that perspective is necessary, which discerns all quantities proportionally as a true science, demonstrating the degradation and increase of each quantity by force of lines] (p.153). Piero then continues with a harsh criticism of less rigorous artists, who appear unjustly praiseworthy in the eyes of those “*che non ano notitia de la virtù de l'arte con falso giuditio*” [who do not know the virtue of art, with false judgment] (p. 153).

A century later, we find similar concepts expressed in Danti's comments on Jacopo Barozzi da Vignola's *Two Rules of Practical Perspective* (Barozzi, 1583/1974), in which the mathematician praises Vignola's work for defining two rules “*elette per ottime*” [elected for excellent] (p. 52), on which other procedures depend, with the exception of those that are defined as “false” (Barozzi, 1583/1974, pp. 84, 85), although still very widespread and practiced at the time.

However, carefully considering and observing the evolution of methods for the representation of space in ancient and medieval proto-perspectives (think for example of Pompeian architectural perspectives, or the more recent works by Giotto, Duccio di Buoninsegna, Ambrogio Lorenzetti, to

name some of the most famous painters) we can note that the history of perspective, in the broadest and most primordial sense of the term, also passes through the empirical procedures. These procedures contributed to the development of the primal intention inherent in the act of subjective representation of space, dependent on the position and personal perception of the artist who paints it, which can then be replicated in the observer to whom the artwork is aimed.

The progressive formulation of the geometric principles that contribute to the definition of the actual method and the simultaneous existence of these different practical procedures show a subtle but fundamental separation between science and art of drawing. The scientific evolution of perspective thought had led in just over a hundred years to the definition of rigorous procedures such as Alberti's legitimate construction, the two "ways" of Piero della Francesca and the *Two rules* of Vignola. At the same time, the needs of artistic practice had favoured the invention and diffusion of alternative ways of perspective representation, some of which were decidedly approximate, although effective.

This dichotomy is also evident in the treatises, in which, starting from the sixteenth century, we note the development of distinct strands or independent sections within the individual texts, in order to embrace a heterogeneous audience. In fact, not all the readers were evidently in a position to understand or want to apply themselves in the deepening of the scientific principles of perspective representation, and, as the very structure of Vignola and Danti's *Two Rules* demonstrates, the texts were composed by providing different levels of depth. This made it possible to meet both the needs of those who claimed to understand the geometric principles underlying the procedures, and those who needed to use, in workshops, practical rules for the realization of the commissioned works, in a quick, simple and easily replicable and transmissible way. In fact, in the face of a limited implementation effort, thanks to more or less legitimate simplified procedures, it was possible to obtain perceptually very effec-

tive perspective representations, even if not perfect from a purely geometric-projective point of view, to use a term that will construct the apex of the scientific development of the method in the nineteenth century.

#### APPROXIMATE PROCEDURES

Severely rejected by the intellectuals of the time, who aimed at the transmission of scientific principles or at most at the dissemination of rules that would make their application easier but always conform to rigorous constructions, today the rules defined as “false” are not less interesting. Like the right ones, they can also contribute to understand the evolution of the method of representation within which they were born. A *prospectiva fingendi* that is a prelude to *prospectiva pingendi*.

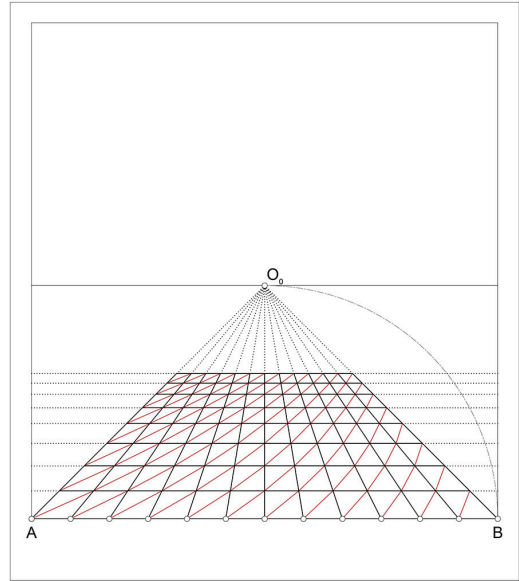
The false rules, in spite of themselves, had the merit of constituting a fundamental basis, a crucial transition moment, for the first pictorial works that contributed to the diffusion of perspective sensitivity. For example, let's focus on the period immediately preceding the consecration of the method, a period in which, even with an awareness that is still incomplete, it is evident the intention to represent three-dimensionally the space in which the portrayed figures are immersed, as happens in Giotto, Duccio or Lorenzetti's work.

Let us consider a famous emblematic example, which often recurs in critical literature (Panofsky, 1927; Damish, 1995; Kemp, 1994/2005; Andersen, 2007): the *Annunciation* by Ambrogio Lorenzetti painted in 1344 and kept in the National Picture Gallery of Siena. As in other similar and coeval works, also in this case at least a couple of achievements are evident from the point of view of perceptual awareness of space. The plausibly square tile flooring, arranged parallel to the painting, reveals on the one hand the convergence of perpendicular lines in a point that is in the center of the scene, facing the observer, on the other hand that there is a progressive degradation of the intervals between the lines parallel to



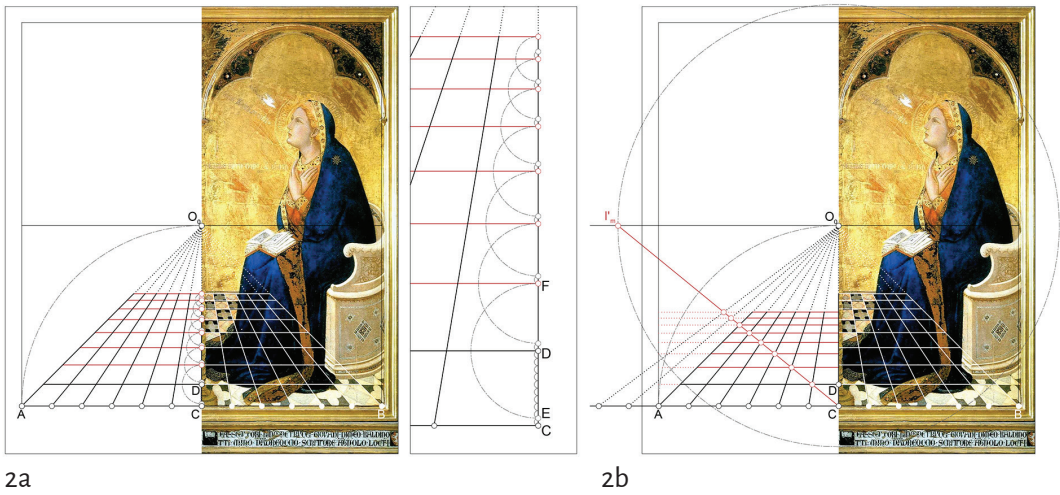
1a

**Figure 1** Essential elements of the perspective representation of the floor in the *Annunciation* by Ambrogio Lorenzetti, 1344, National Picture Gallery of Siena. Author's elaboration.



1b

the painting, giving a feeling of depth (Figure 1a). On closer observation, however, we understand that this depth is not calculated on the basis of a correct perspective degradation law: we can easily experiment this assertion by verifying the lack of convergence in a point on the horizon of the diagonal lines of the individual tiles (Figure 1b). Rather than noticing the similarities with a rigorously constructed perspective, it is however interesting, as we forego, to go in search of the possible rule –evidently empirical, but effective in its own way– used to determine the degradation of the intervals. With a scrupulous analysis, we may suppose the possible algorithm for generating the geometric structure (Figure 2a). We start from the arbitrary determination of the width of the painting and from the location of the principal point on the axis of vertical symmetry, at a height equal to half of the ground line (which is not unusual, as we will see, in the practical procedures described in perspective treatises). The ground line is divided into 12 equal parts, corresponding to the width of the floor tiles. The lines perpendicular to the picture, on



**Figure 2** Deduction of the rule used by Lorenzetti for the degradation of depths and comparison with the construction of the same subject carried out in a rigorous way. Author's elaboration.

which the rows of tiles are arranged, are easily identifiable by tracing straight lines from these points to the principal point. We now come to the determination of the lines parallel to the painting, equidistant in reality, but not in perspective. The first CD interval, which defines the depth of the first row of tiles, is set arbitrarily. The subsequent ones are progressively and constantly decreased, compared to the interval that precedes every one of them, by the tenth part (CE) of the first interval. It is evident that one of the main limits that can be recognized in this rule consists in the fact that, since the decrease is constant, we reach a limit condition—well before approaching the horizon—in which the distance between two successive parallel lines is less than decrease to be applied. Wanting to compare the construction with the result that would be obtained by proceeding with scientific rigor, placing as a condition the equality of the first interval CD (Figure 2b), we note in fact that the prospectical acceleration should be greater, leading to the representation of a floor that it appears more shortened, less deep.

Procedures like this, which can be experimentally deduced *a posteriori* by analysing the works, have found space—albeit limited and usually with a critical attitude—in treatises on perspective, starting with Leon Battista Alberti (Al-

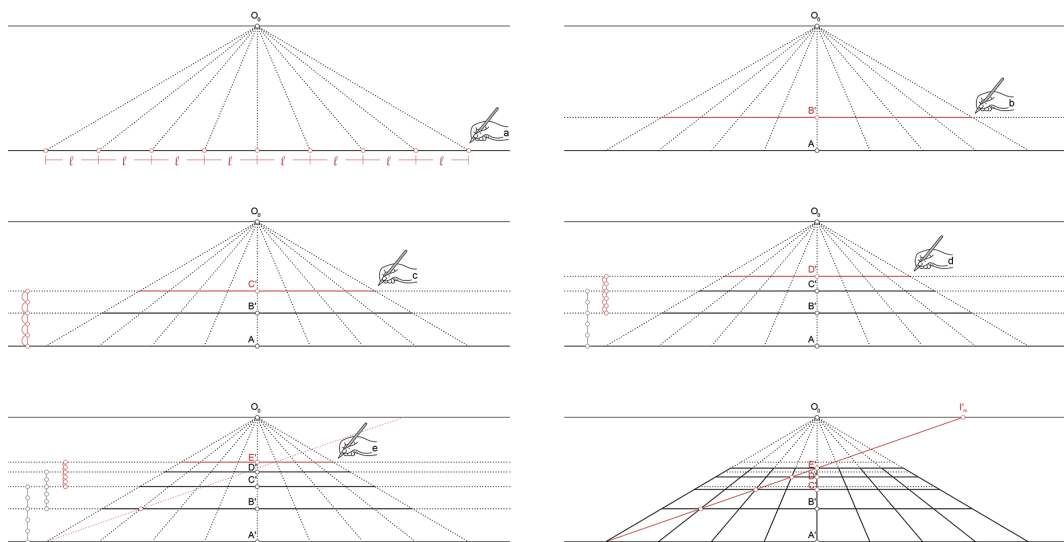
berti, 1435/2011). In paragraph 19 of the first book of *De Pictura*, he describes an erroneous procedure for the determination of the perspective intervals, based on subsequent subdivisions he calls “*superbipartienti*” [super-biparticular] (integer plus two thirds). It is therefore interesting to go in search of these procedures, which have a lot to tell about *perspectiva fingendi* and which can constitute an important basis for comparison and verification with respect to pictorial production characterized by only partially rigorous constructions.

This study intends to focus on three procedures in particular that are present in two fundamental testimonies of the history of perspective: the first in Leon Battista Alberti’s *De Pictura*, the others in the *Two rules* of practical perspective by Jacopo Barozzi da Vignola and Egnazio Danti. These “false rules” (Barozzi 1583/1974, pp. 84, 85) –purely pragmatic and approximate with respect to scientific principles, but important for the wide diffusion that they had at the time, according to the authors– will be graphically analysed and considered in comparison to the rigorous construction, reserving also some surprises, as we will see in the case of the last rule.

#### ALBERTI’S APPROXIMATE PROCEDURE IN *DE PICTURA*

*De Pictura*, a work that Alberti wrote in the first half of the fifteenth century dedicating it to his friend Filippo Brunelleschi, opens with a first book that deals with the description of the legitimate construction underlying the perspective representation. Alberti, as already mentioned, also highlights a practical procedure whose result does not conform to this construction. The procedure (Figure 3) is applied to the construction of a grid with a square mesh placed on the ground plane, in frontal position respect to the picture plane. Arbitrarily traced the ground line and the horizon in relation to the height of the observer, and placed the principal point in a central position on the horizon, we represent equidis-



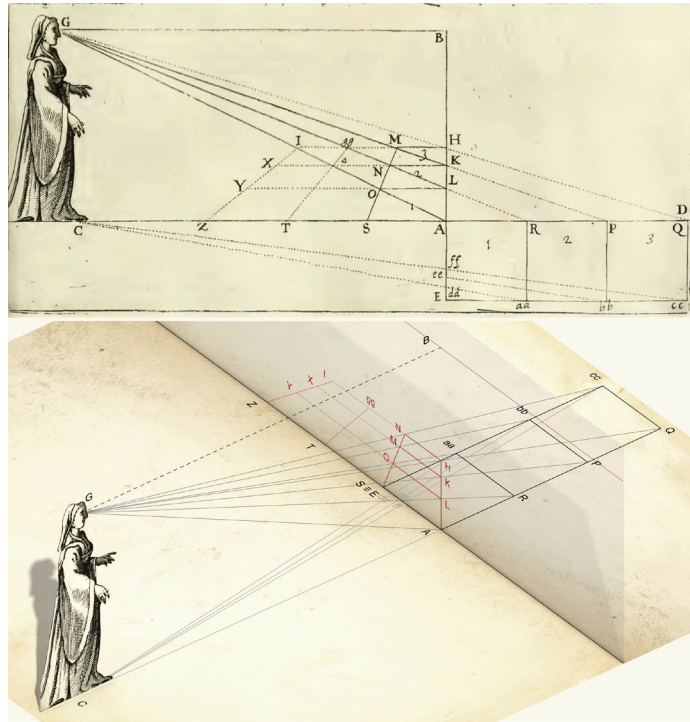


**Figure 3** Illustration of an approximate procedure used in Alberti's time (*De Pictura*, paragraph 19). Author's elaboration.

tant points on the fundamental line, depending on the width of the squares to be drawn. After tracing the perspective of the lines perpendicular to the picture passing through the aforementioned points and converging in the principal point, we move on to the determination of the apparent depths. The depth of the first interval is defined arbitrarily, while the subsequent ones are progressively reduced by one third with respect to the immediately preceding depth. As with Lorenzetti's *Annunciazione*, here too the approximation of the construction is evident when we draw the 45° diagonals. However, unlike the case analysed above, the type of reduction applied theoretically allows in this case to progress to infinity with the definition of the intervals in depth, since each interval decreases proportionally with respect to the previous one, thus tending to the horizon. Finally, if we build the rigorous perspective of the same floor, starting from the same interval A'B', we note once again that its representation appears more foreshortened and the floor is less deep.



**Figure 4** Illustration of the 'first rule' by Jacopo Barozzi da Vignola. Author's elaboration.

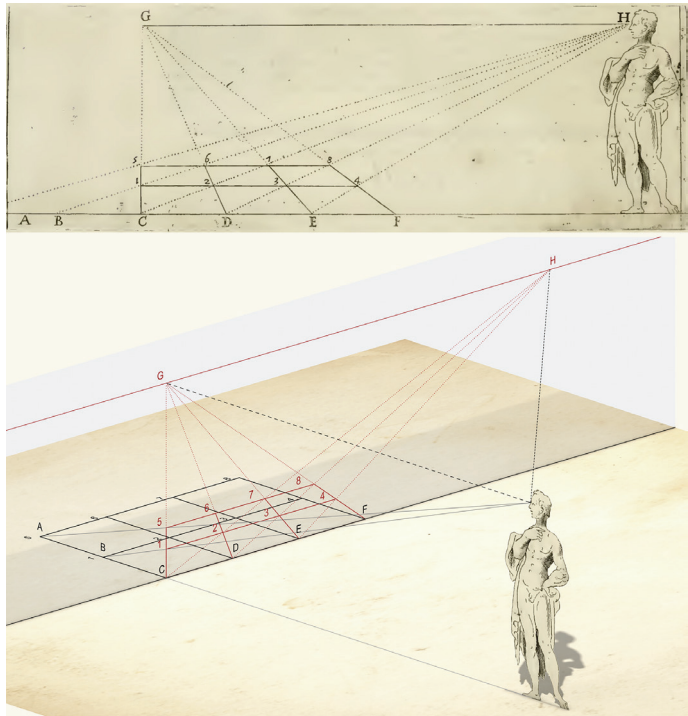


#### THE TWO FALSE RULES IN THE TREATY OF VIGNOLA AND DANTI

The treatise *Two rules of practical perspective* by Jacopo Barozzi da Vignola, published posthumously in 1583 by the mathematician Egnazio Danti, represents a valuable source of information on the evolution of perspective. In the text, art and science of drawing reflect each other through the mirror of perspective thinking, representing with great systematicity and clarity the state of technical and scientific knowledge consolidated up to that moment.

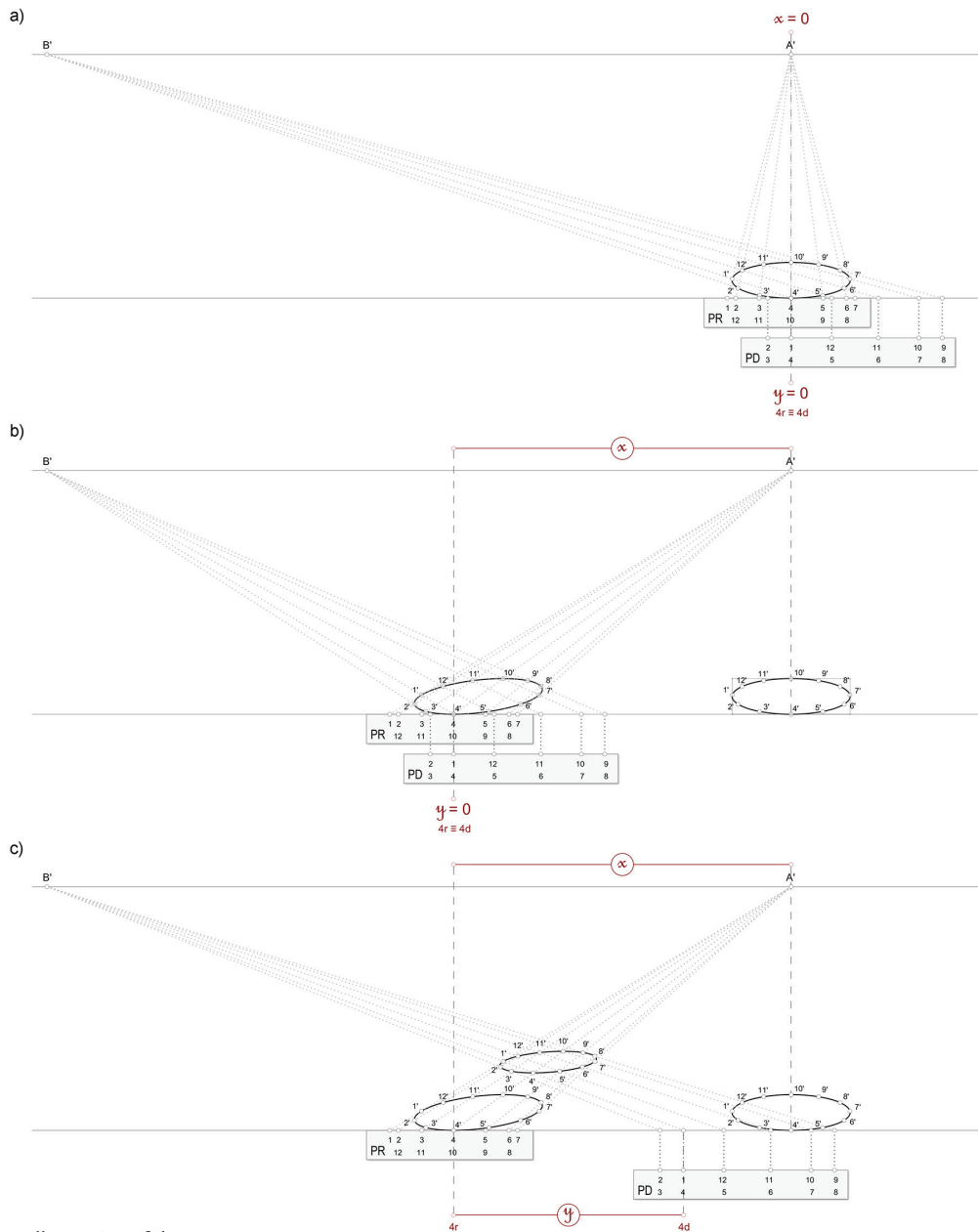
The structure of the treatise is indicative of the flexibility of consultation that is reserved for the reader, according to his needs, as Danti explains (Barozzi, 1583/1974, preface). The first part consists of a substantial theoretical introduction consisting of definitions, theorems and problems aimed

**Figure 5** Illustration of the 'second rule' by Jacopo Barozzi da Vignola. Author's elaboration.



in particular at those who wish to understand the geometric nature of Vignola's rules. The second part, dedicated to who needs to learn only the practical aspects of the art of perspective, is instead made up of the illustration of the *Two rules*. Furthermore, for the artists "*che più si diletano di operare, che di fare studio in diverse regole*" [who are more delighted to operate than to study the different rules], Danti thinks of a fruition of the text that exclusively contemplates the part relating to the second rule, which he considers "*più eccellente, & più facile di qualunque altra regola; con la quale potranno perfettamente operare, & ridurre qual si voglia cosa in Prospettiva*" [more excellent, and easier than any other rule; with which they will be able to work perfectly, and represent everything in perspective] (Barozzi, 1583/1974, preface).

As the title itself suggests, the treatise is known in particular for the formulation of two rules. The first, simple but



**Figure 6** Illustration of the process of construction of the perspective with "sagme" as described by Jacopo Barozzi da Vignola. Author's elaboration.

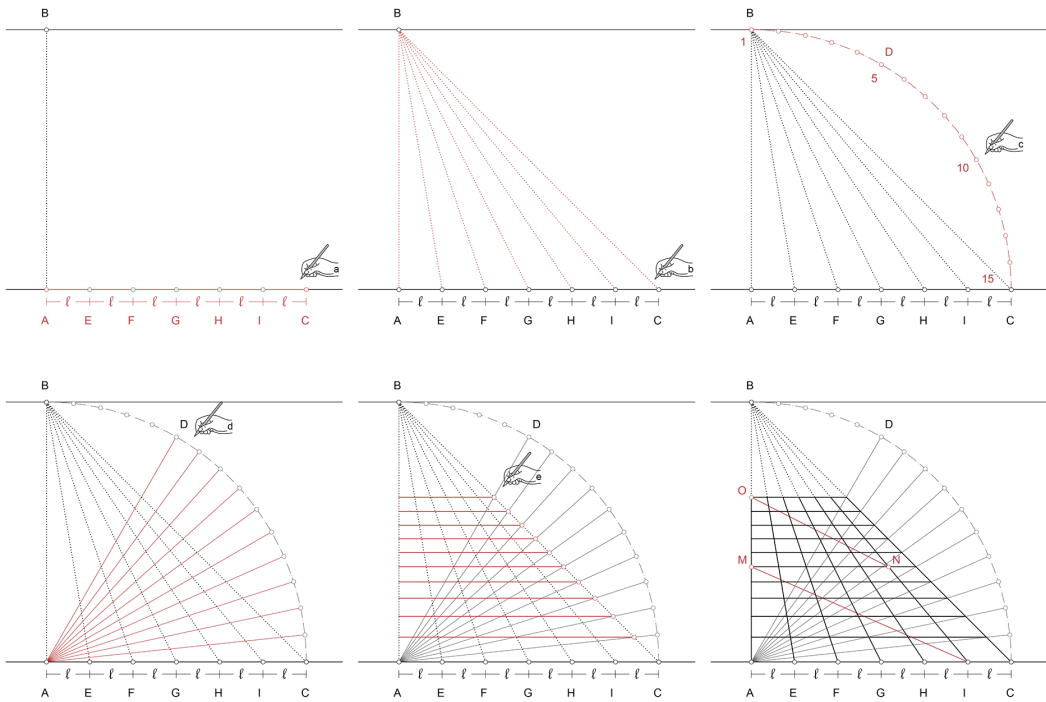
laborious, uses projecting lines in plan and elevation to determine the position of the points in the perspective space (Figure 4). The second, more scientifically complex but more immediate, explicitly illustrates for the first time the construction of the perspective with the complementary help of the principal point and the distance point, intended, in this case, as the point where concur the straight lines inclined at  $45^\circ$  with respect to the picture plane (Figure 5). As part of this second rule, the authors describe a practical procedure, little known but noteworthy, linked to the use of “*sagme*”, lines of paper on which the data for the discrete representation of a given subject are recorded, regardless of its position with respect to the observer and the picture plane, and therefore valid to represent innumerable perspectives of that subject by establishing *a posteriori* its position with respect to the observer and the picture (Figure 6) (Romor, 2019).

Deepening the critical reading of the treatise, we learn that these procedures are only two of the “different rules”—although all the others depend on them—with which we can make perspective drawings. In fact, in addition to these two, considered “excellent”, Danti and Vignola provide examples of other rules, called “ordinary”, illustrated in the mathematician’s comments.

In the concluding comments on the first rule, Danti introduces two rules that he defines as false (Barozzi, 1583/1974, p.84, 85), illustrating them and explaining the reasons for non-compliance with the ordinary rule.

The first is described as “*tenuta in gran conto*” [highly regarded] by artists, but misleading for “*chi brama di ben operare*” [who desires to do well] (Barozzi, 1583/1974, p.84). Let’s briefly analyse the steps of the procedure (fig. 7).

1. We consider B as the principal point and construct the objective sides of the squares on the ground line AC; even if it is not specified, from the following construction it can be deduced that AC must be equal to AB.
2. We trace the lines from E, F, G, H, I, C up to B.
3. We draw a quarter of a circle pointing at A with radius AB (= AC) from B to C and divide it into 15 parts.

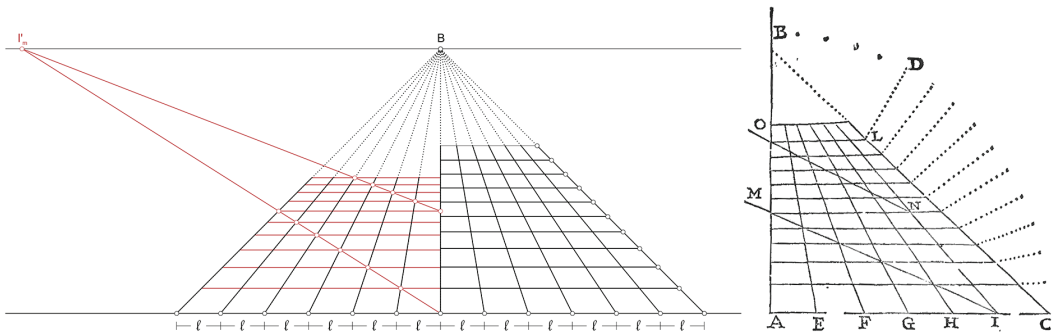


**Figure 7** Illustration of the perspective construction with the first false rule described by Danti. Author's elaboration.

4. We place point D on the arc, which is one third (or “*anche una particella in meno*” [even one less particle]) of the arc length starting from B. From point D we draw a straight line towards A, and so for all the other points from D to C.
5. Where these lines intersect BC line, we conduct lines parallel to AC, which define the heights of the squares in perspective. The heights of the squares depend on the amount of points at which you decide to divide the BDC quarter circle.

Danti notes that this procedure cannot be consistent with the principle of degradation expressed in the introductory theoretical part and does not operate in accordance with the other rules. Furthermore, as proof of the falsity of the rule, he invites the reader to an experimental verification:

- We draw the diagonal (which is therefore directed towards the distance point).



**Figure 8** Comparison with the perspective construction of the same subject of figure 7 conducted in a rigorous way. Author's elaboration.

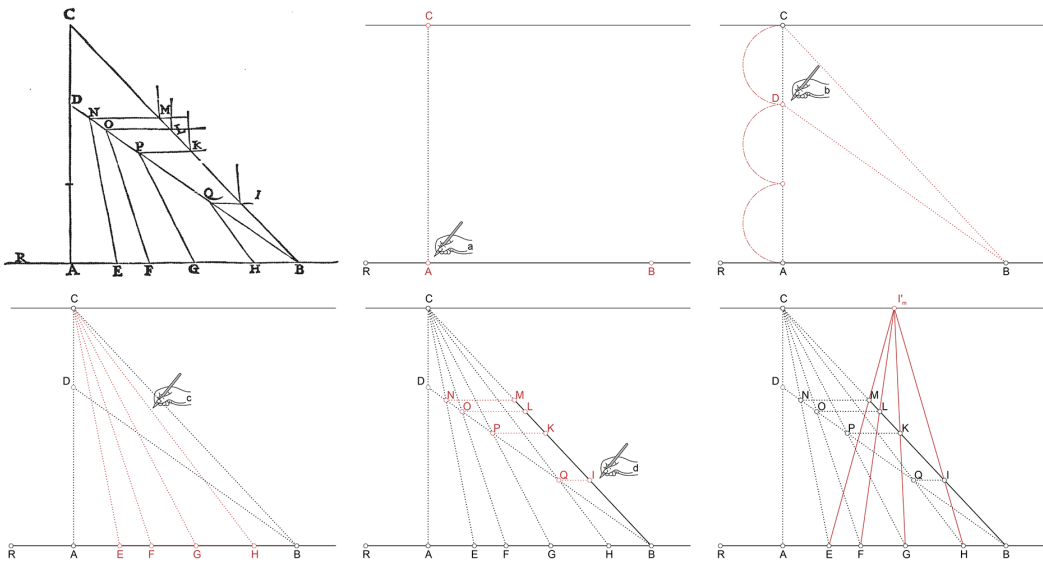
- From N (aligned with M) we draw a line towards O (five squares above M): this line does not pass through the diagonal edges of the squares and does not arrive at the same point where IM meets the horizon line.

Let's compare the result obtained instead with a rigorous construction, always starting from a first common interval (Figure 8). Again, the floor would be more shortened.

A second false rule is then introduced, which applies in the case in which squares of different sizes are to be represented. Danti emphasizes that this rule is also widely used by artists, from whom he himself learned it as correct, only to realize, with experience, its incompatibility with scientific principles (Barozzi, 1583/1974, p. 84, "*molto usata dagli artefici da' quali io già l'imparai per buona, e poi m'avvedi della falsità*" [widely used by artists from whom I learned it for good, and then I realized the falsity]). Danti then continues to underline that "*Non dobbiamo dunque meravigliarci, se bene spesso vediamo delle Prospettive inette, e malfatte, poi che si trovano de gl'artefici, che usono regole così triste*" [We should therefore not be surprised if very often we see inept and bad perspectives, since there are authors who use such sad rules].

Let's analyze the procedure step by step (Figure 9).

1. We establish the main point C. We draw the ground line RB. We draw line CA (perpendicular to RB).
2. We choose point D on CA, such that CD is a third of CA. We trace BC and BD.

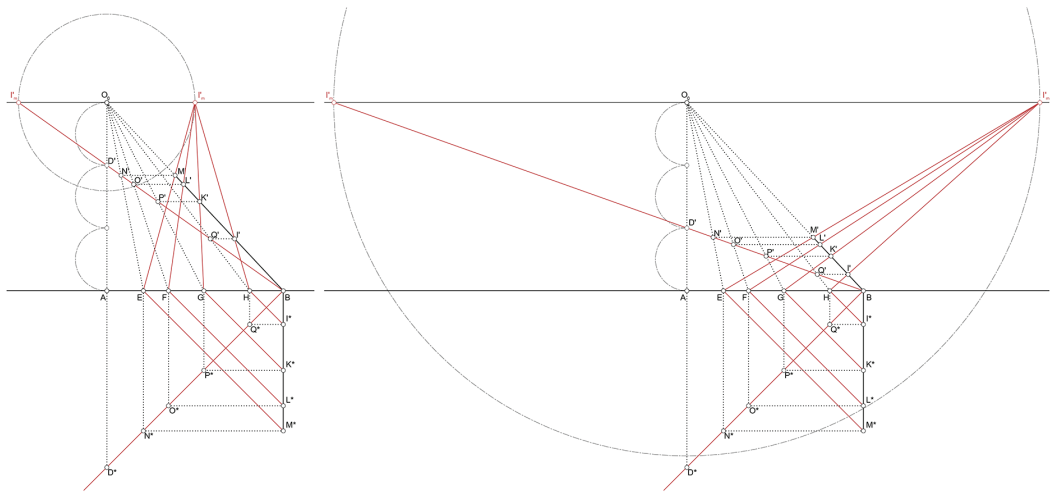


**Figure 9** Illustration of the perspective construction with the second false rule described by Danti. Author's elaboration.

3. We report on RB the sizes of the squares (or buildings, as Danti specifies) which must then be reported on BC (points E, F, G, H). We draw the lines from E, F, G, H up to C, which intersect the BD at points N, O, P, Q.
4. From N, O, P, Q we draw lines parallel to AB, which intersect the BC at points M, L, K, I, which provide the measurements of the depths to be represented in perspective.

As Danti correctly observes, the depth of the foreshortening depends on where point D is placed, higher or lower than the principal point. Proof of the falsity of the rule, according to Danti, would lie in the fact that the measures are not proportionally degraded because  $IB > HB$  ( $HB$  is the true measure of  $IB$ , so he says that this thing is absurd) as  $IK > HG$ , while  $KL < GF$  and  $LM < FE$ . We have used the conditional because in reality –and here lies the surprising fact anticipated in the introduction to the study– this procedure turns out to conform to the laws of perspective, to an in-depth analysis: Danti sees a falsehood in a rule that he had used for years ignoring having worked right. The confusion is probably justified by the choice of the perspective foreshortening in the example illustrated,





**Figure 10** Comparison with the perspective construction of the same subject in figure 9 conducted in a rigorous way. Author's elaboration.

which actually generates the disproportion between the perspective segments described by Danti. Let's deepen why the procedure is correct. First of all, by reconstructing the lines joining the extremes of the measured segments (for example  $L'M'$ ) and their projections on the picture (for example  $EF$ ), we observe that these lines converge at a point on the horizon (Figure 10). Today, we define this point the measuring point of perpendicular lines, corresponding to the distance point in Vignola's second rule. We then note that also the straight line  $BD'$  is diagonal of the squares traced in the perspective (for example  $BEN'M'$ ) and that therefore it will intersect the horizon in the other distance point opposite to the first. Therefore, by tracing the distance circle, having as radius the interval between this point and the principal point, we realize that the measured segments fall well outside the circle, thus giving rise to the deformations mentioned by Danti, which however are only apparent: the procedure acts in accordance with the perspective principles. In fact, if we choose, for example, to place the point  $D$  at the extreme of the first third between  $A$  and  $O_0$ , consequently, the main distance significantly increases and the apparent deformations detected by Danti disappear, being the perspectives of the measured segments all shorter than their projections on the ground line.

Given the correctness of the rule, we must investigate the question of the location of point D, on which the perspective view depends, as Danti says, and therefore the principal distance too. Thanks to the principle of similarity between triangles, which in the Renaissance was used to explain the laws of perspective (for example in Piero della Francesca and Danti himself), it is in fact possible to control the principal distance during the design phase by establishing the height of point D'. Let's consider the triangles D'AB and D'Ool'm: the Ool'm segment is proportionate to the AB segment as is the D'Oo segment with respect to D'A. For example, in the case illustrated by Danti, the principal distance measures half of the segment AB, while in the second hypothesis it is double compared to it.

At this point, it appears evident how the empirical but rigorous procedure allows overcoming a recurring problem in the construction of perspectives, especially architectural ones on 1:1 scale: the inaccessibility of vanishing points. The measurement process described, in fact, taking advantage of the control of the foreshortening thanks to the similarity highlighted, does not require the distance points to be materially present on the support to be painted.

## CONCLUSIONS

The study presented here aims to focus on 'ordinary' procedures, more or less rigorous, which are considered in the treaty alongside the two main rules.

If on the one hand it is interesting to understand the logic and application of approximate procedures, the story of the tradition of Danti's alleged false rule, which deceives him in evaluating its actual correctness, is evidently significant of how labile it was in the sixteenth century, in perspective, the boundary between *fingendi* and *pingendi*. A border that today we can well delineate with the awareness of the achievements of projective geometry and the development

of the method of direct perspective, but which at the time was characterized by the mutual influence of the evolution of the principles of ancient optics and of the artistic workshop experiments. These rules lead to the creation of representations that are not at all perspectives from a purely scientific point of view, but which become so to the extent that they are able to generate an image that perceptually refers to a perspective space. Rules that, moving from the *prospectiva pingendi* to the *prospectiva fingendi*, acquire considerable importance, given the versatility, immediacy and constructive simplicity that have guaranteed and favoured a wide diffusion, placing them in the history of perspective thought in the same way as nobler processes.

This study hopes, in its future development, the construction, over time, of an abacus of prospective procedures, whether rigorous or approximate, born within the needs of the workshop practice, which can be a useful tool for comparison and verification with respect to coeval pictorial production.

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Article available at

DOI: 10.6092/issn.2724-2463/12688

How to cite

as article

Romor, J. (2021). *Prospettiva pingendi, prospettiva fingendi*. For a history of the different rules of practical perspective. *img journal*, 4, 382-401.

as contribution in book

Romor, J. (2021). *Prospettiva pingendi, prospettiva ingendi*. For a history of the different rules of practical perspective. In M. Ghizzoni, E. Musiani (Eds.), *img journal 04/2021 Copy/False/Fake* (pp. 382-401). Alghero, IT: Publica. ISBN 9788899586195



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# ONCE UPON A TIME THERE WERE FIREWORKS THE NEW NOCTURNAL DRONES LIGHT SHOWS

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## ESSAY 85/04

DRONE LIGHT SHOWS

FIREWORKS

SKY DRAWING

This paper investigates the recent innovative application of drone information technology to create complex visual narratives in the night skies, which refer to the more traditional images made by fireworks.

The object of study involves two main topics. The first consists in a critical analysis of bibliographic literature in the field of pyrotechnic art through the consultation of texts from the sixteenth century to the twentieth century. The second is represented by the analysis of the recent digital technique of setting up colored images, created in the night sky by the movement of luminous drones. Compared to

fireworks, the attention towards this type of luminous aerial views is decidedly increasing. In this sense, the luminous drones present themselves as alternative fireworks, reusable with countless different visual narratives and three-dimensional choreographies synchronized with musical performances. An increasingly widespread development of this digital display technology is therefore conceivable in the future. Therefore, it is of interest here to analyze the methods of implementation for the construction of the image and the transition from drawing 'on paper' to drawing 'in the sky'.

## INTRODUCTION

Nowadays, the innovative technology of the luminous drone is attracting the public attention thanks to the realization in the night skies of complex visual narratives, consisting in colored images created in the sky by the movement of luminous drones and that refer to the more traditional images made with fireworks.

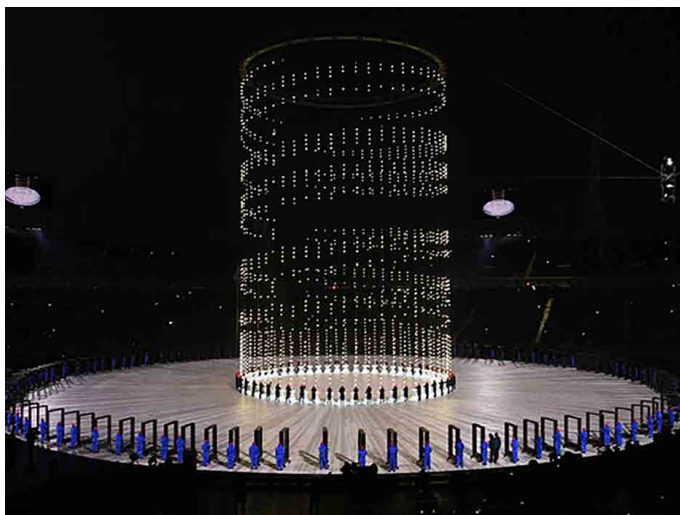
This paper refers to the disciplinary area of drawing and investigates the configuration of visual images in the night skies through the comparison between the analogical techniques of fireworks and the digital ones of light drones<sup>1</sup>.

The object of study involves two main topics, to which investigation methodologies correspond. The first consists of a critical analysis of the bibliographic literature in the field of pyrotechnic art through the consultation of texts from the sixteenth century, including: *Pirotechnia del signor Vannuccio Biringuccio* (Biringuccio, 1540); *La Pirotechnia osia Trattato dei Fuochi d'Artificio di Giuseppe Antonio Alberti* (Alberti, 1749); *Illustrated Catalogue of Day/Night Light Bomb Shells of Hirayama Fireworks* (1883); *A Pirotecchia moderna. Tratado general de Fuegos de Artificiales y manera práctica de prepararlos ... por Juan B.ta Ferré Vallvé* (Di Maio, 1916). From these readings we can deduce considerations regarding the pyrotechnic schools for the aerial shot, the analysis of the holidays' lighting scenarios, the description of the configuration methods in the sky of the different visual effects of the fireworks ('firecrackers', 'spears', 'snakes', etc.), the variety of luminous designs depending on the geometric arrangement of the so-called 'stars' (balls of black powder and other chemical compounds) and their coloring to emphasize the plastic effect.

The other topic is represented by the analysis of the recent digital technique (2012) capable of creating colored images in the night sky thanks to the movement of luminous drones. The ability to visualize concrete (and not projected) visual forms in the sky depends on conceiving the drone as a 'pixel space' or as a single light point, part of a choreographic group



**Fig. 1** Alexey Filippov, Sputnik, AFP (photo by), *Light drones used in the opening ceremony of the 23rd Winter Olympic Games in Pyeongchang, 2018*. Retrieved March 3, 2021 from <[https://www.agi.it/sport/olimpiadi-invernali-2018/giochi\\_invernali\\_corea-3471364/news/2018-02-09/](https://www.agi.it/sport/olimpiadi-invernali-2018/giochi_invernali_corea-3471364/news/2018-02-09/)>



**Fig. 2** Joseph Mayo (photo by), *Intel Drones x Super Bowl Halftime Show with Lady Gaga, 2017*. Retrieved March 3, 2021 from <<https://clios.com/music/winner/partnerships-collaborations/intel/intel-drones-x-super-bowl-halftime-show-with-lady--23870>>



called a 'swarm of drones', whose simultaneous coordination by units ground control with proprietary software allows you to create flat or three-dimensional, fixed or dynamic, monochrome or colored images in the sky.

At the moment, there are few companies on a global scale able to carry out luminous drone shows in the night skies (outdoor) as well as indoors at very high costs, both for the number of drones to be available and for the specialized skills to guarantee (computer engineers, flight experts, videogame and/or cinematographic animators). However, even if still limited to exceptional events such as the corpo-

rate ones of *Intel* or *Damoda* or, in 2017, the Lady Gaga concert and the closing ceremony of the *Fortune Global Forum* in China or the opening ceremony of the Winter Olympics in South Korea in 2018 (Figures 1, 2), light drone shows are also affecting New Year's Eve parties such as 2020 in Shanghai and 2021 in Seoul and Scotland.

#### PYROTECHNIC TREATISES FROM THE FIFTEENTH TO THE TWENTIETH CENTURY BETWEEN DEVICES SHAPE AND FIREWORKS DESIGN

The pyrotechnic exhibition design bases its theoretical and applicative knowledge in multidisciplinary fields of a chemical, engineering, mathematical and geometric type. Also on the scientific value of drawing as a field of cognitive investigation for the design specificities of firing machines, which require geometric rigor to correctly set and define 'jet' and 'shape' of the fire.

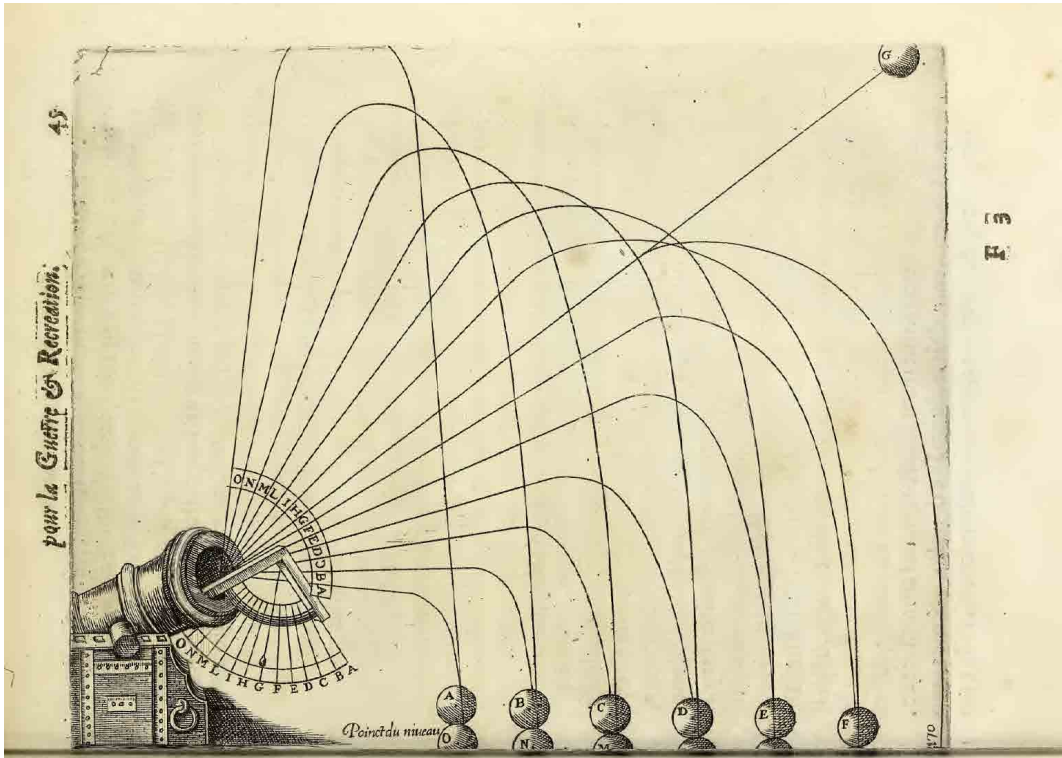
In this context, this study offers a critical analysis of bibliographic production in the field of pyrotechnics through the study of texts (Italian, European, Oriental) starting from the sixteenth century, bearing in mind that, although originating in ancient China, the stages historical technological development of this practice are based mainly on the studies of fire artillery.

Specifically, this study does not aspire to examine the staging of the fireworks exhibited by Italian, European and Eastern treatise writers in their multiple thematic aspects, but to investigate mainly the result from the point of view of the formal representation that they once assumed after being 'threw' up in the air. Associated with a broader investigation of the extraction techniques, melting and preparation of the combustible material, it will be highlighted how the technique of setting up the 'structural shape' of the firing or deflagration device will prove to be the main functional component for determining shape and design of the fire.

For this reason, the analysis of the geometric configuration of the device is essential to that of the jet of fire, so much so that the introduction in subsequent eras of more advanced technological and construction systems have allowed us to imagine ever more creative pyrotechnic shows.

The *Pirotecnica* (pyrotechnics) in 1500 was the art of melting metals to extract them from their minerals and pour them in cannons and statues. Fireworks originate in the pyric compositions, worked to engage combustion effects and similar to those of black powder, from which they are derived. In this sense, black powder is one of the most used raw materials in pyrotechnics, alone as a launching charge or mixed with other materials in different compositions.

One of the first Italian treatises, who illustrated its principles, was Vannuccio Biringuccio (1480-1539) in his treatise entitled *Pirotechnia del signor Vannuccio Biringuccio* (Biringuccio, 1540). Structured in *Ten books*, the treatise describes with clarity and precision the techniques of mining and smelting as well as the art of goldsmithing and glassmaking. *Book VIII* illustrates the *Arte piccola del Gitto* (small art of fire jet) (p. 438) while in *Book X* appear the indications *De gli ordini di far fuochi artificati* (orders to make fireworks) (p. 549). Here, the ‘saltpetre’ (potassium nitrate) is described as one of the indispensable materials (together with sulfur, coal, turpentine oil and powerful wine spirit) to obtain a compound which, after cooking (to remove the humidity), is used for the construction of underground mines –invented by Francesco di Giorgio Martini (1439-1502) and applied for the first time by Captain Pietro Navarra (1460-1528)–, trumpets and tongues of fire, *pignatelli* (fire thrown by hand) and fires, which burn in the water. For the staging of urban shows and religious and/or civil festivals, the treatise writer proposes the creation of ‘pinwheel’ shaped fires which, although “harmful to all living things [...] invite people to long to see them” (Biringuccio, 1540, p. 606). In fact, in 1886, after centuries of uninterrupted tradition, the danger of this firework led to the prohibition of

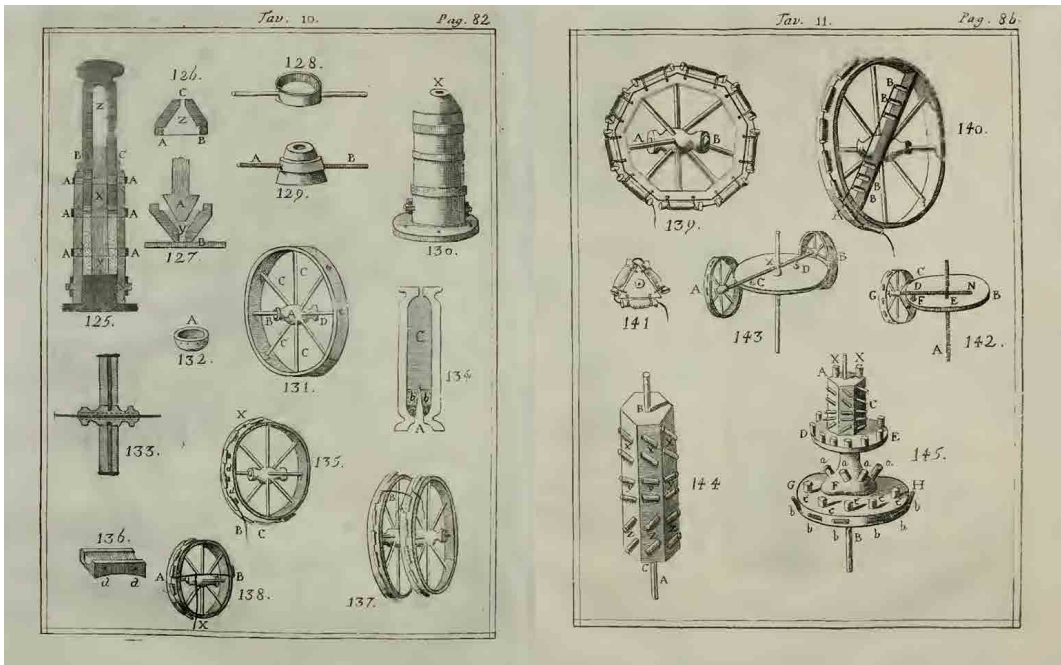


**Fig. 3** Hanzalet Lorrain, *Comment il faut caïster le canon pour donner au but proposé*, 1630 (how to launch the cannon to give the proposed goal. Hanzalet Lorrain, 1630, *La pyrotechnie de Hanzalet Lorrain ...*, p. 45, fig. 3).

the fireworks show in Rome of the famous Pinwheel of Castel Sant'Angelo, conceived by Michelangelo Buonarroti.

Scholar of artillery technique and trained on the work *La pyrotechnie ...* by the French Hanzalet Lorrain (1630) (Figure 3), the Bolognese essayist Giuseppe Antonio Alberti (1712-1768) describes in his treatise *La pirotechnia, o sia, Trattato dei fuochi d'artificio* (1749) the shaping of 'simple' fires such as rockets, serpentines, cassettes (precursors of modern air fires), fountains and jets. As already Biringuccio, Alberti focuses on the description of pinwheels and their different shapes. Starting from the 1500s, the pinwheel had been one of the main fire devices most used and, together with the rocket, the most used pyrotechnic technique for night shows in religious and/or civil celebrations.

The pinwheels were paper canes, attached to light wooden wheels hinged in the center to irons and loaded



**Fig. 4** Giuseppe Antonio Alberti, *Delle Girandole e Di varie cose le quali fanno il loro effetto girate dalle girandole*, 1749 (about the pinwheels and various things to make their effect. Giuseppe Antonio Alberti, 1749, *La pirotechnia, o sia Trattato dei fuochi d'artificio ...*, pp. 82, 86, tables 10, 11).

with explosive mixture which, as they burned, turned the wheel so rapidly that the fire appeared to be constantly moving. However, the lightness of the device did not guarantee long duration for the show, so much so that Alberti proposed a solution consisting of several wheels stacked around the central iron.

From the analysis of the iconographic apparatus of the treatise, it is possible to state that the wheels of the pinwheels had both vertical and horizontal position (Figure 4), depending on the choice from the observer's point of view. The vertical solution generated pinwheels perfectly visible at eye level, while the horizontal ones required more complex devices, placed on top of pyrotechnic machines designed by architects, and set designers for religious and/or civil celebrations. The different inclination of the pinwheel rods (glued at various heights) threw the fire in different directions. The effect, called 'cascade', is represented in the 1775 painting by Jakob Philipp Hackert, where the fireworks display is set up on top of Castel Sant'Angelo in Rome (Figure 5). The versatility linked to the



**Fig. 5** Philipp Hackert, *Feuerwerk auf der Engelsburg in Rom*, 1775, Weimar. Retrieved March 14, 2021 from <[https://it.m.wikipedia.org/wiki/File:Hackert,\\_Feuerwerk\\_auf\\_der\\_Engelsburg\\_in\\_Rom,\\_1775.jpg](https://it.m.wikipedia.org/wiki/File:Hackert,_Feuerwerk_auf_der_Engelsburg_in_Rom,_1775.jpg)>

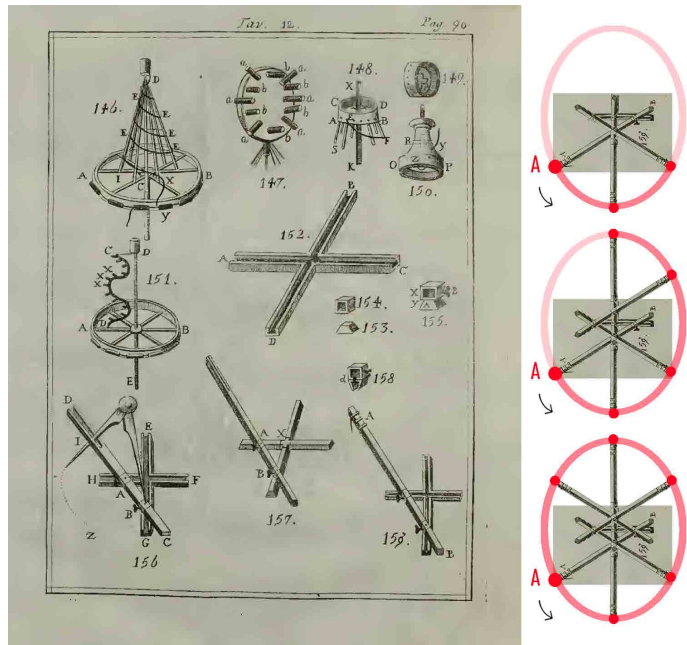


different arrangement and inclination of the rods on different wooden supports allowed the treatise to codify the staging of pinwheels in the shape of sun, moon and stars (as Star of David) and, by inserting these pieces on an iron, the individual effects could produce even more ‘complex games’.

In addition, in his treatise Alberti also expounded the technique of water fires such as bombs, globes, sprays and pinwheels, warning the reader that the combustible mixture required more rigorous preparation so that the fire could do its job correctly in water. However, after the consultation of numerous volumes of bomb technicians of the past and practiced the art of the pinwheel, in his work Alberti stated that he had never made a pinwheel in the shape of an “ellipse or ovate” because “a good thing never came out” (Alberti, 1749, p. 88). A cross-shaped rail device remains documented in *Plate 12*, where the rod placed on its end had to generate an ovate-shaped pyrotechnic effect (Figure 6).

The eighteenth century represents a creative season for art and the study of the fireworks for entertainment and shows. The countless engravings of festivals in the main European capitals bear witness to this, including that of 1749 entitled *A View of the Fire-Workes and Illuminations at his Grace*

**Fig. 6** Giuseppe Antonio Alberti, *Velie Girandole in forma Ovale*, 1749 (pinwheels in oval shape. Giuseppe Antonio Alberti, 1749, *La pirotechnia, o sia Trattato dei fuochi d'artificio ...*, p. 90, Tab. 12. On the right, reconstruction of the oval by Vincenzo Cirillo).



*the Duke of Richmond's at White-Hall and on the River Thames, on Monday 15 May.* The work, preserved in the *British Museum*, illustrates the fireworks display for the benefit of King George II of Great Britain who celebrates the signing of the treaty at *Aix la Chapelle* in 1748 for the end of the war of the Austrian succession. Particularly interesting are the plastic effects used for the occasion and described in the side panels of the image including the wheel, the sun, the spirals, the water rockets (Figure 7). The event, however, retains a fatal memory because during the fireworks show, one of the fireworks landed on the main pavilion, lighting several thousand fireworks and killing many spectators.

In the 19th century, the modern meaning of pyrotechnics was born, defined as that art of delight in which fire is a sign of exultation, a splendid synthesis of 'light' and 'color'. From this moment, in fact, the fireworks are colored because mineral substances are added to the combustible compound which, at the time of the explosion, produce colored trails (mainly red, yellow, green, blue, orange, purple) at the sight of the

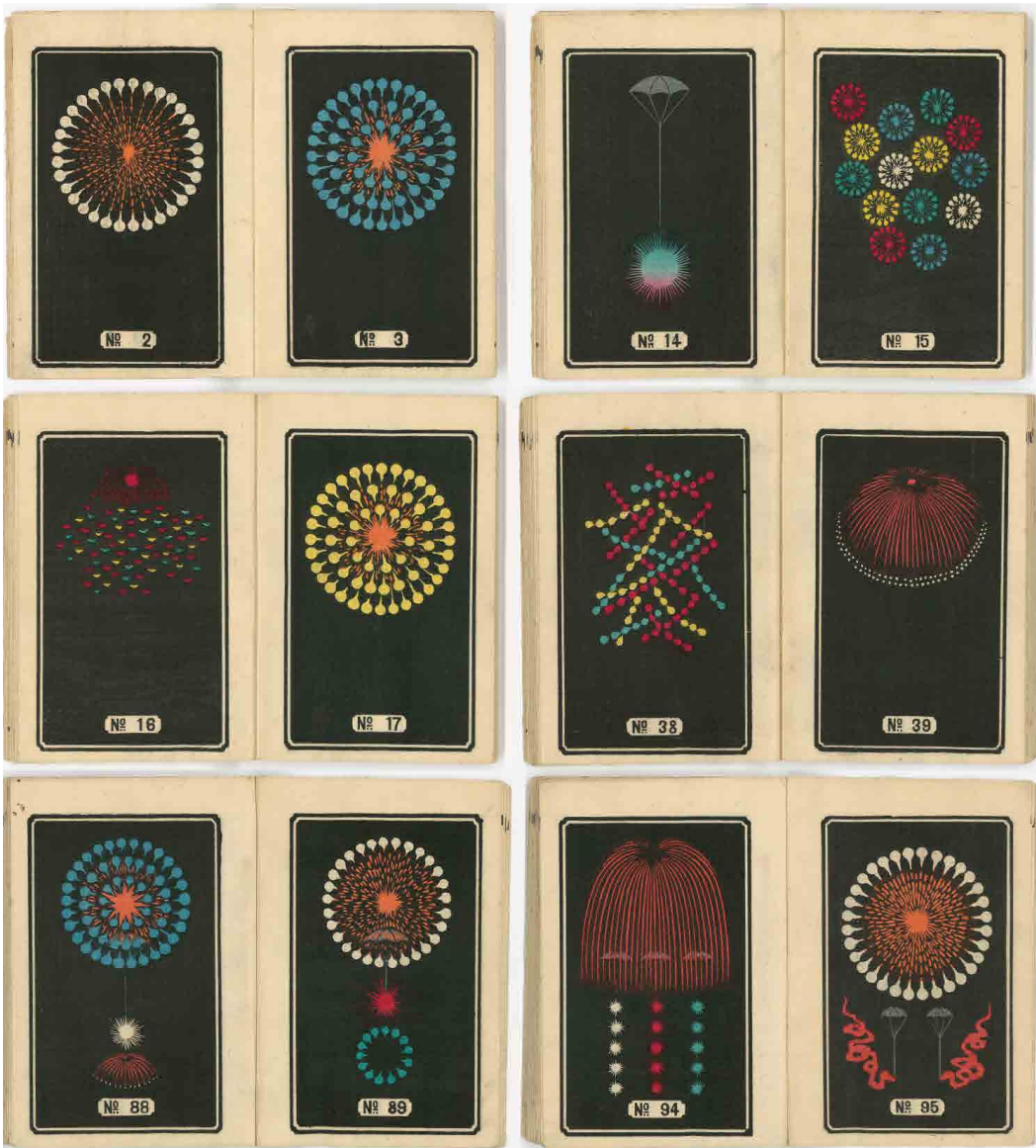




**Fig. 7** Unknown, *A View of the Fire-Workes and Illuminations at his Grace the Duke of Richmond's at White-Hall and on the River Thames, on Monday 15 May, 1749*. Retrieved March 14, 2021 from British Museum Digital Collection.

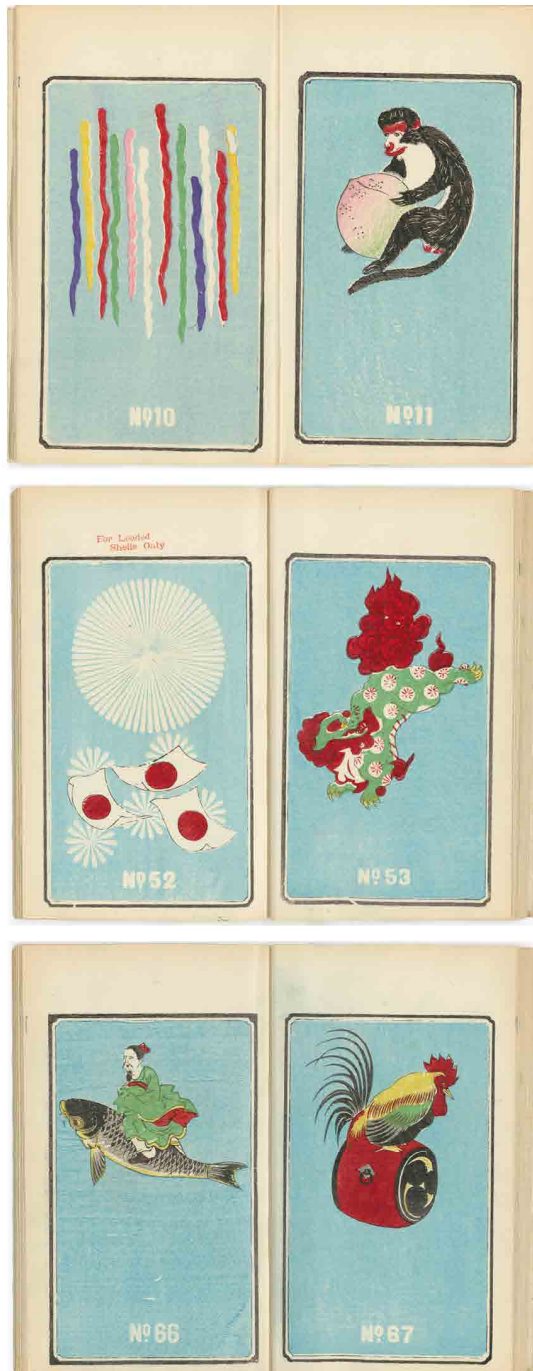
spectator. Some nineteenth-century treatises are exclusively dedicated to colored pyrotechnic art, guiding the reader to the choice of materials for the visualization of specific colors, as in the case of the oriental work *Illustrated Catalog of Night Light Bomb Shells of Hirayama Fireworks* (1883) (Figure 8) and exclusively dedicated to the chromatic display of fire at night, or of the *ratado general de Fuegos de Artificiales y manera práctica de prepararlos...* (1902) edited by Gregorio Hermosa.

At the same time, the so-called 'day firebombs' were born in Japan, colored objects made of very light silk paper in which the heat of the small fire placed inside allowed them to fly. The bombs, thanks to a mortar, threw these objects (currently called 'lantern') into the air which, once they reached a certain height, fell apart. Manufactured in Iokoama by *The Kirayama Fireworks Co.*, these 'bombs' were



**Fig. 8** Hirayama Fireworks, 1883. *Illustrated Catalogue of Night Bomb Shells...* Retrieved March 14, 2021 from <[http://archive.org/details/ IllustratedCatalogueOfNight BombShells](http://archive.org/details/IllustratedCatalogueOfNightBombShells)>

illustrated in the catalog of 1883 (already mentioned for the nocturnal one) entitled *Illustrated Catalog of Day Light Bomb Shells of Hirayama Fireworks* (1883) (Figure 9) and, not containing explosive materials, were exported to other countries without restrictions.



**Fig. 9** Hiramaya Fireworks, 1883. *Illustrated Catalogue of Light Bomb Shells...* Retrieved March 14, 2021 from <[https://www.lib.cityyokohama.lg.jp/Archive/DTRP0320?SHIRYO\\_ID=4855](https://www.lib.cityyokohama.lg.jp/Archive/DTRP0320?SHIRYO_ID=4855)>

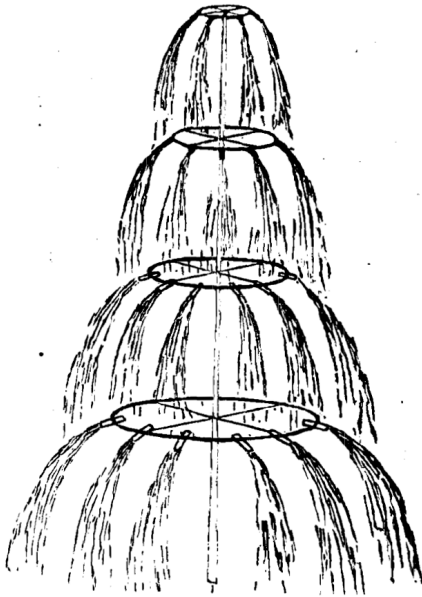
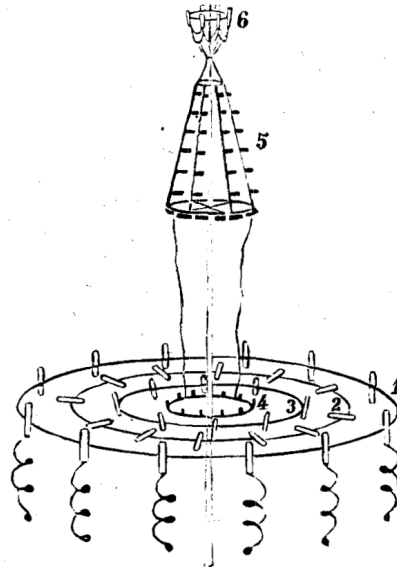


Fig. 108.

**Fig. 10** Francesco Di Maio, *Mortaletti*, 1916 (Francesco Di Maio, 1916, *Pirotecna moderna*, p. 159, figg. 105-106).



**Fig. 109.** — 1) Fontana da giuoco; 2) Bengala; 3) Fontane da giuoco; 4) Fontane a giardino; 5) Ossatura girante; 6) Sbruffi.

In the early 1900s, pyrotechnic treatises became more and more technical, codifying and grouping fires, elementary components, and more complex devices into multiple types (Di Maio 1916). In particular, the types of fires were collected in: fixed (fountains, *tracchi*, spears, flames, candles, *sbruffi*, *mortaletti*); aerial (rockets, dragons, artichokes); bombs, grenades and gaskets (small fires within larger compositions, stars, snakes, doves, rain). The elementary components (simple devices) are divided into bunches of flying rockets (rods), wheels, sunflowers, pinwheels, columns, spirals while the complex ones, also called 'big fires', are based on the combination of the simple ones (Figure 10). At the same time, it is precisely from this century that an ever-increasing awareness of the violent impact and the lack of sustainability that this art, louder than bright, has on the environment and on the well-being of people and animals is born.



## DRONE LIGHT SHOW: THE SHOW OF FLYING PIXELS. METHOD AND TECHNOLOGIES

Nowadays the technological progress is more and more pushed and quick. Consequently, hardware and software, that are generated to carry out a task in a definite sector, are quickly adapted and brought to perfection in order to accomplish objectives that are different from the native ones.

In this direction an example is given by UAS (Unmanned Aircraft System) which was created for military purposes and used afterwards for civil aims also thanks to the growing interest showed by the scientific community (Remondino, 2011, pp. 25-32; Nex, 2013, pp. 1-15) which has offered its substantial contribution. In fact, these systems are used and studied in a way more and more frequent and in different disciplinary fields, such as : agricultural and forestal management (Grenzdörffer, 2008; Aicardi, 2016, pp. e1- e7); generation of Digital Terrain Model (Wani Sofia, 2012, pp. 272-275; Mustafa, 2016, pp. 1439-1445); monitoring of landslides and of mountainous and rocky walls (Mancini, 2013, pp. 6880-6898; Dall'Asta, 2015, pp. 391-397); interventions due to natural disasters (Baiocchi, 2013, pp. 21-25; Chiabrando, 2017, pp. 69-76); 3D reconstruction (Oniga, 2017, pp. 551-558); documentation and 3D mapping of cultural and archaeological heritage (Bolognesi, 2014, pp. 113-119; Gutierrez, 2016, pp. 10-13; Pérez-Alvárez, 2019).

The UAS owe their great success to the typical characteristics of versatility, manageability and stability of cameras. To these characteristics it is added the strong development UAS are undergoing as regards their control which leads them to be equipped with increasingly sophisticated and performing on-board computers. The on-board computer of a UAS uses numerous sensors to maintain the stability of the aircraft in order to facilitate its control.

Among these systems, the responsible for managing the position of the aircraft is the satellite positioning system which also allows the UAS to follow paths defined by several points in space (waypoints) and consequently to carry

out planned trajectories. Therefore, the miniaturization of the positioning system, supported by the possibility of the combined use of one or more satellite constellations, offers the possibility of realizing imaginable scenarios, such as coordinating single examples of UAS in trajectories in order to form a single unit, to avoid collisions and to receive signals concerning the context in real time to modify the relative parameters in a short time. Furthermore, in the fields of robotics and computer science, systems and algorithms of vision and artificial intelligence are developing to solve complex problems in a way that robots (including UAS) organized in swarms achieve their goal programmed in a completely autonomous way and without hindering each other (Araki, 2017). The persevering search for procedures to fly simultaneously hundreds (Graf, 2018), if not thousands of aircraft in formation, together with new forms of spectacularization, is giving the possibility to experiment a new approach of representation (Figure 11).

A few years have already passed since September 2012, year in which the Research and Development unit of Ars Electronica, *Futurelab*, proposed a new form of unprecedented representation at one of the main European open events, the Linzer Klangwolke in Linz, in which often previously light shows of fireworks and lasers were proposed and were remarkably successful (Dorfman, 2018). On that occasion, a fleet of quadcopters made up of 49 aircraft equipped with LED lights enchanted the audience by flying in swarms and executing predetermined and planned trajectories, by giving life to 3D wireframe images of abstract and real shapes. It is possible to carry out a parallelism between the digital representation of a shape and its repetition through this method of drawing three-dimensional figures in the air. So, every single aircraft is a pixel which, when placed in relation with the others (one-group relationship), is able to represent a vastness of shapes and dynamic sequences on the gigantic display of sky.

The single-whole relationship opens up a very current research in the field of artificial intelligence, in order to artificially



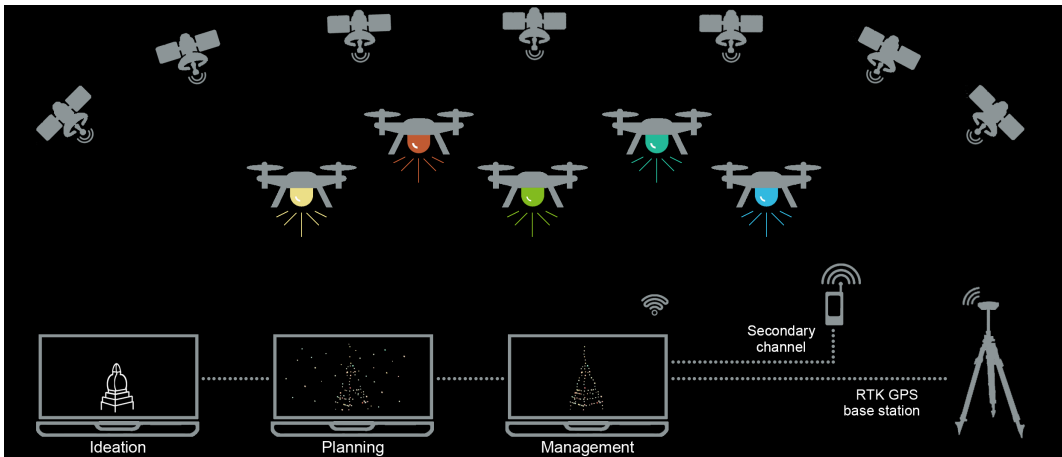
**Fig. 11** *The flight of 2198 miniature UAV over Saint Petersburg.*  
Retrieved March 3, 2021 from <<https://www.everythingrf.com/News/details/11280-high-precision-gnss-modules-from-u-blox-used-in-the-record-breaking-drone-air-show>>

re-propose the natural phenomenon known as ‘swarm intelligence’ (Rivière, 2020, pp. 4249-4256). In this way the single autonomous UAS is able to fly in the group by interacting both with the others and with the surrounding environment.

This is made possible by the use of a software with artificial intelligence logic to which each UAS sends signals of various kind, on the base of which decisions will be made quickly in order to act and also avoid each form of disasters. The speed with which technological and digital innovations make progress suggests that the time interval of separation from that first experience has been characterized by profound transformations and improvement in this field.

If it is considered that in just three years the number of aircraft involved has doubled, *Intel* and *Ars Electronica Futurelab* entered the *Guinness World Record* with the “Drone 100” show at Ahrenlohe airport in Germany, and from that same date, in which twenty-five operators controlled individually 4 aircraft, just two years later in December 2017 a swarm of 1,180 light UAS were guided by a single operator during the closing show of the *Fortune Global Forum* in China.





**Fig. 12** Rosina Iaderosa, *Methodological process and technologies used for drone light show, 2021.*

The record was broken a few months later, in July 2018, on the occasion of the 50th anniversary of the *Intel* company, which realized the flight of a swarm composed of 2,018 UAS (Combodrone, 2020) over its headquarter in Folsom, California. In order to obtain both increasingly performing results and a system with deep compatibility between the parts, some manufacturers have developed specific hardware and software, such as the small Shooting Star quadcopter from the *Intel* manufacturer (Intel, nd).

Since it is necessary to respect characteristics of lightness and safety, unlike the commercial ones, these models are only equipped with a satellite system and a high-power LED light. Furthermore, the aircraft do not consist of single elements assembled by means of screws, but of a single frame in plastic and polyurethane foam to which the four propellers are attached, in turn inserted in protective cages. Also for these models the satellite receiver is a fundamental component in the success of the operations. In fact, it allows to plan the route in advance and establish the beginning, the end, any hovering points and those for changing the shades of the lights. Properly designed hardware is not sufficient for carrying out operations (Figure 12). Therefore, the system is made up of a series of other elements, including a ground station on the ground that, once the relative calculations have been



**Fig. 13** The 3,051 UAS drone light show over the sky of Zhuhai. The small UAS were coordinated in order to represent satellite stations and symbolic elements of the aerospace. Retrieved March 5, 2021 from <<https://www.guinnessworldrecords.com/news/commercial/2020/10/3051-drones-create-spectacular-record-breaking-light-show-in-china>; <https://skymagic.imgix.net>>

made, pilots and synchronizes via radio each multirotor both in terms of movement in the sky and the variation of shade. In addition, it needs a group of systems: a laptop for control, a Wi-Fi router, an RTK base station, a telemetry radio to establish communication between the laptop and the RTK base station, and a radio to transmit satellite corrections and emergency commands to aircraft on the secondary channel (Drone Show Software. Retrieved March 03, 2021 from <https://droneshowsoftware.com/software>).

Regardless of the actors in the field and the type of representation that it is wanted to implement, the process is carried out through the steps of conception, planning, animation, simulation, control and execution.

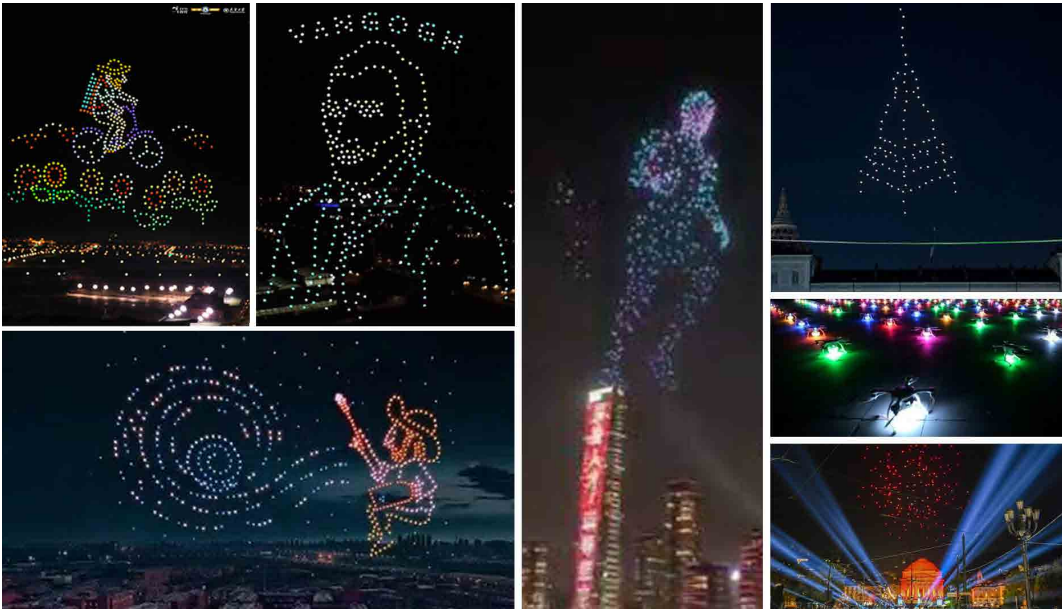
In the initial phase, the figurative mental idea is realized, through preliminary sketches and drawings or by choosing and modeling digital figures belonging to existing libraries. The subsequent planning phase is essential for securing operations. The safe flight areas, the command posts and the positions of the public, in fact, must be calibrated by taking into account the optimal viewing angles and the emergency points, through an in situ survey and a virtual reproduction. It is mandatory that there is a safe and non-violable fence around the launch area. In addition, the airspace to be reserved for the operation must include a double geographical fence and safety exclusion zones. Once these two phases have been defined, it is possible to proceed with the anima-

tion phase, for which it is necessary to use a 3D modeling and animation software through which it can be to calculate and program the movement path and trajectories of each aircraft. Once this step is completed, it is necessary to virtually simulate the flight to test the UAS and validate the trajectories. With the control phase it is possible to enter in the operational section of the process, being a basic step to check all programming on site both in terms of safety and procedure.

The airfield is set up near the area identified as the launch area and the safety protocols are finalized. After a further check-in, through the support of the management software, the flight is carried out.

Most of companies operating in this sector have developed special algorithms that allow in a single proprietary software to manage all the operations in order to simplify the phases both programming and management; so they significantly can reduce the possibility of error due to continuous transport of the project in different programs.

In conclusion, the development of information technology and the continuous progress of communication technologies will lead to the possibility of obtaining swarms with an increasing number of aircraft since the tracking of the position will be more and more accurate and therefore the aircraft will be able to fly closer and closer. Nowadays the Guinness world record is held by Damoda which hovered 3,051 UAS in Zhuhai, China. On that occasion, symbolic elements of aerospace science and technology were represented. It is also desirable that the increase in hardware involved in a single show opens the possibility of more detailed schemes, of increasingly complex and articulated representations and of using this technology for the dissemination of the architectural and historical-artistic heritage. Some examples, in this sense, are the show, held at the beginning of 2021 in the Chinese sky of Tianjin, in which 600 UAS, by flying in swarm mode for 26 minutes and 19 seconds, represented the life and works of Van Gogh and the shows proposed to celebrate the patron saint of Turin every year from 2018.



**Fig. 14** From left to right: representations of Van Gogh's life and his most famous works; dynamic representation of a man interacting with city architecture; some shows in Turin representing both the architectures and involvements. Retrieved March 5, 2021 from <<https://www.guinnessworldrecords.com/news/commercial/2021/2/600-drones-create-dazzling-van-gogh-animation-across-night-sky-645910>> and <<https://mole24.it>>

They represent the symbolic monuments of the city, such as Mole Antonelliana, or the same city architecture becomes the stage and scenic backdrop of the event (Figures 13, 14).

## CONCLUSIONS

Differently to fireworks, which have always been the protagonists of undoubted charm and visual attraction, the attention towards aerial views with luminous drones is decidedly increasing. In fact, in the eastern world where the primitive concept of gunfire was born, an eco-sustainable and less dangerous version of the traditional firework is in a continuous development by ten years about thanks to staging of light shows which simulate splendid visual syntheses of 'light' and 'color' without the aid of explosive materials through the use of drone. Nowadays fireworks are submitted to widespread and considerable criticism both for the effects of air and soil pollution and, above all, for the heavy acoustic consequences caused by the fireworks to the detriment of animals and people. On the other hand, the luminous drones

represent alternative fireworks, which can be used again with countless different visual narratives and three-dimensional choreographies synchronized with musical performances. It is possible to think that in the future there will be an increasingly widespread development of this digital display technology, whose methods allow the implementation of visual images for the transition from drawing ‘on paper’ to drawing ‘in the sky’.

## NOTES

**1** The paper is the result of the collaboration between all authors: Ornella Zerlenga is directly responsible for the chapters *Introduction* and *Conclusions*, while Vincenzo Cirillo for *Pyrotechnic treatises from the fifteenth to the twentieth century between devices shape and fireworks design* and Rosina Iadèrosa for *Drone light show: the show of flying pixels. Method and technologies*.

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**Article available at**

DOI: 10.6092/issn.2724-2463/12628

**How to cite**

**as article**

Zerlenga, O., Iaderosa, R., Cirillo, V. (2021). Once upon a time there were fireworks. The new nocturnal drones light shows. *img journal*, 4, 402-425.

**as contribution in book**

Zerlenga, O., Iaderosa, R., Cirillo, V. (2021). Once upon a time there were fireworks. The new nocturnal drones light shows. In M. Ghizzoni, E. Musiani (Eds.), *img journal 04/2021 Copy / False/ Fake* (pp. 402-425). Alghero, IT: Publica. ISBN 9788899586195



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## OLTRE LA VERITÀ. COPIA/FALSO/FAKE

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In letteratura la distinzione tra 'copia', 'falso' e 'fake' oltrepassa la semplice connotazione linguistica: tra i lavori più interessanti in proposito si segnala la ricerca in ambito informatico tesa alla realizzazione di applicazioni capaci di catalogare le notizie come vere o false, distinguendo un "semplice falso" da un "fake" (Molina et al., 2021). Un 'falso' non è certamente un 'fake': perché lo sia è necessaria l'intenzione di incidere sulle opinioni di massa in relazione ad argomenti specifici e spesso con intenti molto precisi. According to Cambridge Dictionary 'fake news' are "false stories that appear to be news, spread on the internet or using other media, usually created to influence political views or as a joke" (Cambridge Dictionary, 2018). L'intento è sempre la volontà di sostituzione della realtà fattuale con una realtà artefatta, resa vera o plausibile allo sguardo del fruitore. In particolare, l'uso di fake news in politica è sintomo di una capacità (o di una volontà) di intercettare masse con limitato livello di capacità critica, mentre il ricorso al falso – ad esempio la "normalizzazione" storica narrata in *Di Bologna riabbellita* (Rubbiani, 1913) o gli *e-games* – prevede che i fruitori possano avere coscienza di trovarsi di fronte a un evento o a un oggetto non reale, non vero, senza per questo ridimensionarne le qualità valoriali. Così come il falso prodotto per ingannare l'osservatore, soprattutto nel mondo dell'arte ha una storia al quanto complessa (ad esempio: Arnau, 1960): da Winkelmann (*Giove bacia Ganimede* dipinto da Mengs e Casanova nel 1758) ad Argan (teste scolpite attribuite a Modigliani nel 1984) hanno ritenuto vere – quindi portatrici dei valori estetici del modello o dell'autore di riferimento – opere poi rivelatesi palesemente false. Le qualità valoriali in effetti vengono mantenute anche nel caso di copie diverse di uno stesso originale, come ricorda James Elkins (2019) nel contributo al *Manifesto di img journal*, quando pone

l'attenzione sullo scarso interesse che alcuni studiosi delle scienze visuali e della storia dell'arte hanno nei confronti dei dettagli. Elkins ne tratta proponendo una pluralità di versioni di una copia all'acquaforte del XIX secolo del dipinto di Rembrandt *Ritratto di Jan Six* del 1654: la successione di queste copie – la copia disponibile su un testo di storia dell'arte, la copia migliore reperibile su internet, la copia che simula la proiezione durante una lezione di arte ecc. – pone di fronte alla consapevolezza che anche nel caso di copie – nel caso citato copie digitali di copie analogiche – la discrepanza tra originale e copia è uno dei parametri utilizzati per definire il valore della copia e, per quanto sia possibile ottenere copie identiche nel passaggio da digitale a digitale, se uno solo dei passaggi che portano dall'opera alla sua copia si svolge in un contesto analogico la possibilità di una perdita di dettaglio è sempre presente, ma non necessariamente comporta una perdita del valore dell'immagine.

Per quanto attualmente la democratizzazione e l'accessibilità delle applicazioni di editing digitale abbiano ampliato esponenzialmente la produzione di *fake images*, non mancano precedenti storici significativi: è noto come i regimi della prima metà del Novecento abbiano fatto un largo uso di immagini manipolate o semplicemente presentate in modo fraudolento a fini propagandistici. Emblematico è il caso del regime stalinista, durante il quale vengono spesso attuati ritocchi dei ritratti del dittatore, per eliminare dettagli antiestetici come la pelle butterata dal vaiolo, o addirittura alterazioni degli eventi fotografati, come nel noto caso in cui, a seguito della destituzione del ministro Nikolaj Ivanovič Ežov, l'immagine di quest'ultimo viene sistematicamente rimossa dalle foto ufficiali. Una *damnatio memoriae* che passa per la manipolazione di un'immagine fotografica, in quegli anni (come in parte ancora oggi) percepita come 'vera' per statuto perché capace di immortalare la realtà inquadrata dall'obiettivo mediante un processo frutto della tecnica ottica e non della mano dell'autore. Sebbene la pratica della propaganda non abbia utilizzato necessariamente la fotografia (a titolo meramente esemplificativo, si potrebbe ricordare come difficilmente Napoleone possa aver valicato il Gran San Bernardo domando un cavallo imbrozzato come ritratto nel celebre dipinto di Jacques-Louis David) appare evidente come l'avvento della fotografia, consentendo tecnicamente la riproduzione della realtà, abbia accentuato la credibilità delle manipolazioni delle immagini.

Alla luce di questi precedenti è chiaro come il fenomeno *deepfake* reso possibile dalle reti neurali GAN renda l'accezione di 'fake' particolarmente complessa da interpretare, quando alla verosimiglianza delle immagini (si veda in proposito anche l'applicazione *thispersondoesnotexist.com*, che genera a ogni refresh un ritratto "Imagined by a GAN" estremamente e inquietantemente realistico) si sommano quelle della voce e della gestualità. Nel 2019 una trasmissione satirica italiana ha trasmesso un video *deepfake* in cui il protagonista Matteo Renzi, al tempo leader di una formazione politica di governo, sembrava riferirsi in modo irrispettoso nei confronti dell'allora capo di governo e dei colleghi di coalizione. Nonostante la dichiarazione degli autori che il video fosse un *deepfake*, questa informazione passò in secondo piano favorendo un'ampia diffusione social e il coinvolgimento di centinaia di migliaia di utenti convinti della veridicità del video.

La distinzione tra realtà e realtà mediata e tra realtà mediata e falso è sempre più sottile, ed è spesso superata dalla prassi ancora prima che le sue implicazioni siano comprese e assorbite dalla società. Se la televisione, grazie all'atto della copia, ha consentito a realtà distanti di rendersi presenti nella dimensione domestica privata, oggi la televisione è sempre più digitalizzata e quindi inglobata nell'unimedia informatico, nella definizione di Pierre Lévy secondo cui le tecnologie digitali hanno fagocitato ogni media, configurando il concetto di "unimedia" più che di "multimedia" (Lévy, 1999). La distinzione tra un evento sportivo in tempo reale con sistemi interattivi multi-telecamera e una sessione di e-sport è una questione prettamente generazionale perché, nonostante il volume d'affari sia ancora relativamente modesto (circa 1 miliardo su 175 miliardi di ricavi dell'industria del gaming), i Worlds, i mondiali del Moba di Riot Games di *League of Legends*, hanno raggiunto nel 2019 l'interesse di oltre 100 milioni di spettatori nello stesso anno in cui l'evento sportivo reale più seguito al mondo (il Super Bowl) ne ha raggiunti 98 milioni. Un falso, dichiaratamente falso, capace di intercettare utenti e interessi economici veri.

La continua rimediazione delle esperienze, non solo per gli eventi sportivi ma anche nel vissuto quotidiano (Treleani & Zucconi, 2020), è stata recentemente accelerata e acuita dagli effetti della pandemia, che ci hanno costretto a vivere, lavorare e relazionarci in maniera completamente dipendente da dispositivi di mediazione connessi a Internet. Ciascun individuo si è trovato sempre

di più confinato (imprigionato?) nella *filter bubble* (Pariser, 2011) ritagliata su misura per lui dai *recommendation systems* dei social network e dei siti di e-commerce che, orientando le sue scelte mediante conferme continue delle sue preferenze, lo hanno catapultato al centro del "grande inganno" (come recita il titolo del numero 97 della rivista *Wired*), impedendogli di costruire quella libera opinione critica che dovrebbe essere il risultato di un'informazione completa e non pilotata. La distinzione tra le immagini prodotte e fruite tramite apparecchi –*technische Bilder*– e le immagini tradizionali –*traditionelle Bilder*–, a cui secondo Flusser (2006) quelle tecniche somigliavano, che consentiva la distinzione chiara tra l'esperienza mediata dal dispositivo e l'esperienza reale, si è interrotta istantaneamente. La posizione di Flusser appare pertinente, perché a differenza della onnipresente allegoria della caverna platonica, in cui il dispositivo si erge a barriera tra l'uomo e la verità, in Flusser quello che oggi viviamo come forma di disagio latente è considerato una sudditanza epistemologica rispetto al mezzo tecnico. Tutto, dai primi mesi del 2020 in poi, è stato fagocitato dal dispositivo di mediazione, rendendo sempre più labile il confine tra reale e digitale, tra naturale e artificiale, tra vero e falso.

Il tema della costruzione artificiosa della realtà, di uno scenario edulcorato o comunque alterato da quegli stessi strumenti tecnologici le cui potenzialità si rivelano nella contemporaneità tanto irrinunciabili, emerso già a partire dalla fine del XIX secolo, appare oggi particolarmente urgente. Nell'era di Internet e dei social network, il concetto stesso di verità sembra essere minato alla base: emblematica l'elezione da parte dell'Oxford Dictionary della locuzione "post-verità" a parola dell'anno 2016 (Steinmetz, 2016), che assume il significato di verità "oltre la verità" evidenziando "il superamento della verità fino al punto di determinarne la perdita di importanza" (Biffi, 2016) a fronte dell'opinione comune e condivisa. Si parla di "*echo chamber*" (Cinelli et al., 2021) ovvero di un ambiente informativo distorto in cui l'utente riceve informazioni selezionate dagli algoritmi in maniera aderente al suo punto di vista abituale senza avere la possibilità di accedere ad altre informazioni che garantirebbero una visione più ampia o da una diversa prospettiva. Questo contesto di matrice algoritmica produce una riduzione della complessità del reale, un appiattimento dell'informazione che sembra prescindere perfino dal significato di vero e

falso e la cui deriva converge nella dimensione della *fake reality*. Del meccanismo del consenso espresso attraverso le piattaforme social è parte integrante il fenomeno dell'emulazione, emblemizzato da un linguaggio fatto di like, cuori e meme in parte latore del rischio di standardizzazione di opinioni ed emozioni. La copia coinvolge i comportamenti, accompagnando l'individuo, di challenge in challenge, di riproduzione in riproduzione, verso la promessa di un'accettazione sociale mai completamente reale e concreta. La recente stigmatizzazione del ricorso ai filtri disponibili sui social network, strumenti per l'alterazione dell'immagine della persona finalizzata all'allineamento a modelli estetici tanto discutibili quanto distanti dalla realtà, e la conseguente campagna social *#filterdrop*, sembrano esprimere un'istanza di verità i cui effetti dovranno comunque essere valutati nel lungo periodo.

Seppure in un altalenare di ragioni che hanno spinto l'uomo a realizzare copie della realtà – e poi copie delle copie, come ad esempio per la statuaria greca che conosciamo quasi esclusivamente grazie alle copie di epoca romana (Barbanera, 2011) – la copia ha assunto sempre più importanza nelle attività dell'uomo, con una accelerazione negli ultimi due secoli quando la riproducibilità ha conosciuto una nuova stagione, con l'avvento delle registrazioni fonografiche, delle dagherrotipie e successivamente delle riprese cinematografiche. Un ulteriore impulso è dato dalla disponibilità delle tecnologie digitali – l'unimedia già citato – capaci di rendere disponibili copie identiche di suoni, immagini e filmati, tanto che ormai da tempo appare inutile domandarsi dove sia e se ci sia un originale.

Quando Benjamin negli anni Trenta del XX secolo scrive il celeberrimo saggio sulla riproducibilità tecnica dell'opera d'arte (Benjamin, 1936/1966), intuisce molti dei temi che si sarebbero sviluppati da lì ai decenni successivi. Quello che però Benjamin non può prevedere è che alcuni sviluppi della copia in ambiente digitale avrebbero cambiato radicalmente non solo l'idea di autorialità e di aura (Luigini, 2019) ma avrebbero messo in crisi l'idea stessa di originale. A partire dalle opere di arte generativa – *in fieri* nell'arte programmata del Gruppo T (Luigini, 2016) – fino alla video art e alla digital art, la distinzione tra originale e copia si è andata affievolendo fino a scomparire definitivamente.

Basti pensare ai nuovi scenari economici e culturali aperti dalla recente tecnologia blockchain

per la registrazione e la memorizzazione dei dati, che prefigurano frontiere inesplorate. Proprio in questo territorio di frontiera ha preso vita una rivoluzione nel settore dell'arte digitale, rappresentata dall'ingresso e dalla diffusione dei Non-Fungible Token o NFT come certificati di proprietà di un'opera digitale. Gli NFT ridefiniscono gli stessi concetti di proprietà, autenticità e valore dell'opera d'arte. Appoggiandosi alla struttura blockchain, di fatto permanente e immutabile, tali certificati si configurano come inviolabili, inattaccabili e indistruttibili, offrendo una tipologia di garanzia mai sperimentata prima e un dispositivo di sicurezza di fatto blindato (Spagnuolo, 2021). L'appello degli NFT ha travolto il mercato dell'arte, generando una bolla speculativa di proporzioni globali, peraltro destinata alla crescita esponenziale (Signorelli, 2021). Si pensi al caso dell'NFT dell'opera *Everydays: The First 5000 Days* di Beeple, aggiudicata a marzo 2021 da Christie's per oltre 69 milioni di dollari, tra le cifre più alte mai scambiate per un'opera di un artista vivente, seconda solo a opere di Jeff Koons e David Hockney. In un'ottica fenomenologica classica, è evidente che il *Bildobjekt* dell'opera di Beeple è un collage digitale composto da scansioni di disegni a mano, che il *Bildsujet* è la moltitudine di soggetti ritratti quotidianamente dall'autore, e che la "cosa iconica" (il *Bildding*) è un codice digitale.

Il dibattito sulla riproducibilità dell'opera d'arte, sulla perdita dell'aura, sul valore intrinseco dell'opera e delle sue copie (Belardi, 2017) sembra giungere oggi a un radicale stravolgimento e vede sovvertito il suo stesso statuto. Se nell'era digitale la via verso la perdita dell'originale appare già ben delineata, con implicazioni di natura etica sulla definizione del valore dell'opera, sulla sua autenticità e aprendo interrogativi sulla sua conservazione (Menchetelli, 2019), lo strumento NFT sancisce definitivamente tale perdita, non soltanto nobilitando la copia a originale (tanto da poter parlare di 'copia originale') ma soprattutto assegnando valore di unicità all'opera in assenza dell'opera stessa. Infatti, ciò di cui entra in possesso chi acquista un NFT non è tanto il file contenente l'opera (sia essa un video, un codice, una gif, un'immagine o un brano musicale) quanto piuttosto "i metadati conservati su blockchain" che attestano la proprietà dell'opera (Signorelli, 2021). La cosa iconica, l'opera dell'ingegno e della creatività originale dell'artista, non è più l'oggetto di scambio.

I territori di azione del mercato NFT sono in corso di esplorazione: di certo, tutti i settori della cultura, dall'ambito mainstream alla nicchia esclusiva, stanno attingendo a (e investendo potentemente su) questa risorsa. Se, come anticipato, le più prestigiose case d'asta aggiudicano opere digitali a cifre da capogiro (Soldavini, 2021; christies.com/auctions/christies-encrypted) e anche i mondi dell'imprenditoria (Meo, 2021), dello sport (nbatopshot.com/challenges) e della musica (Ermisino, 2021) offrono nuove esperienze di fruizione proprietaria attraverso gli NFT, la portata del fenomeno appare evidente. Tanto che il mercato dell'arte si sta estendendo alla creazione di nuovi originali di proprietà, a cui startup emergenti (ad esempio cinello.com) dedicano la propria attività: basti pensare al caso del *Tondo Doni* che, riprodotto digitalmente in HD e in scala 1:1, allestito replicando la cornice e la collocazione originale e associato a un NFT, costituisce il primo Daw (digital art work), un "oggetto da collezione che mescola materia e digitale" (Franciscangeli, 2021) venduto a un privato.

La dimensione pervasiva dell'atto della copia ha investito la nostra quotidianità entrando pienamente a far parte della cultura diffusa. Talvolta ancora in maniera non del tutto consapevole. Un esempio significativo è la facilità con cui ogni giorno esercitiamo la pratica dello screenshot, agile strumento di memorizzazione e condivisione immediata di contenuti, che ha portato a coniare la recente definizione di "*screenshot culture*" (Thompson, 2015; Ciaponi, 2021) per inquadrare quel fenomeno di massa nel cui ambito è consuetudine scattare istantanee dello schermo dei propri dispositivi per archiviare informazioni, documentare accadimenti o testimoniare situazioni. Che sia per memorizzare la lista della spesa, l'orario di un appuntamento, le indicazioni stradali oppure per conservare l'istante in cui sullo schermo si assiste a un certo fatto, lo screenshot è di fatto irrinunciabile e la sua diffusione ha perfino implicazioni di carattere legale perché la 'cattura' dello schermo (termine che sembra accentuarne il carattere proibito), consentendo di ampliare la valenza del "*virtual witnessing*" (Shapin, 1984, p. 491), assume valore di prova nei contesti giudiziari. In maniera analoga, la possibilità di riprodurre oltre all'immagine ferma anche l'immagine in movimento, effettuando registrazioni video di sequenze di interazione con i dispositivi, apre ulteriormente la gamma delle potenzialità tecniche e delle possibili applicazio-

ni di questa pratica. In alcuni contesti tuttavia, ai fini della sicurezza e della tutela della privacy, emerge comunque la necessità di rendere nota al mittente/interlocutore l'avvenuta registrazione dello schermo, come introdotto ad esempio nella piattaforma *Snapchat*, nata proprio per la condivisione di contenuti destinati alla cancellazione programmata dopo 24 ore e per propria natura non 'screenshotabili'.

È chiaro come la rivoluzione digitale abbia investito irreversibilmente anche il campo della riproduzione – autorizzata o meno – e della circolazione delle opere d'arte e delle immagini, ed è chiaro come questa variazione ontologica abbia implicazioni economiche ancora imprevedibili, ma soprattutto che si presenti come una completa riscrittura del rapporto tra noi e gli artefatti che incontriamo nella nostra esperienza quotidiana, siano essi immagini, opere d'arte, schermate di una chat o riprese tramite webcam del nostro interlocutore. Tutto ciò può essere interpretato negativamente, sottolineando lo smarrimento prodotto dalla perdita dei riferimenti di unicità e materialità o i rischi della manipolazione dell'immagine ormai alla portata di qualunque individuo con una alfabetizzazione informatica anche modesta, ma anche positivamente, valorizzando le possibilità di nuovi e inesplorati scenari in cui le copie del nostro mondo – si pensi a Google Earth o al tema emergente del *digital twin* – consentono di compiere esperienze altrimenti inaccessibili o di salvaguardare il patrimonio tangibile, necessariamente soggetto al deperimento. Immagini e modelli che raccontano sempre dei loro originali ma che solo alcune volte lasciano intravedere la verità e si rivelano come copia, falso o fake. Questo issue intende fornire un contributo interdisciplinare che possa orientare nel discernimento quando ci troviamo di fronte a un'immagine nel turbinio visuale in cui viviamo ogni giorno.

**MANIPOLAZIONI, RITOCCHI  
E MESSE IN SCENA: IL DIBATTITO  
SULLA VERIDICITÀ DELLE IMMAGINI  
DI REPORTAGE NELL'ERA DIGITALE**

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Keywords

deontologia; etica; fotogiornalismo; manipolazione

**Bello è giusto?**

In quale grado, in quali contesti e secondo quali norme la modificazione di un'immagine fotogiornalistica è ritenuta ammissibile, viene permessa e accettata al fine di presentare una testimonianza che sia non solo vera ma anche visivamente gradevole o narrativamente più accattivante? E quali sono invece le azioni da condannare, che rendono una fotografia di documentazione (dalla quale quindi ci si aspetta un notevole livello di attendibilità e obiettività) falsa, o comunque falsata, sul piano sia percettivo che informativo? Sono solo alcune delle questioni sollevate dal dibattito, variamente articolato e sempre attuale, sulla legittimità delle pratiche di alterazione delle immagini, in special modo quelle di carattere testimoniale. Lo spettro delle possibili strategie è infatti molto ampio, e il più delle volte si rivelano labili, parziali o inadeguati i precetti e le linee guida contemplate dai codici di condotta di cui si dotano le agenzie di stampa e informazione. Si va dagli espedienti più propriamente estetici, interventi correttivi che possono riguardare l'aspetto formale dell'immagine (modifiche tonali, cancellazione di pixel, occultamenti tattici e altri accorgimenti cosmetici applicati in fase di post-produzione) fino a vere e proprie manomissioni della realtà osservata o dolosi travisamenti dei contenuti narrativi (come l'orchestrazione di scene *ad hoc*, la ricostruzione di situazioni, la formulazione di didascalie lacunose). Gli esempi sui quali ci si soffermerà sono cinque, tutti ben conosciuti dagli specialisti del settore ma generalmente argomentati, salvo qualche pubblicazione saggistica di rilievo, all'interno dell'orizzonte internautico e dall'articolistica divulgativa. Il primo è l'ormai celebre scatto di Paul Hansen dal titolo *Gaza Burial*, vincitrice assoluta

dell'edizione del 2013 del *World Press Photo Contest* e subito al centro di accese polemiche circa la sua presunta falsificazione; il secondo ruota attorno a un'immagine di Narciso Contreras, licenziato dalla prestigiosa *Associated Press* per aver eliminato dall'inquadratura un elemento indesiderato; il terzo è rappresentato da Brian Walski, autore di un fotomontaggio menzognero; il quarto riguarda una foto fortemente ambigua di Spencer Platt, anch'essa nominata *World Press Photo of the Year* nel 2007; l'ultimo ha come protagonista l'italiano Giovanni Troilo, al centro di una spirale di accuse perché artefice di un servizio insincero nelle sue fondamenta.

**Ai limiti del lecito**

Ha fatto parecchio discutere il caso sviluppatosi intorno a uno scatto del fotoreporter svedese Paul Hansen, immagine premiata nel 2013 come foto dell'anno dalla fondazione *World Press Photo*, una delle più importanti al mondo in materia di giornalismo visivo. Al di là del caso specifico<sup>1</sup>, per quanto estremamente emblematico in virtù delle questioni calde che è stato in grado di sollevare, il dibattito che ne è conseguito ha assunto proporzioni considerevoli, diffondendosi sia via web, attraverso siti internet e soprattutto blog, sia sulla carta stampata. L'eco di questa vicenda, destinata a diventare un precedente, ha interessato non solo il fotogiornalismo come pratica professionale, mettendo sotto inchiesta i suoi principi e le sue regole, ma anche questioni più generali, aprendo spiragli di riflessione circa, in primo luogo, la liceità e i limiti dei procedimenti di elaborazione e manipolazione dell'immagine fotografica. Il sito web della WPP riporta la motivazione formulata dalla commissione giudicatrice, che la descrive come "un'immagine potente e diretta"; nello specifico Santiago Lyon, presidente della giuria, ha così spiegato la scelta: "raggiunge la tua mente, il tuo cuore e persino il tuo stomaco – tutti punti chiave per un fotogiornalismo ad effetto" [my translation from English] (Lyon, 2013).

La fotografia è davvero di un'efficacia visiva prorompente, grazie alla forza emotiva che emana e alla profondità delle problematiche storiche e politiche implicate. *Gaza Burial* è uno scatto ravvicinato che testimonia le ripercussioni sulla popolazione civile del conflitto israelo-palestinese, una vicenda fatta di abusi impuniti e continue violazioni dei diritti fondamentali. A pagarne più duramente le conseguenze sono giovani e bambi-

ni, vittime innocenti di esplosioni e attacchi aerei che si susseguono a ritmo incalzante riducendo la gente allo stremo. Suhaib Hijazi, appena due anni, e il fratello Muhammad, di quasi quattro, sono stati uccisi da una bomba che ha distrutto la loro casa durante un raid israeliano nel novembre del 2012. I loro corpi vengono portati in processione, verso la moschea dove verranno celebrati i funerali, da un corteo di amici e familiari, le cui reazioni vanno dalla disperata rassegnazione alla rabbiosa indignazione. La colonna umana, stipata in un vicolo, sembra avanzare verso lo spettatore e incombere su di lui. Lo spazio dell'angusto passaggio è reso ancora più claustrofobico da un'inquadratura che, distortendo la prospettiva, genera un effetto 'a immersione' formando un profondo cono visivo che risulta come dilatato in primo piano, mentre le linee di fuga delle pareti perimetrali convergono in punto posto in lontananza e rialzato rispetto all'orizzonte dando l'impressione che i muri si stiano progressivamente chiudendo, schiacciando chi si trova tra di essi.

Nei giorni immediatamente seguenti la premiazione – anche se accuse erano già state mosse dopo l'annuncio delle nomine avvenuto a febbraio – Hansen si ritrova al centro di una disputa sull'integrità, la correttezza e l'attendibilità della sua fotografia. Secondo i detrattori, che lancia-no accuse di falsificazione dai loro blog e dai *social media*, il fotoreporter del Dagens Nyheter avrebbe composto l'immagine sommando diverse fotografie al fine di ottenere un'esposizione pressoché perfetta (Capovilla, 2013). Sebbene la giuria non abbia mai messo in dubbio la veridicità e l'autenticità dello scatto, la Fondazione si è vista costretta, per placare ogni possibile accusa – prima tra tutte quella mossa dall'informatico Neal Krawetz, il quale aveva dichiarato che l'immagine era composite, 'composita', ovvero formata da una stratificazione di fotogrammi (2012; Bogliolo, 2013) – a intentare un'analisi forense volta a chiarire la presenza di possibili alterazioni ed eventualmente giustificarne le motivazioni. Dall'indagine il fotografo esce pulito, pienamente scagionato, e la sua reputazione rimane sostanzialmente intatta. Gli esperti ingaggiati per condurre l'istruttoria digitale – Eduard de Kam (*Nederland Instituut voor Digitale Fotografie*), Hany Farid e Kevin Connor (*Fourandsix*) – hanno infatti spiegato che confrontando il file raw originale con l'immagine definitiva in formato JPEG, si può

notare che, sebbene in fase di post-produzione alcune parti siano state aggiustate scurendole o schiarendole, ogni pixel risulta al suo posto e pertanto, da un punto di vista elettronico, le due immagini risultano perfettamente sovrapponibili. Il fotografo si sarebbe quindi limitato ad aprire più volte il file originale, in successive sedute di *Photoshop*, enfatizzando ogni volta un elemento della scena per mezzo di innalzamenti o abbassamenti tonali tattici (Capovilla, 2013). Nonostante le continue e aspre opposizioni, di cui un esempio chiarificatore è l'articolo di Allen Murabayashi *Why Do Photo Contest Winners Look Like Movie Posters?*, il quale subito dopo la comunicazione delle immagini vincitrici aveva duramente criticato l'eccessiva estetizzazione di questa e altre fotografie premiate (2013; Winslow, 2013), l'operazione viene giudicata legittima e consona ai principi imposti dai codici etici su cui si basano i parametri entro i quali sono ammesse operazioni di modificazione. Codici che tuttavia, nonostante la loro ampiezza e profusione di dettagli, sono tutt'altro che restrittivi, e la cui labilità è spesso motivo di scontri e diatribe sia sul piano tecnico che teorico.

### **Occultamenti, sovrapposizioni, omissioni e distorsioni**

Ha dunque sorpreso molti la decisione, da alcuni ritenuta fin troppo severa, di licenziare Narciso Contreras, fotoreporter messicano di consolidata fama nonché uno dei protagonisti della difficoltosa operazione che ha permesso nel 2013 una delle più complete coperture del conflitto siriano (servizio che ha ottenuto il *Premio Pulitzer* per la categoria *Breaking News*). Non solo l'allontanamento dall'agenzia per cui lavorava da cinque anni, la statunitense *Associated Press* (AP), una delle più influenti al mondo, ma anche la rimozione di tutte le sue fotografie dall'archivio, sebbene tra le oltre 500 fotografie realizzate da Contreras per conto dell'AP non sia stata trovata nessun'altra traccia di alterazione. La causa: aver ritoccato una fotografia scattata il 29 settembre del 2013 (che non fa parte del reportage vincitore del *Pulitzer*, facendo sparire dall'inquadratura, con un colpo di timbro-clone, una telecamera abbandonata a terra (Colford, 2014; *Associated Press*, 2014). Le opinioni si sono divise: chi lo accusa di aver falsificato la realtà e la veridicità del fatto, e chi, al contrario, si schiera dalla sua parte, criticando l'inflessibilità del provvedimento, che il fotore-

porter ha comunque accettato ammettendo le sue colpe e dichiarando di avere piena responsabilità dell'errore commesso. Per Santiago Lyon (lo stesso che solo pochi mesi prima era stato il presidente di giuria del WPP 2013), allora vicepresidente dell'AP, la scelta è stata presa in difesa della reputazione dell'agenzia e dei suoi rigorosi principi etici, poiché "rimuovere deliberatamente un elemento da una fotografia è assolutamente inaccettabile" [my translation from English] (Colford, 2014).

Altri casi avevano già scosso il mondo della fotografia d'informazione. Uno di questi risale alla primavera del 2003 e ha dato luogo, pur senza avere la stessa risonanza mediatica degli esempi prima esaminati, a una lunga serie di riflessioni e scambi di opinioni on-line (Smargiassi, 2014). In effetti la storia non lascia spazio a molte interpretazioni: si tratta di un intervento palesemente scorretto, che ha radicalmente modificato, distorcendola per mezzo di una sovrapposizione temporale, la verità fattuale dell'avvenimento. Brian Walski, corrispondente del *Los Angeles Times* nominato nel 2001 fotografo dell'anno dalla *California Press Photographers Association*, sta eseguendo un servizio in terra irachena, nei pressi della città di Basra. Le truppe britanniche esortano la popolazione civile a rimanere nei paraggi, per rimanere al sicuro nel caso di un imminente attacco. Nel primo scatto il gesto del soldato è adeguatamente autoritario, perfetto nel suo movimento imperioso, ma sembra essere rivolto verso il nulla; nel secondo è invece la posizione del padre iracheno a essere giusta, ad avere quel tono di remissività necessario a giustificare l'atteggiamento del militare. Il fotografo decide quindi di unirle in un'unica immagine che condensi i due momenti per rendere l'evento più significativo (Walker, 2003; Aspan, 2006). Risultato: il licenziamento in tronco del fotoreporter con una telefonata via satellite.

L'episodio è stato, come spesso succede, un pretesto per ribadire la necessità di condannare atteggiamenti e condotte non solo illecite da un punto di vista deontologico, ma anche sbagliate su un piano più prettamente ontologico, che chiama in causa il senso di verità (o comunque di veridicità) di cui l'immagine testimoniale e documentaria dovrebbe essere portatrice e garante, data la sua vocazione all'obiettività o quantomeno all'onestà comunicativa – anche se ovviamente la questione è molto più complessa di così. Sulle pagine del *Washington Post* Frank van Riper sottolinea la dolosità delle inten-

zioni di Walski e pone l'accento sulla sua volontà di creare una fotografia falsa (Van Riper, 2003) nei suoi propri contenuti informativi, oltre che falsata dal punto di vista dello sviluppo del racconto.

Un esempio estremo di ambiguità è rappresentato dalla discussa fotografia del newyorchese Spencer Platt, vincitrice assoluta dell'edizione 2007 del WPP. Chi sono le ragazze che a bordo di una decappottabile attraversano un quartiere devastato? Turiste di passaggio, gente del posto? La didascalia originale non aiuta a sapere molto di più: si apprende che sono libanesi abbienti, il luogo è un sobborgo di Beirut colpito dai bombardamenti israeliani<sup>2</sup>. In casi normali queste informazioni basterebbero, ma vista la peculiarità dell'immagine (il taglio ravvicinato, le diverse espressioni delle donne, tutte difficilmente interpretabili, le macerie sullo sfondo) gli interrogativi che sorgono guardandola sono più che leciti, primo tra tutti se siano modelle messe in posa dal fotografo. Scrive a tal proposito Michele Smargiassi, autore di un istruttivo testo sui concetti di vero e falso nella storia della fotografia:

La struttura del canale informativo attraverso cui questa fotografia ci arriva, in effetti, non lascia molte alternative al prendere-o-lasciare: non siamo in grado di accertare ad esempio se le ragazze fossero consapevoli di essere fotografate, se il fotografo abbia suggerito loro una posa, [...] se insomma la relazione tra l'immagine e il momento che pretende di raccontare non sia un po' più complicata di quel che ci mostra. In casi come questo, ma vorremmo dire in tutti i casi, in tutte le fotografie, l'alternativa vero/falso è troppo secca. Si ritorce sempre a nostro danno. (Smargiassi, 2015, pp. 21, 22)

Qualcosa non quadra e infatti, come riporta Fred Ritchin (2009, p. 169-70), la contestualizzazione della scena è stata messa in discussione dai suoi stessi protagonisti, i quali hanno affermato, intervistati dalla BBC, di non essere "ricchi" come affermava la didascalia, poi modificata (nel frattempo si era scoperto che il fotografo non aveva parlato con nessuno di loro), e di essere in realtà residenti del quartiere tornati sul posto per verificare i danni subiti alle abitazioni. Insomma, grazie all'intervento delle persone interessate (fondamentali sono state le dichiarazioni di Lana El-Khalil, proprietaria dell'automobile, e Bissan Maroun, autrice del video girato con il cellulare), eccezionalmente uscite dall'anonima condizione di 'soggetti',



l'interpretazione dell'immagine è stata rettificata (Guerra, Parisi, 2013, pp. 398, 99). Anche la macchina su cui viaggiavano, che nella fotografia sembra essere un veicolo di grossa cilindrata, era in realtà una *Mini Cooper*. Fatto sta che nessun provvedimento è stato preso nei confronti del fotografo, il quale si è limitato a sostituire un aggettivo della didascalia per definire le donne ritratte 'giovani' invece che 'benestanti'.

Simile ma di tutt'altra portata è la furbesca strategia messa in atto da Giovanni Troilo, giovane fotografo pugliese e ora affermato documentarista, a cui è stato ritirato il premio assegnatogli nel 2015 sempre dalla WPP (Porcellini, 2015). Il servizio, intitolato *La Ville Noir - The Dark Heart of the Europe*<sup>3</sup>, era stato concepito per presentare, svelare al pubblico internazionale i presunti lati oscuri della 'Bella Europa', la sua turpe violenza nascosta, sublimata dal perbenismo borghese. Il reportage avrebbe dovuto fornire un ritratto inedito della cittadina belga di Charleroi, ex centro minerario eletto a emblema del decadimento degli standard di vita delle classi agiate, uno dei pilastri sociali del Vecchio Continente, in un Belgio che ne è uno dei nodi politici e diplomatici. Ma quella immortalata dall'obbiettivo di Troilo in atmosfere notturne non è Charleroi, bensì un'altra città, sempre belga: Molenbeek. Inoltre alcune situazioni sarebbero addirittura state ricostruite con la complicità di amici e parenti del fotografo, nonché di altri figuranti (Weeks, 2015). Mostrare "il voyeurismo attraverso il voyeurismo" [my translation from English] (Troilo, 2015), questa era, almeno secondo le intenzioni, la missione del fotografo italiano<sup>4</sup>. Il problema risiede nell'aver deciso di compierla in spregio a ogni regola, etica e professionale, falsificando la realtà in maniera inaccettabile<sup>5</sup>.

Quello proposto da Troilo è un servizio che è stato giudicato inattendibile alle sue fondamenta, non veritiero e pertanto del tutto incongruo ai principi basilari del fotogiornalismo. Non si è trattato di spingere l'ambiguità della rappresentazione al suo massimo grado, o di rendere più appetibile un'immagine per mezzo di interventi che ne modificassero l'aspetto; la sua è stata una deliberata distorsione del contenuto e delle modalità discorsive, una falsificazione voluta e premeditata dell'autenticità del fatto e del suo contesto. Siamo ben oltre i confini della, seppur discutibile, *staged photography*, che dovrebbe limitarsi a disporre, orchestrare registicamente gli elementi del reale al fine di potenziare il valore, sia estetico che concettuale, dell'immagine. Addirittura oltre il terreno accidentato delle cosiddette *photo opportunities*<sup>6</sup>.

## Margini di interpretazione

A cosa si deve una tale disparità di trattamento? Cosa rende diverse le situazioni prese finora in esame, oltre alle ovvie differenze di contesto e alle singole specificità delle condizioni di produzione? La risposta, o meglio le risposte, vanno ricercate in primo luogo nelle dichiarazioni ufficiali, nei regolamenti e negli statuti delle agenzie di stampa e informazione, documenti della loro politica operativa e deontologica, la quale a sua volta altro non è che il tentativo di preservare e conferire sistematizzazione (in altre parole: dare piena legittimità e dignità professionale) a un'attività perennemente in bilico—è la storia e la natura stessa della fotografia—tra pratiche informative e tendenze espressive, al confine tra esigenze diverse che rendono ampio e variegato lo spettro degli atteggiamenti che la animano. Così recita il codice etico della *National Press Photographers Association* (NPPA), dal 1947 punto di riferimento per i fotogiornalisti statunitensi ma adottato quasi in tutto il mondo:

1. Rappresentate i vostri soggetti in maniera fedele ed esauriente.
2. Resistete all'opportunità di costruire una foto.
3. Siate esaurienti e contestualizzate i soggetti che fotografate o filmate. Evitate di stereotipare gruppi e individui. Sappiate riconoscere i vostri pregiudizi ed evitate di presentarli nel vostro lavoro.
4. Trattate ogni soggetto con rispetto e dignità. Abbiate particolare considerazione per i soggetti più vulnerabili e abbiate compassione per le vittime di crimini o tragedie. Intromettetevi in momenti privati di dolore solo laddove vi sia una necessità imperativa e giustificabile di mostrare quelle immagini al pubblico.
5. Quando fotografate non contribuite intenzionalmente ad alterare, tentare di alterare o influenzare gli eventi.
6. La post-produzione deve mantenere l'integrità del contenuto e del contesto delle immagini fotografiche. Non manipolate le immagini o aggiungete o alterate il suono in qualsiasi modo che possa fuorviare il pubblico o falsare i soggetti ripresi.
7. Non pagate fonti o soggetti e non compensateli materialmente per le informazioni che vi forniranno o per la loro partecipazione.
8. Non accettate doni, favori o alcun tipo di compenso da chi potrebbe voler influenzare il vostro lavoro.

9. Non sabotate intenzionalmente il lavoro di altri giornalisti.
10. Non assumere comportamenti molesti nei confronti di colleghi e sottoposti o verso i soggetti, mantenere sempre degli standard di comportamento adeguati a ogni situazione e tipo di interazione professionale". [my translation from English] (National Press Photographers Association, senza data).

Studiato nel dettaglio, l'elenco offre l'opportunità di analizzare in termini chiari un'ampia casistica di situazioni in cui il fotografo si può trovare ad operare, nonché il modo in cui egli dovrebbe farlo. Sebbene i singoli punti di questo decalogo presuppongano, logicamente, un margine di libertà piuttosto ampio – e non potrebbe essere altrimenti, dato che restrizioni eccessivamente rigide rischierebbero di intaccare gli stessi principi su cui si fondano la libertà di pensiero, azione ed espressione, pietre d'angolo del diritto all'informazione – essi contengono un gran numero di termini-chiave utili per comprendere le questioni fondanti che guidano il lavoro del fotoreporter e le principali direzioni da seguire. Mentre i punti 1, 3, 4, 5 e 7 definiscono in linea di massima l'atteggiamento ideale da tenere nei confronti dei soggetti e le modalità per garantire la massima veridicità e obiettività, gli ultimi tre intendono stabilire la natura dei rapporti professionali e interpersonali che i fotografi devono instaurare al fine di creare un ambiente propizio e costruire reti di appoggio e collaborazione.

Il punto 2 introduce l'idea di costruzione, ossia la possibilità che una scena venga ricomposta per renderla più accattivante o spettacolare; peggio ancora la volontà di modificare preliminarmente e artificiosamente le condizioni in cui il soggetto viene ripreso con il rischio di innescare interpretazioni parziali e inaccurate che distorcano il messaggio violandone i basilari codici comunicativi. Si parla poi più esplicitamente di manipolazione e alterazione al punto 6, che rinvia anche alla fase di post-produzione, ora considerata un passaggio cruciale e per molti addirittura preponderante rispetto al momento della ripresa. Vi è infine il punto 4, piuttosto controverso perché sebbene richieda la dimostrazione di una doverosa empatia, legittima a invadere l'intimità del dramma personale.

Un'altra dichiarazione completa e dettagliata è senz'altro quella formulata dall'*Associated Press*. Essa offre un vero e proprio prontuario tecnico, etico e funzionale per chiunque affronti la carriera di

fotoreporter e stabilisce un insieme di linee guida che, sommate in successione come dei precetti, quasi dei *diktat*, compongono un quadro dettagliato in grado di comprendere un numero molto ampio di scenari operativi: dall'uso delle fonti alle tecniche correttive, dalle ideali caratteristiche formali dell'immagine alla trattazione di eventuali contenuti osceni o volgari, dalla privacy al conflitto di interessi (*Associated Press*, not dated). In un clima di crescente sfiducia nella credibilità del mezzo fotografico, l'AP afferma con forza – è stata la prima a farlo – una "semplice ma ferrea direttiva": "il contenuto di una fotografia non dovrà essere mai cambiato o manipolato in qualsiasi maniera" (Smargiassi, 2015, p. 45).

Negli ultimi anni anche le principali testate internazionali come il *New York Times* o il *Washington Post*, si sono dotate di proprie *guideline* che ribadiscono la necessità di preservare l'autenticità sotto ogni aspetto. Ma definire tali sintesi non è facile, senza contare che "ogni codice contiene il grimaldello per il proprio scassinamento" (Smargiassi, 2015, p. 47). Paul Sanders, picture editor del *Times*, riesce a descrivere solo in termini macroscopici la sua politica antimaniolazione: "non permettere manipolazioni digitali oltre quanto è ragionevolmente possibile per migliorare l'immagine: piccole alterazioni di colore, del contrasto e, naturalmente, riflature" (Baker, 2006). L'appello è dunque al buon senso del fotografo e quel "naturalmente" sembrerebbe indicare la facilità e, appunto, la naturalezza con cui ad esso ci si può aggrappare. Perciò, in quest'ottica in cui piccole alterazioni e interventi cosmetici sono ammessi, il procedimento manipolatorio adottato da Hansen è lecito, quello di Contreras non lo è.

Espedienti diversi, dunque, per implementare l'efficacia retorica della fotografia. Mentre Hansen rinuncia al carattere crudo della fotografia in presa diretta per aumentare strategicamente il pathos della scena – peraltro già forte – tramite ritocchi che rimangono chiusi nella sfera decorativa dell'estetico, Contreras e Troilo modificano il dato reale e il suo potenziale documentaristico: il primo indirettamente e a posteriori (cancellando un elemento diegetico in un'operazione di post-produzione), il secondo, cosa ben più grave, direttamente e a priori (agendo senza mediazioni sulla capacità evocativa delle ambientazioni). Il rapporto di fiducia, se non di dipendenza, che lega referenzialmente e fenomenologicamente

lo sguardo del fotografo, la sua volontà testimoniale all'evento effettivo che viene comunicato, è messo in discussione. Il patto, il tacito compromesso tra cronista e fatto, tra l'autore e gli strumenti che egli ha a disposizione, viene irrimediabilmente rotto in nome di un fine superiore, anche se fasullo. Ci si sente forse giustificati a fare questo nell'epoca della falsificazione, nell'età dei simulacri (Baudrillard, 1981), dove impera una generale quanto profonda crisi dei sistemi deittici<sup>7</sup>. Scrive ancora Smargiassi, nel suo saggio sull'indole bugiarda della fotografia:

Anche circoscrivendo l'ambito della fotografia come documento, Rudolf Arnheim individua almeno tre facce diverse del problema. L'autenticità di una fotografia 'richiede che la scena non sia alterata' davanti all'obbiettivo. La correttezza, che l'immagine 'corrisponda a ciò che la macchina ha ripreso'; la verità, infine, 'garantisce sui fatti che l'immagine esprime'. I tre requisiti non sono sinonimi né obbligatoriamente compresenti. (2015, pp. 57, 58)

Una cosa però è certa: non è mai la fotografia stessa a mentire (Smargiassi, 2015, p. 58)<sup>8</sup>. Il bugiardo può essere sempre e solo il fotografo, e scorretto può essere in definitiva soltanto l'uso che si fa di certe immagini o, al limite, il significato che gli si attribuisce. I contesti di significazione sono fondamentali in questo processo. Dopotutto le fotografie di Troilo non sarebbero certo state false senza una didascalia che ne contraddicesse i presupposti indicali. Anche se nata in tempi recenti, a fronte di pressanti esigenze definitorie e giuridiche, la politica dei codici etici sembra già traballare. L'imperativo comune sembra essere quello di scendere ogni volta a compromessi, addentrandosi nelle specificità tecniche e contestuali, oltre che umane e personali, dei singoli casi.

Un'inchiesta-intervista commissionata nel 2014 dalla *World Press Photo Academy* e pubblicata poi su canali come *Lens*, il blog di fotografia del *New York Times*, ha raccolto le opinioni di 45 esperti provenienti da 15 paesi, tra cui molti giurati del WPP, in merito alla questione della manipolazione. David Campbell, autorevole studioso di comunicazione e analisi visiva incaricato di condurre l'indagine (dal titolo *The Integrity of the Image*), la quale si configura anche come una vera e propria, per quanto sintetica, trattazione tecnico-teorica (Campbell, 2014, 2015a, 2015b), sostiene che la pratica di manipolare un'immagi-

ne digitale non si esaurisce nell'uso di tecnologie informatiche come *Photoshop* ma che, al contrario, ogni fase della realizzazione, dal momento istantaneo dello scatto ai passaggi di *editing* e distribuzione, contiene in nuce le possibilità di apportare modificazioni. Il dibattito su quali siano o debbano essere i limiti verso cui ci si può spingere – Michele McNally del *New York Times*, presidente di giuria dell'edizione 2015 del WPP, ha sostenuto più volte la necessità di stabilire regole che siano chiare fin dall'inizio e senza deroghe – offre nuove prospettive sul ruolo che la fotografia, in particolare quella che si propone di raccontare il mondo e documentare la società attuale, è chiamata a ricoprire oggi. Alcuni punti sembrano essere certi e indiscutibili, anche se si tratta di condizioni necessarie ma tutt'altro che sufficienti. Come spiega infatti Campbell, gli aggiustamenti cosiddetti minori (bruciare, sistemare tonalità, convertire in bianco e nero) sono generalmente accettati; mentre sarebbero da condannare, come si è visto dai provvedimenti presi nei confronti dei trasgressori, le rimozioni e gli occultamenti in fase post-produttiva (anche se sono ammesse, ed esempio, le operazioni che permettono di rimuovere i difetti causati da anomalie o perturbazioni del sensore ottico come i depositi di polvere). Manipolazione e ritocco, viene ribadito, non sono la stessa cosa<sup>9</sup>.

### Verso un'estetica dell'etica

Ammettere l'espressività, sia intrinseca che indotta, della fotografia documentaria, testimoniale e informativa è diventato un doveroso imperativo. Non mancano certo le voci polemiche, provenienti in prevalenza dai pulpiti su cui sono soliti salire i difensori di un anacronistico purismo fotografico, i quali condividono un'idea di fotografia ancora legata, presumibilmente, alla sua natura mimetica senza tender conto degli sviluppi, da loro spesso negati, di un mezzo in continua evoluzione. Tra di esse si è fatta sentire quella del fotografo francese Thierry Dehesdin, più volte scagliatosi contro il *World Press*, da lui considerato, dispregiativamente, un mero "concorso di bellezza" (Libertà di Stampa Diritto all'Informazione, 2013)<sup>10</sup>. La critica è stata mossa proprio in occasione della premiazione di Paul Hansen nel 2013, la cui fotografia viene definita da Dehesdin, citando Alain Mignam, vincitore del *World Press* nel 1981, *à côté de la platitude*, ovvero, in gergo fotogiornalistico, "sballata" (Libertà di Stampa Diritto all'Informazione, 2013).

Una risposta agli attacchi di Dehesdin è stata data da André Gunthert (Libertà di Stampa Diritto all'Informazione, 2013)<sup>11</sup>, docente di Storia Visuale presso la prestigiosa EHESS - *École des Hautes Études en Sciences Sociales*, il quale ha affermato quanto sia in realtà ridicolo, alla luce delle trasformazioni introdotte dalla rivoluzione digitale, stigmatizzare la pratica del ritocco; Gunthert ritiene anzi che sia una scelta più onesta e intelligente ammettere una volta per tutte il potenziale espressivo delle foto, senza temere che possa in qualche modo nuocere o snaturare il senso del fotogiornalismo. Sostiene ancora l'autore, in difesa dell'espressività fotogenica<sup>12</sup>, che ricorrere ai problemi sollevati dall'uso manipolatorio del ritocco è un argomento ideologico<sup>13</sup>, ovvero:

uno strumento di dequalificazione estetica nel contesto di una rivendicazione della verginità fotografica. Rifiutandosi di ammettere che la fotografia di informazione possa essere costruita, i critici della foto di Hansen rimandano sistematicamente i valori espressivi dell'immagine alla pittura o al cinema. Il ritocco viene utilizzato come un criterio pseudo-tecnico che permette di giustificare e di imporre un'estetica implicita. [Quindi una] naturalizzazione dell'estetica, camuffata dietro l'argomento del ritocco, nasconde un impoverimento del dibattito critico. (Libertà di Stampa Diritto all'Informazione, 2013)

Dal punto di vista dell'efficacia comunicativa il ritocco può essere considerato un espediente per raggiungere una retorica ideale. In questa prospettiva, allora, sarebbe inesatta, o quantomeno inattuale, la distinzione tracciata da Roland Barthes tra "effetti estetici" ed "effetti significanti" (1985, p. 14). I primi infatti medierebbero, attraverso soluzioni di carattere tecnico e di natura connotativa, i secondi, in un intreccio strettissimo – e lo è a tal punto da determinare una sovrapposizione talvolta problematica – supportato dal funzionamento metaforico dell'immagine fotografica. Al contrario di quanto sostenuto da Barthes, scrive Alberto Papuzzi, "non è possibile distinguere gli aspetti tecnici" da "quelli estetici" (1999, p. 145), che quindi, in quanto intrinsecamente retorici, comprenderebbero non solo le operazioni di manipolazione e ritocco (come ben evidenziano i casi di Hansen e Contreras) ma anche le artificialità visive e le strategie narrative messe in atto (come dimostrano i casi di Platt, Walski e Troilo). Ciò però, argomenta ancora Papuzzi, comporta un problema non indifferente:

Se l'avvenimento, la realtà (o la verità [...]) coincidono con la rappresentazione, in che modo, allora, la notizia è ancora cronaca dell'evento, non l'esperienza dell'evento? E che cosa resta dell'evento? [...] Possiamo concludere che la notizia fotografica si carica di una soggettività più estesa e più profonda, rispetto a quanto prevede in generale la teoria della notizia. La macchina fotografica, il medium in apparenza più obiettivo, determina il massimo di soggettività della notizia. (1999, pp. 145-147)

#### Note

**1** Analizzato, tra gli altri, da Michele Smargiassi in occasione di un simposio, tenutosi presso Sapienza Università di Roma, sui rapporti tra etica e fotografia. Gli atti del convegno sono stati poi raccolti in Perna, Schiaffini, 2015.

**2** La didascalia originale recitava infatti: "Affluent Lebanese drive down the street to look at a destroyed neighborhood".

**3** Primo premio *Storie* per la categoria *Contemporary Issues* del WPP. Il progetto ha ricevuto, sempre nel 2015, anche il premio *People Photographer of the Year* ai *Sony World Photography Awards*.

**4** Il fotografo ha affermato, chiamato a giustificare le sue azioni di fronte alla commissione del *World Press*, che era questo il suo obiettivo, "trasformare la macchina fotografica in uno strumento attivo" per renderla una sorta di rilevatore della vergogna. Come infatti dichiarato dal reporter in un lungo post pubblicato sul suo profilo *Facebook* il 6 marzo, parte della serie è stata realizzata nella notte in cui ha deciso di seguire il cugino, pienamente consenziente ad essere fotografato, intenzionato ad ad avere un rapporto sessuale occasionale.

**5** La giuria del WPP 2015 ha scelto di seguire una linea dura che ha portato ad escludere dalla competizione, quindi squalificare senza possibilità di appello, il 20% delle fotografie presentate poiché manipolate digitalmente in modi non permessi dai regolamenti.

**6** Con questo termine si intende una forma di falsificazione altamente fuorviante per cui si programmano e si predispongono situazioni volte a condizionare l'esito dell'azione fotografica (Papuzzi, 1999, p. 152). Per una panoramica sui falsi giornalistici si consiglia anche Fracassi, 1996.

**7** Vasta è la letteratura teorica, in particolare di stampo filosofico e semiologico, sui concetti di indicalità e indessicalità, e le questioni a essi legate.

Tra i testi fondamentali si segnalano, oltre alla già citata antologia curata da Guerri e Parisi: Krauss, 1990 e Bate, 2016.

**8** Smargiassi esprime tuttavia una cauta riserva in merito, pur affermando più volte la relativa incapacità della fotografia di essere realmente falsa: “La fotografia, questo è evidente, non è in grado di mentire negando il vero. Ma può farlo, e lo fa molto spesso, affermando il falso: le basta attribuire uno stato di esistenza certa, come solo lei sa fare, a forme visibili che non hanno riscontro nel mondo fisico, o lo hanno assai diversamente da come essa ce le mostra”.

**9** Smargiassi propone la seguente definizione di ritocco, accostandolo alla nozione di *maquillage*: “un intervento, solitamente impercettibile, praticato sull’immagine ‘cruda’ prodotta dalla macchina, allo scopo di cancellarne i difetti tecnici o antiestetici, e di migliorarne l’effetto generale” (Smargiassi, 2015, p. 144).

**10** L’intervento è apparso originariamente su *Culture Visuelle*, rivista on-line attiva tra il 2009 e il 2016 ([culturevisuelle.hypotheses.org](http://culturevisuelle.hypotheses.org)). L’allarme lanciato da Dehesdin mette in guardia sull’iconicità, sia connaturata che postuma, che solitamente contraddistingue le fotografie vincitrici dei concorsi, le quali, una volta scelte, smettono di documentare un avvenimento particolare per diventare immagini simboliche e stereotipate.

**11** L’articolo è stato pubblicato in un primo tempo sempre su *Culture Visuelle*. Già prima della chiusura della rivista, Gunthert aveva aperto un nuovo sito personale, *L’Image Sociale*, in cui sono poi confluiti gli articoli pubblicati precedentemente sul vecchio portale ([imagesociale.fr](http://imagesociale.fr)).

**12** La teoria della fotogenia, come ricorda Barthes ne *L’ovvio e l’ottuso*, è stata elaborata in ambito cinematografico da Edgar Morin nel suo saggio *Il cinema o l’uomo immaginario*. Riprendendola, Barthes la declina sulla fotografia in termini di struttura informativa: “nella fotografia il messaggio connotato è nell’immagine stessa, ‘imbellita’ (cioè in genere sublimata) da tecniche di illuminazione, di impressione e di stampa [...] ciascuna di esse corrisponde a un significato di connotazione sufficientemente costante per inserirsi in un lessico culturale degli ‘effetti’ tecnici” (Barthes, 1982, p. 13).

**13** Già Louis Arago considerava il ritocco fotografico una pratica carica di ideologia, vista la sua capacità di idealizzare la rappresentazione per porsi come arma contro il realismo borghese.

## DALL'AUTENTICO AL REALISTICO, DAL VERO AL VEROSIMILE: IL RILIEVO DIGITALE TRA REALE E VIRTUALE

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### Keywords

rappresentazione digitale dell'architettura; rilievo digitale; modelli 3D digitali; ottimizzazione della modellazione dell'architettura

### Introduzione

Ogni riflessione sul rapporto tra autentico e falso non può prescindere dal prendere in esame anche la già ampiamente discussa relazione tra originale e copia, assumendo qui i rispettivi significati etimologici<sup>1</sup> come radice concettuale, di seguito richiamata con una chiara limitazione di campo alla cultura occidentale europea<sup>2</sup>. Sebbene nel caso del rilievo digitale, oggetto del presente contributo, ci troviamo di fronte ad artefatti tecnologici assumeremo come riferimento alcuni studi riguardanti i manufatti artistici, molto più indagati in tal senso, operando successivamente i necessari slittamenti epistemologici e disciplinari. Il contributo propone una riflessione riguardante l'ambito disciplinare del Rilievo per trattare il tema del rapporto tra fonte, processo di elaborazioni e caratteristiche di output inquadrando teoricamente la cloud etimologica e concettuale popolata dai termini 'originale' 'copia', 'clone', 'riproduzione', 'falso', e, come successiva esemplificazione tecnica, interpellando innovativamente il 'verosimile' ed il 'modello' nel caso studio prescelto, tramite algoritmi di ottimizzazione della 'verosimiglianza', attualmente in fase betaversion di sviluppo da parte degli autori.

### Delimitazioni di campo

Come noto, molti studi hanno sviscerato il problema della 'copia' in ambito artistico evidenziando come il mito dell'originalità dell'opera sia, tutto sommato, costruzione relativamente recente – in estrema sintesi ricollegabile al Romanticismo – che deve per di più confrontarsi con un'accezione positiva del termine proveniente già dall'antichità e legata alla funzione di trasmissione del valore culturale tra le epoche nonché di accrescimento di valore dell'originale stesso. Verso la copia e la co-

piatura abbiamo, infatti, un indubbio debito costituito dalla trasmissione di opere e saperi: basti pensare alle copie di statuaria romana tratte dalle superstiti opere greche, all'immenso patrimonio pervenutoci da amanuensi e copisti medievali che prima dell'invenzione della stampa, per secoli hanno copiato e trascritto manoscritti e codici antichi<sup>3</sup>, alla continua ri-creazione operata dai collezionisti rinascimentali alla ricerca dei canoni classici e, per arrivare più vicini nel tempo, alla fondamentale funzione didattica che vedeva l'esercizio di copia come base indiscutibile della formazione degli allievi artisti anche oltre il XIX secolo (Belardi, 2017; Belardi et al., 2014; Latour, et al., 2011).

Dunque, se accompagnata da un articolato approfondimento critico, l'apparente monoliticità dell'accezione negativa che nella nostra cultura accompagna la 'copia' può essere messa in discussione sotto vari profili (Preciado, 1989); tra i vari motivi – di tipo sociale, economico, commerciale – per i quali la copia di un'opera d'arte finisce col conferire all'originale uno status aumentativo si situa nel campo tecnico del rilievo il movente della conoscenza, peculiare dell'ampio spettro disciplinare di modalità di processo, la copiatura, e risultati di prodotto, la copia, di questa area scientifica. Lasciando l'analogia con gli studi sopra richiamati, almeno un paio di nodi vanno però messi a fuoco su alcuni aspetti dirimenti, perché direttamente riguardanti lo specifico disciplinare del Rilievo. In che termini la dialettica tra originale e copia può essere sciolta quando non parliamo di manufatti artistici ma di artefatti tecnici, di per sé prodotti utilizzando processi in parte automatici comunque finalizzati alla serialità, dove la copia è addirittura un'aspirazione, e programmaticamente dotati di una funzione?

Inoltre, sono state identificate e dispiegate tutte le potenzialità aumentative del clone digitale proveniente dal rilievo già enucleate nel caso della copia d'arte?

### *Originale e copia nel rilievo digitale*

Un primo approfondimento di questo argomento richiamerebbe immediatamente la questione della differenziazione rinascimentale tra *ars* e *téchne*, che rinviamo ad altra sede e non tratteremo qui.

Come è quasi inevitabile, ripartendo da Benjamin (Benjamin, 2011), nell'epoca della facilissima riproducibilità tecnica degli artefatti digitali la contrapposizione autentico / falso<sup>4</sup> fa un ulteriore salto di



senso non solo perché, molto più che per l'opera d'arte serializzabile, massimamente per gli artefatti tecnologici non fa differenza fruire dell'originale o della copia ma anche perché il nostro multilinguismo digitale non si limita a riprodurre, bensì coltiva e propone l'artefatto in un contesto ogni volta diverso rispetto a quello originario modificandone di fatto lo statuto ad ogni "passaggio di fase" ed, avvalendosi della versatilità delle riproduzioni, aggregando ulteriore significato e valore aggiunto ad ogni passaggio (creando un'aura ogni volta diversa?) (Lichty, 2009).

Al pari della società digitale e dell'infocultura, inoltre, da tempo anche moltissimi campi scientifici come il rilievo digitale sono caratterizzati da una crescente *media convergence*, che da un lato consente fluidità al processo di stretta integrazione tra reale e virtuale – basata sulla filiera gnoseologica ed operativa acquisizione-elaborazione-restituzione-comunicazione del dato – e dall'altro consente la facile co-produzione di idee e condivisione di contenuti (Cao, 2018; Daly et al., 2019). In questo quadro – caratterizzato soprattutto dalla coautorialità e da modalità lavorative di tipo cooperativo – la tradizionale opposizione tra autenticità ed originalità del reale ed assetto multiforme della sua riproduzione moltiplicativa – ormai consolidata e tipica della rappresentazione dell'architettura effettuata tramite modelli 3D digitali – di sintesi oppure fotorealistici da SFM – sintesi interpretative di *data visualisation*, modelli fisici da prototipazione rapida e così via – perde di definizione e diviene sempre più sfumata (Puma, 2019; Pavlidis et al. 2007) (Figura 1).

Rispetto alla prima domanda, infine, occorre anche parcellizzare il campo rispetto all'elemento dirimente della grandezza dell'oggetto rilevato: alla scala dell'architettura e della città, non si tratta mai di copia, almeno nell'accezione di come fedele replica operata da autore diverso, ma più propriamente si deve parlare di riproduzione<sup>5</sup> ed è solo quando il rilievo documenta oggetti di misura contenuta che possiamo usare i termini di copia e clone<sup>6</sup>, anche usando le categorie terminologiche concettuali dell'opera d'arte.

### *Potenzialità aumentative del clone digitale*

Riguardo al secondo punto, occorre partire dalla considerazione che, come nel passato la copia ha sempre costituito la possibilità di stabilire un ponte tra le singole epoche, anche per noi oggi la ripro-

duzione moltiplicativa a determinate condizioni, già dispiega una potente funzione di ponte tra passato e futuro non scevra da aspetti critici. Sebbene, infatti, nel dominio tecnico la riproducibilità sia un valore aggiunto in quanto la versatilità del dato digitale consente di variare e rinnovare continuamente il contesto narrativo, in epoca di facile falsificazione il problema della *audivitas* si pone con ancor maggior rigore. Ricorrendo al riposizionamento degli elementi in gioco una ridefinizione dell'*audivitas* potrebbe in questo contesto essere inquadrata dalla declinazione dei requisiti di affidabilità del rilievo digitale in termini tassonomici: la coppia originale/copia ha, infatti, modalità diverse di declinazione nel processo di rilievo (misurabile tramite la precisione), nel prodotto del rilievo (misurabile nell'accuratezza), nell'uso del clone (disciplinato dagli statuti disciplinari).

E se questa qualificazione viene mantenuta con continuità verticale essa potrebbe rappresentare la ricostituzione di un alias dell'*audivitas*, in origine derivante da unicità e originalità, ora valido anche per il contesto digitale. In questo senso l'artefatto digitale diviene un artefatto informativo assumendo un ruolo moltiplicatore di conoscenza addirittura superiore alla copia d'arte, a patto che il movente culturale si dispieghi nella società della conoscenza conciliando l'adattamento dinamico ai contesti d'uso alla rigorosa qualificazione scientifica. Più le nostre capacità di trascrizione ed elaborazione del dato si velocizzano, ampliano e automatizzano (si cita come esempio la creazione tramite AI di fake di molti tipi a partire da primitive reali ed autentiche), più di contro deve aumentare l'impegno per qualificarne scientificamente processo, prodotto e finalizzazione (Sacchi, 2018; Salerno, 2018). Questo intento prende forme diverse, da quelle di ordine statutario a quelle di tipo più strettamente tecnico come il caso campione di seguito esposto e riguardante l'applicazione di algoritmi all'elaborazione grafica 2D di un brano di rilievo architettonico planimetrico del castello di Riolo Terme (Sgherri, 2016) (in provincia di Ravenna) ai fini dell'ottimizzazione di 'verosimiglianza' al dato iniziale.

### **Materiali e metodologia**

In senso emblematico, di seguito decliniamo la triade copiato/verosimile/simulato nella pratica applicativa del rilievo digitale LS mostrando una



corrispondenza con i tre momenti distinguibili di acquisizione/elaborazione/modellizzazione del dato, intendendo il termine 'simulato' nella sua accezione tecnico-specialistica e d'uso comune "nella ricerca operativa in ambito matematico statistico, di analisi di un processo o di un sistema attraverso la costruzione di un modello matematico risolubile per mezzo di un calcolatore elettronico – modellizzazione di un fenomeno" (De Mauro, 2000); di seguito esemplifichiamo la distinzione tra i termini di copia/verosimile/modello in relazione alle corrispondenti tre fasi su indicate (Figura 2).

Quanto sopra descritto, trova un'interessante sintesi metodologica del processo nella filosofia kantiana intendendo che il dato reale rappresenti la cosa in sé, il noumeno kantiano, per definizione irraggiungibile ed asintoto per la conoscenza scientifica (che non potrà mai darne una rappresentazione esatta e completa) e che nell'azione di acquisizione del dato copiato dalla realtà in una copia virtuale diverrebbe fenomeno realisticamente rappresentante la realtà, che tramite l'applicazione delle categorie (quali modalità di elaborazione del dato da parte dell'intelletto umano nel pensarlo), e con l'individuazione degli attributi di volta in volta ritenuti necessari viene rappresentato in maniera attendibilmente verosimile; il dato infine, tramite la sua modellizzazione, diviene comunicabile quale modello simulato imparentato al reale. I tre momenti della triade noumeno/fenomeno/modello troveranno al loro interno alcuni processi di acquisizione, elaborazione, modellizzazione, tali da generare dei prodotti: partendo da un prodotto iniziale contenente dei dati, un prodotto finale contenente nuovi dati.

## Risultati

### Noumeno

Nella fase di acquisizione del dato reale, ipotizzando l'uso di una attrezzatura LS virtualmente priva di errori di acquisizione, otteniamo una copia virtuale dell'originale; facendo un confronto tra i dati corrispondenti, anche limitandolo alla sola categoria del posizionamento geometrico dei punti in coordinate cartesiane 3D, non potremo mai arrivare alla copia conforme: gli ineludibili processi di discretizzazione e d'interpolazione insiti nella tecnologia della strumentazione di acquisizione del dato saranno tali da far tendere solo asintoticamente il dato virtuale copiato a rappresentare fedelmente e completamente

la realtà. Anche volendo limitarsi a considerare solamente la categoria della posizione 3D dei punti della realtà come il vero, privandolo di tutte le altre categorie, otterremo al più una copia parziale della realtà. Nello specifico dell'acquisizione tramite LS, i processi sopra indicati si traducono come seguirà.

- Stante la rotazione sugli assi azimutale e zenitale della stazione LS durante l'acquisizione del dato tra successive acquisizioni di singoli punti, la discretizzazione si traduce in risoluzione angolare del dato *Angle Resolution* (A.R.), misurata in pixel/360°, ovvero nella definizione di una griglia sferica di acquisizione dei punti. La scelta dell'opportuna A.R. sarà quindi indispensabile ad ottenere un buon compromesso tra la qualità del rilievo architettonico digitale e la pesantezza del file generato.
- Stante l'inevitabile errore sistematico della strumentazione tale da generare, nell'acquisizione di ogni singolo punto, un *Range Noise* (R.N.), misurato in mm, la necessaria l'interpolazione si traduce in accuratezza del dato *Data Quality* (D.Q.), ovvero nella determinazione su base statistica di un valore medio tra un numero variabile tra 2 e 16 di più acquisizioni ripetute.
- Raddoppiare o dimezzare D.Q. decrementa o incrementa R.N. del pixel del 40%; R.N. è proporzionale alla distanza del singolo punto dalla stazione di acquisizione LS e varia tra 0,4 mm e 4 mm considerando distanze di acquisizione comprese tra 10 m e 100 m. I tempi di esecuzione del rilievo, misurati in minuti, dipenderanno proporzionalmente delle impostazioni scelte per A.R. e D.Q. dando luogo ad un *Data Rate* (D.R.), misurato in pixel/sec, caratteristico per ogni scansione impostata e ad una massima quantità di punti acquisibile in una determinata scansione (Tabella 1).

### Fenomeno

Nella fase di elaborazione del dato acquisito, subentreranno una serie di ulteriori opportuni processi di trasformazione del dato più evoluti e complessi (Asperl et al., 2007); al fine di valutare la maggiore o minore aderenza delle varie trasformazioni effettuate ai dati acquisiti, si adotterà quale indicatore lo Scarto Quadratico Medio<sup>7</sup> (SQM) (Ventsel, 1983). A seguire sono descritti alcuni esemplificativi processi di trasformazione applicabili al dato acquisito per ot-

tenere prodotti di conversione; tali processi potranno essere applicati in cascata o indipendentemente l'uno dall'altro a partire da differenti prodotti<sup>8</sup>.

- Processo: ordinamento; prodotto iniziale intermedio e finale: punti sparsi (0), polilinea guida (1), polilinea ordinata (2); obiettivo: elaborare il dato. Trasformazione di un insieme di punti sparsi, in polilinee ordinate passanti da opportuni sotto insiemi di punti secondo percorsi definiti da polilinee guida definite manualmente atte a consentire l'identificazione di geometrie sottese e tali da generare un opportuno ordinamento dei punti, per meglio elaborare il dato nelle fasi successive ma anche per aumentarne la comunicabilità. La definizione di un'idonea polilinea guida, seppur sommaria, è il presupposto per la buona riuscita delle fasi successive, si veda in Tabella 2 la differenza di (SQM) tra 1A e 1B.
- Processo: filtraggio; prodotto iniziale e finale: polilinea ordinata (2), polilinea filtrata (3); obiettivo: pulire il dato. Trasformazione delle polilinee ordinate contenenti dati erronei sia in termini di artefatti scansionati erroneamente o involontariamente sia di (R.N.), in polilinee filtrate ottenute effettuando un filtraggio dei vertici per pulire il dato, eliminando eventuali vertici la cui distanza trasversale rispetto alla polilinea guida indicata risulti essere oltre un certo limite di tolleranza. I casi riportati in Tabella 2, adottando distanze comprese tra un massimo di 50 cm (3A) ed un minimo di 5 mm (3G), effettuano filtri tra lo 0% (3A) e l'80% (3G) con valori di (SQM) tra 0,000 (3A) e 40,227 (3G). Stanti i parametri di acquisizione e la determinazione manuale della linea guida usata è conveniente utilizzare una distanza di filtraggio nell'ordine dei 5 cm che limiterà la percentuale di filtraggio ad un valore inferiore al 10% permettendo di mantenere l'aderenza di filtraggio (SQM) entro valori accettabili (3D) (Figura 3).
- Processo: ricampionamento; prodotto iniziale e finale: polilinea filtrata (3), polilinea ricampionata (4); obiettivo: decimare il dato. Trasformazione delle polilinee filtrate contenenti un enorme quantità di vertici, in polilinee ricampionate ottenute effettuando un ricampionamento dei vertici per decimare il dato, in base alla distanza longitudinale tra due vertici successivi lungo la polilinea stessa.

I casi riportati in Tabella 2, adottando distanze di ricampionamento comprese tra un massimo di 10 cm ad un minimo di 5 mm, effettuano filtri tra il 79% (4AD) e il 14% (4CD) con valori di (SQM) tra 32,086 (4AD) e 27,814 (4CD). Stanti i parametri di acquisizione e le scelte effettuate per il filtraggio è conveniente utilizzare una distanza di ricampionamento nell'ordine dei 5 cm che comporterà una notevole percentuale di filtraggio superiore al 50% permettendo di mantenere l'aderenza di ricampionamento (SQM) entro valori accettabili (4BD).

- Processo: interpolazione; prodotto iniziale e finale: polilinea ricampionata (4), polilinea interpolata (5, 6); obiettivo: smussare il dato. Trasformazione delle polilinee ricampionate troppo corrugate e frastagliate, in polilinee interpolate ottenute effettuando un'interpolazione dei vertici per smussare il dato utilizzando specifici algoritmi basati sull'interpolazione di Lagrange e Bézier e facenti uso del calcolo di medie mobili di vario tipo e ordine. I casi riportati in Tabella 2, adottano interpolazioni di tipo sia lineare sia geometrico di ordine compreso tra 3 e 7, effettuano riduzioni trascurabili dei dati di partenza e danno luogo a valori di aderenza di interpolazione (SQM) compreso tra 31,905 (6ABD) e 34,150 (5CBD), valori tutti di decremento rispetto all'aderenza di ricampionamento iniziale (SQM) di 29,386 (4BD). È fondamentale rimarcare come, a differenza di tutte le altre conversioni qua elencate, il ricampionamento è una elaborazione che produce polilinee falsificate i cui vertici derivano da calcoli effettuati sui vertici del loro intorno e non una selezione di vertici acquisiti; dai calcoli si evidenzia come sia preferibile l'interpolazione geometrica alla lineare e i valori bassi per l'ordine della media mobile, in entrambi i casi per limitare lo smussamento prodotto nei vertici delle geometrie sottese.
- Processo: razionalizzazione; prodotto iniziale e finale: varie possibilità (2, 3), polilinea razionalizzata (7); obiettivi: alleggerire il dato e migliorarne la qualità. Trasformazione delle polilinee ordinate o filtrate, tutte contenenti dati non selezionati razionalmente, in polilinee razionalizzate ottenute effettuando la razionalizzazione dei vertici derivanti solo

dall'acquisizione dei dati per aumentare sia la leggerezza del dato che la qualità del dato utilizzando algoritmi più evoluti dei precedenti, come quello di Douglas-Peucker, che permette di ricampionare razionalmente, con una rappresentazione molto fedele a livello percettivo all'originale, una polilinea in maniera variabile in funzione del suo andamento (Douglas et al., 1973; Hershberger et al., 1992; Wu et al., 2003): nei tratti ad andamento più lineare, la quantità di punti risulterà diradata, nei tratti ad andamento più variabile la quantità di punti verrà mantenuta più alta; sarà così possibile ottenere una incredibile percentuale di filtraggio compresa tra l'81% (7C) e il 99% (7AD) nell'ipotesi di adottare distanze di ricampionamento comprese tra un massimo di 10 cm ad un minimo di 5 mm ottenendo valori di (SQM) tra 11,549 (7C) e 47,786 (7AD). Stanti i parametri di acquisizione, le scelte eventualmente già effettuate nella precedente fase di filtraggio e l'obiettivo di mantenere l'aderenza di ricampionamento (SQM) entro valori accettabili è conveniente utilizzare una distanza di razionalizzazione nell'ordine dei 5 cm (7B) (7BD).

### Modello

Nella fase di modellizzazione del dato acquisito ed eventualmente elaborato, subentreranno possibili processi di simulazione, in questo caso verranno introdotte delle scelte e delle operazioni soggettive, effettuate direttamente dall'operatore o per mezzo di specifici algoritmi (Anzani, 2011), atte a idealizzare quanto rappresentato categorizzando il dato in un modello matematico/statistico sostitutivo dei precedenti dati, come ad esempio la conversione di una polilinea in una linea (se ad andamento spiccatamente lineare), o in archi di cerchio o di ellisse (se ad andamento curvo) utilizzando opportuni calcoli matematici principalmente basati sull'approssimazione del dato tramite Scarto Quadratico Medio (SQM) applicata ai vertici noti della polilinea in esame ottimizzandone l'aderenza al modello geometrico ideale scelto per la sua modellizzazione (Gini et al., 1976). Otterremo in questo modo una polilinea modellizzata (8), rappresentazione idealizzata del dato originale, che stante le procedure utilizzate sarà anche una polilinea verosimile e riproducibile in quanto i suoi vertici derivano da calcoli automatici e ripetibili (Krawczyk, 2009; Togo, 2018). In conclusione può essere interessante un ragionamento comp-

lessivo sulla triade noumeno/fenomeno/modello e all'interno di questo comparare la polilinea guida (1), descritta solo sommariamente nella fase iniziale, con la polilinea modellizzata (8) della fase finale. Entrambe sono polilinee verosimili che, salvo casi particolari, non utilizzano punti effettivamente rilevati, la prima è una polilinea unica disegnata tramite azioni manuali non riproducibili la seconda una polilinea riproducibile disegnata tramite algoritmi che, a parità di parametri forniti, permettono di ottenere il medesimo risultato. Entrambe sono polilinee modellizzate che derivano dall'identificazione delle geometrie sottese come corrispondenti a modelli mentali, ma nel primo caso l'identificazione avviene sincronicamente all'atto del disegno manuale, nel secondo caso diacronicamente all'atto dell'applicazione degli opportuni algoritmi di modellizzazione. Entrambe sono polilinee leggere rispettivamente di 45 e 31 vertici per rappresentare 7210 punti acquisiti ed entrambe sono polilinee aderenti al dato acquisito con (SQM) rispettivamente pari a 40,504 e pari a 37,985 (Tabella 3). Stante la stretta parentela tra le due è allora possibile ipotizzare un processo iterativo che per successivi affinamenti permette di reimmettere la polilinea modellizzata (8) quale linea guida (1) ottenendo a cascata polilinee di affinamento nelle varie fasi fino ad una nuova polilinea modellizzata di maggior affinamento (Figura 4).

### Conclusioni

Come esplicitato sopra, nei successivi passaggi di elaborazione di un modello da rilievo digitale, bidimensionale o tridimensionale che sia, le operazioni di ottimizzazione possono essere fatte reinterpretando manualmente le primitive oppure, all'opposto, in modo completamente automatizzato ottenendo, alla fine, risultati simili per affidabilità; allo stato attuale la AI, che trova il suo uso vocazionale soprattutto nella automatizzazione delle operazioni iterative, non dà sufficienti garanzie in termini di controllo critico del dataset ma non è escluso che in futuro il machine learning possa sviluppare quantomeno un supporto di prima discretizzazione, come nel caso dell'OCR oppure dei *sw* di *dictation system*. Per quanto detto sopra, le ricadute ermeneutiche si sdoppiano a seconda della tipologia del testo in esame, rimanendo comunque uguali sia in caso di artefatto digitale che fisico (modelli 3D oppure maquettes).

Nel caso del dato reale costituito dal testo architettonico in presenza di una riproduzione si perdono il valore dell'esperienza diretta e l'aura del *hic et nunc*

conferita dalla relazione di scala e di qualità del contesto – una qualità che non ha bisogno di tutela da copyright ed anche nel mondo di internet non teme copia –, ma l'artefatto digitale consente di creare contesti irraggiungibili nello spazio e nel tempo ed aggiungere layer informativi (come ormai consolidato nelle applicazioni di AR e VR) sempre più personalizzabili (Maldonado, 1992; Campanelli, 2016; Vercellone, 2017; Puma, 2019a). Nel caso, invece del manufatto a scala di oggetto – come nel caso di un reperto archeologico oppure un manufatto di design – il clone mantiene il corretto rapporto di scala con l'osservatore e può essere fruito multicanale (con verosimiglianza crescente dallo schermo dello smartphone alla VR alla maquette) e, se musealizzato, senza danno riguardo al contesto che, anzi, in digitale può essere richiamato e ricostruito addirittura avvalorando, supportando ed affiancandone la narrazione museografica, comunque intrinsecamente deprivata del contesto originale. Nei passaggi dall'autentico al realistico, dal vero al verosimile la ri-creazione del contesto è dunque centrale nella creazione di contenuti digitali e sempre di più lo sarà in futuro per la fruizione costituendo allora il valore aggiunto al quale tendere come "auralizzazione" dell'artefatto informativo che, specialmente nel caso del patrimonio architettonico storicizzato, caratterizza quel che sempre è stata l'architettura: arte di fruizione pubblica, senza distanza tra opera e spettatore-utente.

## Crediti

La responsabilità scientifica ed editoriale dei singoli paragrafi è riconosciuta come segue: Paola Puma per *Introduzione, Delimitazioni di campo, Conclusioni*; Giovanni Anzani per *Materiali e metodologia e Risultati*.

## Note

**1** Originale: dal Dizionario delle Scienze Fisiche (1996) originale [agg. e s.m. Der. del lat. *originalis*, da *origo* -inis "origine"] [LSF] Come agg., relativo alla causa o al luogo di origine, e allora anche originario, oppure, più spesso, derivato da un determinato processo di origine e immutato nel seguito, come dire un prodotto unico dell'ingegno o di una macchina, non influenzato da alcunché di estraneo. Copia: Disegno, pittura, scultura che riproduce più o meno fedelmente un'opera d'arte. Da sottolineare la differenza tra c. e replica, ripetizione, da parte dello stesso autore, di una propria opera, anche apportandovi varianti, uso diffuso anche in età contemporanea; la c. va

distinta inoltre dal falso, per la sua intenzionalità non fraudolenta. (Treccani, n.d., Originale, Copia).

**2** Per citare un solo riferimento, nella cultura cinese la copiatura è rivestita di tutt'altro valore niente affatto negativo.

**3** Inserendo nel tema, aperto già in antico (basti citare l'opposizione tra "archetipo" (originale) e "antigrafo" (copia), che ricorre in Luciano), la questione sul limite tra copia ed interpretazione in quanto, "ai fini della critica testuale l'opera dell'amanuense di professione, molto fedele all'esemplare che trascrive, è in genere più sicura di quella del copista occasionale e dotto, che spesso interpreta il testo." (Treccani, n.d., Amanuense).

**4** Falsificazione: contraffazione di un documento, un'opera d'arte o altro per lo più a scopo di frode. Falso storico è il documento formalmente genuino, che contiene dati inesatti o inventati (Treccani, n.d., Falsificazione).

**5** Riproduzione: copie con caratteristiche anche diverse e in numero di copie variabile a piacere (Treccani, n.d., Riproduzione).

**6** Clone: apparecchio di vario genere, o altro prodotto, che riproduce identicamente un altro, come copia perfetta o con le medesime caratteristiche. (Treccani, n.d., Clone).

**7** Lo scarto quadratico medio o deviazione standard, è un metodo matematico che per la determinazione della dispersione statistica, vale a dire una stima della variabilità di un insieme di dati o di una qualche variabile; può essere adottato per esprimere la dispersione dei dati intorno ad un modello di riferimento a cui i dati devono tendere come ad esempio, la media aritmetica o l'aderenza ad una specifica curva. Ha la stessa unità di misura dei valori presi in esame. In statistica la precisione dei dati o l'aderenza dei dati ad uno specifico modello si può quindi esprimere come lo scarto quadratico medio, un minor SQM sarà indice di una maggior aderenza del dato al modello e viceversa.

**8** In Tabella 2 sono indicati, per ciascuna riga, dei codici identificativi (ID) per ciascun prodotto di conversione (1a colonna); sono descritti i processi di trasformazione (2a colonna) e i loro parametri di configurazione (3a colonna); come elementi di valutazione si considera il numero dei vertici presenti e rimossi e la percentuale relativa (4a, 5a, 6a colonna); al fine di valutare l'aderenza del prodotto ottenuto da processo al dato di partenza si considera lo SQM (7a colonna).

**PROSPECTIVA PINGENDI,  
PROSPECTIVA FINGENDI.  
PER UNA STORIA DELLE DIVERSE REGOLE  
DELLA PROSPETTIVA PRATICA**

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*Keywords*

Storia della prospettiva, Leon Battista Alberti, *Le due regole della prospettiva pratica* di Jacopo Barozzi da Vignola, Egnazio Danti, Ambrogio Lorenzetti

**Introduzione**

La storia della prospettiva ha radici antiche, ma solo nel rinascimento, con illustri studiosi quali Filippo Brunelleschi, Leon Battista Alberti e Piero della Francesca, inizia a trovare una significativa formalizzazione – testuale e grafica – nell'ambito della letteratura scientifica, assieme alla progressiva possibilità di una ampia e capillare diffusione, dai più grandi studiosi umanisti, agli artisti di bottega. Come sottolinea Piero della Francesca nell'introduzione al terzo libro del *De prospectiva pingendi* (Gizzi et al., 2016), per una corretta pratica di quest'arte è necessario conoscere le leggi della prospettiva, “senza de la quale non se po alcuna cosa degradare giustamente”: “dico essere necessaria la prospettiva, la quale discerne tucte le quantità proportionalmente commo vera scientia, dimostrando il degradare et acrescere de onni quantità per forza de linee” (p. 153). Piero prosegue poi con una aspra critica nei confronti degli artisti meno rigorosi, che appaiono ingiustamente degni di lode agli occhi di coloro “che non ano notitia de la virtù de l'arte con falso giuditio” (p. 153).

Un secolo più tardi, ritroviamo concetti simili espressi nei commenti di Danti alle Due regole della prospettiva pratica di Jacopo Barozzi da Vignola (Barozzi 1583/1974), in cui il matematico loda il lavoro del Vignola per la definizione di due regole “elette per ottime” (p. 52), dalle quali dipendono altri procedimenti, ad esclusione di quelli che vengono definiti falsi (Barozzi, 1583/1974, pp. 84, 85), se pur ancora molto diffusi e praticati all'epoca. Tuttavia, considerando e osservando attentamente l'evoluzione di metodi per la rappresen-

tazione dello spazio nelle proto prospettive antiche e medioevali (pensiamo ad esempio alle prospettive architettoniche pompeiane, o alle più recenti opere di Giotto, Duccio, Lorenzetti, per citare alcuni fra i più celebri pittori) si può notare come la storia della prospettiva, nel senso più ampio e primordiale del termine, passi anche (e prima di tutto, in ordine cronologico) per i procedimenti empirici che hanno contribuito allo sviluppo dell'intenzione primigenia insita nell'atto della rappresentazione soggettiva dello spazio, dipendente dalla posizione e dalla personale percezione dell'artista che la dipinge, replicabile poi nell'osservatore alla quale essa si offre.

La progressiva formulazione dei principi geometrici che contribuiscono alla definizione del metodo vero e proprio e la contemporanea esistenza di tali diversi procedimenti pratici manifestano una sottile ma fondamentale separazione tra scienza e arte del disegno. Così come l'evoluzione scientifica del pensiero prospettico aveva portato in poco più di cent'anni alla definizione di procedimenti rigorosi quali la costruzione legittima albertiana, i due ‘modi’ di Piero della Francesca e le *Due regole* di Vignola, le esigenze della pratica artistica avevano parallelamente favorito l'invenzione e la diffusione di procedimenti alternativi di rappresentazione prospettica, alcuni dei quali decisamente approssimativi, se pur efficaci.

Questa dicotomia appare evidente anche nella trattatistica, nella quale, già a partire dal Cinquecento, si sviluppano filoni distinti o sezioni indipendenti all'interno dei singoli testi in modo da poter abbracciare un pubblico eterogeneo. Non tutti infatti erano evidentemente nella condizione di comprendere o di volersi applicare nell'approfondimento dei principi scientifici della rappresentazione prospettica, e, come dimostra la struttura stessa delle Due regole di Vignola-Danti, i testi venivano composti prevedendo diversi livelli di approfondimento, per venire incontro sia alle esigenze di chi pretendeva di comprendere i principi geometrici alla base dei procedimenti, sia per chi aveva la necessità di adoperare, in bottega, in modo rapido, semplice e agevolmente replicabile e trasmissibile, regole pratiche per la realizzazione delle opere commissionate. A fronte di uno sforzo realizzativo contenuto, grazie a procedimenti semplificati, più o meno legittimi, si ottenevano infatti rappresentazioni prospettiche percettivamente molto efficaci, anche se

non perfette dal punto di vista prettamente geometrico-proiettivo, per utilizzare un termine che costruirà l'apice dello sviluppo scientifico del metodo nell'Ottocento.

### Procedimenti approssimati

Rifiutati con severità dai letterati del tempo, che miravano alla trasmissione dei principi scientifici o tutt'al più alla diffusione di regole che ne rendessero più semplice l'applicazione, anche se sempre conformi a costruzioni rigorose, le regole definite "false" non risultano oggi meno interessanti, ma anzi, al pari delle più nobili e accreditate, possono anch'esse contribuire alla comprensione dell'evoluzione del metodo di rappresentazione in seno al quale sono nate: un *prospectiva fingendi* che prelude al *prospectiva pingendi*.

Le regole "finte", loro malgrado, hanno infatti avuto il merito di costituire una base fondamentale, momento di transizione cruciale, per le prime opere pittoriche che hanno contribuito alla diffusione della sensibilità prospettica. Concentriamoci ad esempio sul periodo immediatamente precedente la consacrazione del metodo, periodo in cui, pur con una consapevolezza ancora incompleta, è evidente l'intenzione di rappresentare tridimensionalmente lo spazio nel quale le figure ritratte sono immerse, come accade in Giotto, Duccio o Lorenzetti.

Prendiamo in esame un celebre esempio emblematico, che spesso ricorre nella letteratura critica (Panofsky, 1927; Damish, 1995; Kemp, 1994/2005; Andersen, 2007): l'*Annunciazione* di Ambrogio Lorenzetti, dipinta nel 1344 e conservata presso la Pinacoteca Nazionale di Siena. Così come in altre opere analoghe e coeve, anche in questo caso sono evidenti almeno un paio di conquiste dal punto di vista della consapevolezza della percezione dello spazio: la pavimentazione a mattonelle plausibilmente quadrate, disposte parallelamente al quadro, rivela infatti da un lato la convergenza delle rette perpendicolari in un punto che si trova al centro della scena, di fronte all'osservatore, dall'altro che vi è una progressiva digradazione degli intervalli tra le linee parallele al quadro, dando una sensazione di profondità. Ad una osservazione più attenta, tuttavia, si comprende che tale profondità non è calcolata sulla base di una corretta legge di digradazione prospettica: possiamo sperimentare facilmente questa asserzione verificando la mancata convergen-

za in un punto sull'orizzonte delle linee diagonali proprie delle singole mattonelle. Più che notare le similarità con una prospettiva rigorosamente costruita, è però interessante, in virtù di quanto premesso, andare alla ricerca della possibile regola – evidentemente empirica, ma a suo modo efficace – utilizzata per determinare la digradazione degli intervalli. Ad una analisi scrupolosa, è possibile comprendere il possibile algoritmo di generazione dell'impianto geometrico. Si parte dalla determinazione arbitraria della larghezza del quadro e dalla collocazione del punto principale sull'asse di simmetria verticale, ad una quota pari alla metà della linea di terra (cosa non insolita, come vedremo, nei procedimenti pratici descritti nei trattati); questa viene suddivisa in 12 parti uguali, corrispondenti alla larghezza delle mattonelle pavimentali; le linee perpendicolari al quadro, sulle quali si dispongono le file di mattonelle, sono facilmente individuabili tracciando da tali punti rette convergenti nel punto principale. Veniamo ora alla determinazione delle linee parallele al quadro, equidistanti nella realtà, ma digradate in prospettiva: il primo intervallo CD, che definisce la profondità della prima riga di piastrelle, è fissato in modo arbitrario; i successivi, invece, sono progressivamente e costantemente diminuiti, rispetto all'intervallo che li precede, della decima parte CE del primo intervallo. È evidente come uno dei limiti principali che si possono ravvisare in questa regola consiste nel fatto che, essendo il decremento costante, si arriva ad una condizione limite, ben prima di raggiungere l'orizzonte, in cui la distanza tra due parallele successive risulta inferiore al decremento da applicare. Volendo confrontare la costruzione con il risultato che si otterrebbe procedendo con rigore scientifico, ponendo come condizione l'uguaglianza del primo intervallo CD, notiamo infatti che l'accelerazione delle digradazioni dovrebbe essere maggiore, portando alla rappresentazione di un pavimento che appare più scorciato, meno profondo.

Procedimenti come questo, che possono essere dedotti sperimentalmente a posteriori analizzando le opere, hanno trovato spazio – se pur limitato e solitamente con atteggiamento critico – nella trattatistica sulla prospettiva, a cominciare da Leon Battista Alberti (Alberti, 1435/2011), che, nel paragrafo 19 del primo libro del *De Pictura*, descrive un procedimento errato per la determinazione



degli intervalli prospettici, basato su suddivisioni "superbipartienti". Vale la pena, dunque, andare alla ricerca di questi procedimenti, che molto hanno da raccontare sulla *prospectiva fingendi* e che possono costituire una importante base di confronto e verifica rispetto alla produzione pittorica caratterizzata da costruzioni solo parzialmente rigorose. Il presente studio intende concentrarsi su tre procedimenti in particolare che sono presenti in due fondamentali testimonianze della storia della prospettiva: il primo nel *De Pictura* di Leon Battista Alberti, gli altri nelle *Due regole* della prospettiva pratica di Jacopo Barozzi da Vignola ed Egnazio Danti. Queste regole "false" (Barozzi, 1583/1974, pp. 84, 85) – prettamente pragmatiche e approssimative rispetto ai principi scientifici, ma importanti per l'ampia diffusione che, a detta degli autori, avevano all'epoca – saranno analizzate, ripercorse graficamente e considerate in confronto alla costruzione rigorosa, riservando anche qualche sorpresa, come vedremo nel caso dell'ultima regola.

#### Il procedimento di Alberti nel *De Pictura*

Il *De Pictura*, opera che Alberti scrive nella prima metà del Quattrocento dedicandola all'amico Filippo Brunelleschi, si apre con un primo libro che riguarda la descrizione della costruzione legittima alla base della rappresentazione prospettica. Alberti, come già accennato, mette in evidenza anche un procedimento pratico dal risultato non conforme a tale costruzione. Il procedimento si applica alla costruzione di un reticolo a maglia quadrata posto sul piano geometrico, frontale rispetto al quadro. Tracciati in modo arbitrario – in relazione all'altezza dell'osservatore – la linea di terra e l'orizzonte, sul quale si colloca il punto principale in posizione centrale, si staccano sulla fondamentale punti equidistanti, a seconda della larghezza dei quadrati che si intende rappresentare. Tacciata la prospettiva delle rette perpendicolari al quadro passanti per i suddetti punti e convergenti nel punto principale, si passa alla determinazione delle profondità apparenti. La profondità del primo intervallo è definita in modo arbitrario, mentre quelle successive sono progressivamente ridotte di un terzo rispetto alla profondità immediatamente precedente. Come per l'*Annunciazione* di Lorenzetti, anche qui è evidente l'approssimazione della costruzione nel momento in cui si vanno a tracciare le diagonali

a 45°. A differenza però del caso analizzato in precedenza, il tipo di riduzione applicata consente in questo caso di progredire "all'infinito" – con il solo limite fisico dato dalla precisione connessa allo strumento di disegno – con la definizione degli intervalli in profondità, poiché ogni intervallo decresce proporzionalmente rispetto al precedente, tendendo quindi all'orizzonte. Se, infine, costruiamo la prospettiva rigorosa del medesimo pavimento, assumendo invariato il primo intervallo A'B', notiamo ancora una volta che la sua rappresentazione appare maggiormente scoriata e il pavimento risulta meno profondo.

#### Le due regole false nel trattato di Vignola-Danti

Il trattato *Le due regole* della prospettiva pratica di Jacopo Barozzi da Vignola, pubblicato postumo nel 1583 ad opera del matematico Egnazio Danti, rappresenta una fonte preziosa di informazioni sull'evoluzione della prospettiva. Nel testo, arte del disegno e scienza del disegno si riflettono reciprocamente attraverso lo specchio del pensiero prospettico, fotografando con grande sistematicità e chiarezza espositiva lo stato delle conoscenze tecniche e scientifiche consolidatesi fino a quel momento.

La struttura del trattato è indicativa della flessibilità di consultazione che è riservata al lettore, in funzione delle sue esigenze, come spiega Danti (Barozzi 1583/1974, *prefazione*). La prima parte consiste in una corposa introduzione teorica costituita da definizioni, teoremi e problemi rivolta in particolare a chi abbia il desiderio di comprendere la natura geometrica delle regole che seguono. La seconda parte, alla quale viene rimandato direttamente chi abbia l'esigenza di imparare esclusivamente l'arte prospettica, è invece costituita dall'illustrazione delle due Regole. Inoltre, per gli artefici "che più si diletano di operare, che di fare studio in diverse regole", Danti pensa ad una fruizione del testo che contempli esclusivamente la parte relativa alla seconda regola, che considera "più eccellente, & più facile di qualunque altra regola; con la quale potranno perfettamente operare, & ridurre qual si voglia cosa in Prospettiva" (Barozzi 1583/1974, *prefazione*).

Come suggerisce il titolo stesso, il trattato è noto in particolare per la formulazione di due regole: la prima, più semplice ma più laboriosa, si avvale di rette proiettanti in pianta e alzato per determinare oggetti e quote dei punti in prospettiva; la seconda, più complessa ma più immediata, illustra



per la prima volta in modo esplicito la costruzione della prospettiva con l'ausilio complementare del punto principale e del punto di distanza, inteso in questo caso come il punto in cui concorrono rette 'diagonali', inclinate ad angolo semiretto rispetto al quadro. Nell'ambito di questa seconda regola interviene inoltre un procedimento pratico, poco noto quanto notevole, legato all'impiego di 'sagme', righe di carta sulle quali vengono registrati i dati per la rappresentazione discreta di un dato soggetto indipendentemente dalla sua collocazione rispetto all'osservatore e al quadro, e valide perciò per rappresentare innumerevoli prospettive di quel soggetto stabilendo a posteriori la sua posizione rispetto all'osservatore e al quadro (Romor, 2019).

Approfondendo la lettura critica del trattato, si apprende che questi due procedimenti sono solo due delle 'diverse regole' – sebbene da esse dipendano tutte le altre – con le quali si può operare in prospettiva. Oltre a queste due, considerate 'ottime', Danti e Vignola forniscono infatti nel testo esempi di altre regole, dette 'ordinarie', illustrate nei commenti del matematico.

Danti, nei commenti conclusivi alla prima regola, introduce due regole che definisce "false", illustrandole e spiegando le ragioni della non conformità alla regola ordinaria.

La prima viene descritta come "tenuta in gran conto" dagli artisti, ma ingannevole per "chi brama di ben operare" (Barozzi 1583/1974, p. 84). Analizziamo in sintesi i passaggi del procedimento.

1. Si considera B come punto principale. Sulla linea di terra AC si costruiscono i lati oggettivi dei quadrati; anche se non è specificato, dalla costruzione che segue si deduce che AC debba essere uguale ad AB.
2. Si tracciano le rette da E, F, G, H, I, C fino a B.
3. Si traccia un quarto di circonferenza puntando in A con raggio AB (=AC) da B a C e lo si divide in 15 parti.
4. Si stacca sull'arco il punto D, che si trova ad un terzo (o "anche una particella in meno") della lunghezza dell'arco partendo da B. Dal punto D si traccia una retta "occulta" verso A, e così per tutti gli altri punti da D a C.
5. Dove le rette "occulte" intersecano la BC, si conducono rette parallele ad AC che definiscono le altezze dei quadrati in prospettiva. Le altezze dei quadrati dipendono dalla quantità di punti in cui si decide di dividere il quarto di cerchio BDC.

Danti nota come questo procedimento non possa essere coerente con il principio della digradazione espresso nella parte teorica introduttiva e non operi conformemente alle altre regole. Inoltre, a riprova della falsità della regola, invita il lettore ad una verifica sperimentale:

- Si traccia la diagonale (che quindi è diretta verso il punto della distanza).
- Da N (allineato a M) si tira una linea verso O (cinque quadrati sopra M): tale linea non passa per gli spigoli diagonali dei quadrati e non arriva allo stesso punto in cui IM incontra la linea di orizzonte.

Confrontiamo il risultato che si ottiene invece con una costruzione rigorosa, partendo sempre da un primo intervallo comune. Anche in questo caso, il pavimento risulterebbe più scoriato.

Viene in seguito introdotta una seconda regola falsa, che si applica nel caso in cui si debbano rappresentare quadrati di misure diverse. Danti sottolinea che anche questa regola è molto usata dagli artisti, dai quali egli stesso la apprese come corretta, per poi accorgersi, con l'esperienza, della sua incompatibilità con i principi scientifici (Barozzi 1583/1974, p. 84, "molto usata dagli artefici da' quali io già l'imparai per buona, e poi m'avvedei della falsità"). Danti prosegue poi notando che "Non dobbiamo dunque meravigliarci, se bene spesso vediamo delle Prospettive inette, e malfatte, poi che si trovano de gl'artefici, che usono regole così triste".

Analizziamo per gradi il procedimento.

1. Si stabilisce il punto principale C. Si traccia la linea di terra RB. Si disegna la linea a piombo CA (perpendicolare a RB).
2. Si stacca il punto D sulla CA, tale che CD sia un terzo di CA. Si tracciano BC e BD.
3. Si riportano su RB le grandezze dei quadri (o degli edifici, come specifica Danti) che si dovranno poi riportare su BC (punti E, F, G, H). Si tracciano le linee "occulte" da E, F, G, H fino a C, che intersecano la BD nei punti N, O, P, Q.
4. Da N, O, P, Q si tracciano delle linee parallele ad AB, che intersecano la BC nei punti M, L, K, I, che forniscono le misure delle profondità da riportare in prospettiva.

Come osserva correttamente Danti, la profondità dello scorcio dipende da dove viene collocato il punto D, più in alto o più in basso rispetto al punto principale. Prova della falsità della regola, secondo Danti, risiederebbe nel fatto che le misu-

re non sono digradate proporzionalmente perché  $IB > HB$  ( $HB$  è il "perfetto", cioè misura, di  $IB$ , quindi la cosa è, secondo lui, assurda) come  $IK > HC$ , mentre  $KL < GF$  e  $LM < FE$ . Abbiamo utilizzato il condizionale poiché in realtà – e qui risiede il fatto sorprendente anticipato nell'introduzione allo studio – questo modo di procedere si rivela, ad un'analisi approfondita, conforme alle leggi della prospettiva: Danti ravvisa falsità in una regola che per anni aveva utilizzato ignorando di aver operato nel giusto. La confusione è giustificata probabilmente dalla scelta dello scorcio nell'esempio illustrato, che effettivamente genera la sproporzione tra gli scorci descritta da Danti. Vediamo perché il procedimento è corretto. Innanzitutto, ricostruendo le rette congiungenti gli estremi dei segmenti misurati (ad esempio  $L'M'$ ) e delle loro proiezioni sul quadro (ad esempio  $EF$ ), osserviamo che tali rette convergono in un punto sull'orizzonte, che, in termini attuali, definiamo punto di misura delle rette perpendicolari, corrispondente al punto di distanza nella seconda regola di Vignola. Notiamo poi che, per costruzione, anche la retta  $BD'$  è diagonale dei quadrati che si vengono a creare nella prospettiva (ad esempio  $BEN'M'$ ) e che quindi intersecherà l'orizzonte nell'altro punto di distanza opposto al primo. Tracciando quindi il cerchio di distanza, avente per raggio l'intervallo tra questo punto e il punto principale, ci accorgiamo che i segmenti misurati ricadono ben al di fuori del cerchio, dando luogo quindi alle deformazioni di cui parla Danti, che però sono solo apparenti: il procedimento agisce conformemente ai principi prospettici. Infatti, se scegliamo, ad esempio, di collocare il punto  $D$  all'estremo del primo terzo tra  $A$  e  $Oo$ , ecco che, di conseguenza, aumenta significativamente la distanza principale e scompaiono le deformazioni apparenti rilevate da Danti, essendo le prospettive dei segmenti misurati tutte di lunghezza inferiore rispetto alle relative proiezioni sulla linea di terra.

Posta la correttezza della regola, va approfondita la questione della collocazione del punto  $D$ , dal quale dipende lo scorcio prospettico, come dice Danti, e quindi la distanza principale. Grazie al principio di similitudine tra triangoli, che nel Rinascimento veniva utilizzato proprio per spiegare i principi prospettici (ad esempio in Piero della Francesca e Danti stesso), è possibile infatti controllare in fase di progetto la distanza principale stabilendo la quota del punto  $D'$ . Consideriamo

i triangoli  $D'AB$  e  $D'Ool'm$ : il segmento  $Ool'm$  è proporzionato al segmento  $AB$  così come lo è il segmento  $D'Oo$  rispetto a  $D'A$ . Ad esempio, nel caso illustrato da Danti, la distanza principale misura la metà del segmento  $AB$ , mentre nella seconda ipotesi è doppia rispetto ad esso.

Appare a questo punto evidente come il procedimento, empirico ma rigoroso, consenta di superare un problema ricorrente nella costruzione delle prospettive, specie quelle architettoniche in scala 1:1: l'inaccessibilità dei punti di fuga. Il processo di misura descritto, infatti, avvelandosi del controllo dello scorcio grazie alla similitudine evidenziata, non necessita che i punti di distanza siano materialmente presenti sul supporto da dipingere.

## Conclusioni

Lo studio che qui si è presentato ha voluto porre l'attenzione sui procedimenti 'ordinari', più o meno rigorosi, che vengono nominati nei trattati accanto alle regole principali, legittime, rigorose dal punto di vista scientifico.

Se da un lato è interessante comprendere la logica e l'applicazione dei procedimenti approssimati, la vicenda della tradizione della presunta "falsa" regola di Danti, che lo trae in inganno nella valutazione della sua effettiva correttezza, è evidentemente significativa di quanto fosse ancora labile nel Cinquecento, in prospettiva, il confine tra il  *fingendi*  ed il  *pingendi* . Un confine che oggi possiamo ben delineare con la consapevolezza delle conquiste proprie della geometria proiettiva e dello sviluppo del metodo di prospettiva diretta, ma che all'epoca era caratterizzato dalla reciproca influenza da un lato dall'evoluzione dei principi dell'ottica antica, dall'altro dalle sperimentazioni artistiche di bottega.

Tale studio auspica, nel suo sviluppo futuro, la costruzione, nel tempo, di un abaco dei procedimenti prospettici, siano essi rigorosi o approssimativi, nati in seno alle esigenze della pratica di bottega, che possa essere un utile strumento di confronto e verifica rispetto alla produzione pittorica coeva.