TECHNOLOGY AND IMAGINATION IN CONTEMPORARY ART. ASPECTS OF MODERN SCULPTURAL OBJECT

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Abstract: *Contemporary sculpture involves three concepts: the concept of imaginary, creativity and technology. Essential for the imaginary and creative process is the environment/media through whom all objects, artefacts and contemporary sculptural productions survive and circulate. The 3D printing represents for the 21st century the same technological revolution as it was the typewriter a century ago. The Polaroid, due to its instant snapshot technology and instant developing of the film, transgresses technology and becomes the visual language of artistic human expression - it is an unprecedented democratization of access to artistic creativity. Technology is a language for artistic imagination creating and generating sculptural objects, contemporary installations and even contextualized photographs where objects are invested with aesthetic and symbolic values difficult to anticipate: everything is under the sign of an overflowing creativity. New media and modern photography are highly influential for contemporary art teaching, especially for sculptural object.*

Keywords: *contemporary sculpture; technology in arts; sculptural object*

Contemporary sculpture is a cognitive process that evolves from a triangular type of structure: the concepts of imaginary, creativity and technology. Only one of the three structural features, technology, is an objective, classifiable and measurable system. The other two are profoundly subjective - the imaginary and the creativity, they are as subjective as possible within the artistic expression of the self (through opinion, commentary, revolt, resistance and so forth). All contemporary trends of sculpture are obvious to follow - cognitive process, technological process, conceptualization, greening, recycling and upcycling. All it comes to creative and imaginative intervention on any matter and material, using any tool or technology, from the traditional ones to the cutting edge modern. In the case of contemporary sculpture, in particular the sculptural object and its imaginative process, the technology also determines the artistic overproduction, through the accessibility of the materials and technologies of transposition with specific sculptural applications: electrical welding, industrial casting in aluminum and steel, in resins, in artificial stone and cements. Similarly, the wide accessibility of digital technologies (printing and carving), like 3D modeling and computerized milling machine.

Essential, however, for the imaginary and creative process is the environment/media through whom all objects, artefacts and contemporary sculptural productions survive and circulate: photography and video, which is instantly propagated through the Internet and especially in the social media – Facebook has all the chances to become the new *Global Museum of Contemporary Art* - a sort of *Akashic Records* of

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contemporary art and its logistics. Most interestingly is the environment through whom absolutely all artistic objects and contemporary sculptural productions survive and circulate today: photography, film, but especially digital photography and video (all kind of digital cameras, from action to smartphone), which are instantly propagated through the *Internet* and especially the social media (*Facebook, Twitter, Instagram, etc*).

Let us review some concepts of technology as contemporary art language. Technology is always aesthetic, both as a product and as a process; technologies are becoming more and more aesthetically pleasing, because of the growing importance of design, in all the creative stages of an artifact. Including the *technological archive* (from the point of view of science history), which is a constant reference to all contemporary visual arts. That is what it did, at least, the art of sculpture, during the post-war period and especially throughout postmodernism - it integrated and explored technologies, from traditional to experimental (including *process art*, *laboratory experiments*, and *scientific methods of classification*, e.g. *artistic taxonomies*). One explanation, in our opinion, is somehow strange, because it makes direct reference to military research: the faster you integrate superior technologies into your specific artefacts, the more it assures a prominence position in any reference system. The comparison seems to be displaced, but it is not far from the truth: creativity, the power of imagination and the originality of the solutions proposed to specific problems, make the difference between success and failure in any field of activity. Let's not forget that knowing how to handle the lathe was part of the future king`s education, at least since the 17th century; it is true that they use materials like ivory and the most exotic and rare types of wood, but the artefactual metaphor is obvious: if they develop abilities to influence matter in an elevated, technological way, they will certainly be able to shape the social organism during the future royal careers.

The 3D Printing

It could be said that 3D printing represents for the 21st century the same technological revolution as it was he typewriter a century ago. Only this time, technology not just mediates, describes and standardizes the expression of imagination, creativity and information, but actually creates the shape of things, volumes and models, regardless their purpose or use. *Prototypes and prototyping in design are not scientific or technical exercises; neither are they mere demonstrators, or simulations of the real. Rather, they are layered entities, acts of theatre and performance that examine the translation of the abstract into the tactile where all members of the audience, possesing a copy of the performance programme so to speak, leave the show with a different and valid interpretation of what they witnessed. Prototypes, in other words, enable us to overcome the barriers of representation and fabrication, allowing messier forms of human and enviromental context to wield their dirty influence – for instance, how scale and meaning operate differently between place of design, the place of production, and the place of rest. (...) prototypes and prototyping have been accelerated by progressive technologies and methods in representation and fabrication, and, with this, exciting new domains in which the designer and the maker can*

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reside, collaborate and morph[1]. At the same time, 3D printing has become an essential part of democratizing access to customized artifacts, especially to the means of expressing and transposing creative ideas and concepts which otherwise would require costly and time consuming artistic and technical craft abilities resources, with most unpredictable results. In other words, if *what you see is what you get* has evolved to *what you imagine is what you print* - obviously, it's not quite simple. First you have to create the virtual 3D model, although an usual *ZBrush digital sculpting tool* software on a tablet seems like enough for a good resolution printing to an intermediary model.

Even the classical, highly figurative sculpture was dependent on what we call today cutting edge technology - the casting of bronze by the lost wax technology - especially in the Antiquity and Renaissance; the same case study can be followed on church bells - the essential liturgical artefacts for Christianity that evolved with the bronze casting of the VIII century A.D. and up to XVIII century, parallel to the military super- technology of the era: the bronze cannon; all church bells and cannons were made by the exactly same technology in the foundries which systematically supplied the churches and arsenals of the era; not to mention the systematic recycling, after military campaigns, of conquered church bells and vice versa - the materials and technology were, for centuries, the same. Although the art of casting bells is rather a highly specialized craft, there will still be centuries of trial and error for this technology. Only in the 18th and early 19th century, by the scientific standardization of its metallurgical component, bell casting becomes the contemporary mix of art, craft, tradition and technology.

The best visual example for the itinerants bellfounders in the Middle Ages (western and not only) is the famous motion picture *Andrei Rublev*, directed by Andrei Tarkovsky and co-written with Andrei Konchalovsky, *VII episode, The Bell (Spring -Summer - Winter - Spring 1423 - 1424)*. By maintaining the right proportions of historical realities, the screenplay is almost the reenactment of a bell-making process and technology: chosing the location for the pit, selection of the proper clay, building of the mold, firing of the furnaces, hoisting of the bell; even the spiritual challenges are present, starting with the supposed secret of casting bronze bells, delivered at the death bed from father to son, during an epidemic of plague. And the technology still evolves to this day, mainly in the context of contemporary sculpture and installation - see some examples of contemporary artists who use in their creations the artefact of the bells: Marcus Vergette, Konrad Smolenski, Claudio Parmiggiani, Zaphos Xagoraris; and the much more renowned Jannis Kounellis and Barry Flanagan.

The Polaroid

Our kind of photography allowed for creative expression by everyone, at every level. That was our pitch. Eelco Wolf, former director of marketing communication, Polaroid[2].

[1]Burry, Mark & Burry, Jane, *Prototyping for Architects*, Thames & Hudson Ltd., London, 2016, p. 9
[2]Collective Author, *The Polaroid Project - At the Intersection of Art and Technology*, edited by Thames & Hudson Ltd., London, 2017, p. 11

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Undoubtedly, Polaroid is already an anthropological phenomenon, a landmark of the *anthropocen*; and from the linguistic point of view a famous brand name which evolved in a substantive pronounced the same in every country on the globe. For those who lived their childhood in the eastern part of the *Iron Curtain*, Polaroid was a myth, an urban legend to be investigated with friends, relatives and acquaintances - at best we saw the finished product, the Polaroid developed *cliché* - the magic was far away, the alchemy consumed. It seemed a miracle, especially for us, routed in the cumbersome logistics of *Soviet* or East-German photographic technology and materials. The idea of instantly developing, instant gratification seemed miraculous and even unnatural, opposed ideologically to the reality of those times. Meanwhile, everything has been cleared, but the fascination has remained, even though the *Digital Revolution* has naturally eliminated the Polaroid *idol*, but the story has not ended, on the contrary *For all these reasons and more, Polaroid remains fascinating as a subject (a Google search brings up some 66 million results). To date, however, exhibitions have focused on the art equation, with scant attention being paid to the technological side. In the January 1973 issue of Popular Science, Arthur Fisher called the SX-70" perhaps the most fiendishly clever invention in the history of photography".*[1]

Obviously, instant gratification was the key to this huge success; a thought, an action, a feeling, a vision could be concretized instantly through a rather complicated camera and especially an extremely complex chemical process - literally a modern alchemy. A process that can be altered, and creatively influenced by those who experience this artistic environment. *Every image is a collaboration between the photographer, film and the external enviroment. The film's self-contained chemistry gives each Polaroid its individual signature. Colors shift in the heat or cold and the image becomes ours: forever altered as we nurture it through development, becoming a part of the place where it was 'born'. 'Reading' a Polaroid is like embarking on an archaeological dig. Surface fissures, tones, textures and imperfections all reveal far more than the picture itself. These allow us to see beyond the frame, becoming a keyhole to the past. (...) Throughout their history, Polaroids have been used in every application imaginable, from casting to continuity, insurance to identity cards, and from pornography to policing.*[2]

Most of the well-known artists, active in the post-war period, used the Polaroid technology, depending on their own artistic context, especially established photographers or passionate about the new media: conceptualism, multimedia, performance, installation, etc. But beyond the artistic approach recorded by this photographic language, its documentary ability was absolutely unique in modern visual arts - fashion, scenography, special effects, cinematography, etc. Polaroid transgresses technology and becomes the visual language of artistic human expression - it is an unprecedented democratization of access to artistic creativity.

As for the anthropological status of the reaction to the concept of *instant gratification*, many of the teenagers and *millenial* hipsters who experience analogue photography, especially lomography and vintage *single reflex* cameras, have the same

[1] *Ibidem*, p. 14
[2] Rhiannon, Adam, *Polaroid - The missing manual*, edited by Thames & Hudson Ltd., London, 2017, p. 7

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reflex: to open the camera to see the *image* formed on the *negative* film - obviously, it becomes exposed because it is tested under the *instant* polaroid reflex.

Polaroid is currently sharing the niche of artistic photography with *Lomography* - an analogue photographic technique using the classic negative of 35 mm (but also *wide* and *narrow* negative film). Originally a *Soviet* brand, *Lomo* produces analog cameras with specialized functions - multiple lenses, 360° or 180° angle view, fisheye, film-like cameras, etc.; it's all about free acces to creativity via imagination, through the language of analogue photographic process, either instant snapshot or negative film. *In the end, those arguing for an art status for photography either had to dismiss the technology as largely irrelevant (i.e. the artist would find a way, whether via Polaroid materials or some other kind) or had to master a machine, not to mention a complex chemical process. And here especially, Polaroid's breathless claim of "Nothing to be done, the camera will spit out the print unaided" was especially irksome to photographers who had come to worship the darkroom as a temple and see themselves as high priests.*[1]

From instant snapshot to uniqueness: It's a historical fact that Polaroid's huge success is due to invention of instant snapshot technology. But the most interesting fact is the creative evolution of its technological process, constantly influenced, speculated and adapted by artists using this medium throughout the post-war period; now, in *posthumanism* and even *postdigital*, the visual arts have embraced the creative niche maintained by Polaroid even after the *Digital Revolution* of photography. However, today it's not about the instant snapshot but its uniqueness, projected on the objectual, three-dimensional, solid state. The technology has remained the same, highly complicated but accessible to all, but has evolved into artistic, creative language due to infinite possibilities and variants of permutation: the instant snapshot becomes an unrepeatable creative object, determined by the unique conditions of exposure and countless subsequent artistic interventions. The digital circle can be closed anyway, when an instant snapshot, more or less finished, is digitized by a simple flatbed scanner and uploaded to the *global contemporary art museum* - through the internet and social media; in other words, the experiment continues, the technological language mediates imagination and creativity.

At least on its cultural niche, it can be stated that if Polaroid wouldn't exist, it should have been invented. Invented and constantly evolving as a cultural icon of post-war modernism, the Polaroid snapshot remains well established as a symbol of post-humanism, in the sense of merging technology and human being on the level of creativity and freedom of artistic language. Its complex technology, its endless applications in the field of visual arts, the quality of the creative object and the mediator of imagination survived the *Digital Revolution* and even generated a hypothesis for the status quo of visual arts in the *post-digital* world. It's very likely that over the next decades Polaroid technology will massively evolve, in the sense of targeting and cover some language needs of contemporary visual artists. That means a specialization of cameras typologies determined by post-war experiments with technology: types and interventions over the exposure, development, post-processing.

[1] Collective Author, *The Polaroid Project - At the Intersection of Art and Technology*, edited by Thames & Hudson Ltd., London, 2017, p. 17

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Although the digital photography has already taken the form and effects of Polaroid within all kind of applications (smartphone, iphone), nothing seems to replace the object of the snapshot and the process of development - an artistic act in itself. *I have long been fascinated by the artist's imagination and technical exploration of Polaroid instant films used in the pursuit of visualizing ideas. In harboring this preoccupation, I point my finger at Edwin Land and Ansel Adams, whose words and deeds influenced my thinking about and love for photography. Both were primarily concerned about the art of photography – the aesthetics – but they knew it was essential to investigate the techniques and create the technology to make the aesthetic possible*.[1]

Typewriter art, imagination and creativity mixed through vintage artifact and its technology

The invention of the typewriter marks the same type of revolution that the digital printer has brought along the path of democratizing access to information, technology and freedom of expression, including artistic creativity. It standardizes the communication and organization of systems including the social progress - favors women's empowerment and emancipation because it is a technology that requires feminine skills and competences. At the same time, the first artistic manifestations related to the typewriter technology, most likely a combination of individual creativity and the *dead times* of typists working hours, is to draw with letters and words, such as the most common and random drawings in notebooks, on the edges of phone books or on any piece of paper at anyone's disposal. And sometimes, these random drawings, most of them made just to *kill time*, have tremendous creativity.

In its centennial history, the typewriter had all the time and the artefactual potential to become a *symbolic* object, with incredibly important roles in the history of humanity, including warfare, and we refer to the *Enigma*, an evolved kind of typewriter and the famous Wehrrmacht cipher machine, supposedly impenetrable, which determined the invention of the British *computer*, or *computing machine*, due to logic principle that a cipher generated by a machine can only be decrypted by another machine - and that is just another historical paradox of artefactual origin. *The typewriter quickly became a fundamental part of our cultural, social, commercial and industrial world. It was instrumental to the emancipation of women, opening up a whole new field for female employment; it placed the means of communication in the hands of the people, uncensored by political doctrine or regime; it allowed writers to write as quickly as they thought. These machines created a clean, universal format, allowing for the immediate, and modern, presentation and dissemination of thought in a way that handwriting never could. It was a revolution*[2].

[1] Crist, Steve; Hitchcock, Barbara, *The Polaroid Book – Selection from the Polaroid Collections of Photography*, edited by Taschen, GmbH, Köln, 2015, p. 17

[2] Tullet, Barrie, *Typewriter Art: A Modern Anthology*, edited by Laurence King Publishing Ltd., London, 2014, p. 9

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Typewriter art refers to countless ways of artistic expression. From the most of traditional graphic art typology, meaning to machine-draw with letters until the modern and contemporary sculptural installation, which often includes the typewriter artifact, its products printed on paper in different ways, the sounds of its operating processes, the mechanisms deconstructed and reconstructed in the most creative shapes and objects. Even the art of the typewriting/drawing process, systematically visual documented by photographs or film, or video and so on. Let's not forget that typing textbooks-manuals from the end of the 19th century describe some applications of the typewriting on the usual documents, calling them *decorative ornaments*. In fact, anyone who used, at least occasionally or even from pure curiosity, a typewriter, was always tempted to play with it, usually trying to draw something, to create a rhythm of symbols/letters or just something decorative on a paper draft or a discarded document. Basically, a drawing made from typewriter letters could be interpreted as the analog version of a modern digital print, meaning that the letter, just like a pixel, occupies a well defined point in the two-dimensional space of the typewriter paper - and it's not hard to imagine the difficulty of drawing with the typewriter, manually setting the location and point of each letter/pixel in the two-dimensional visual field of the paper.

The *Hyperallergic* website provides a very good article on the subject, written by Carey Dunne and published on October 12, 2015 - *Looking Back on 100 Years of Typewriter Art* - actually a chronicle and review for a book dedicated entirely to typewriter art and published by *Thames & Hudson* in October 2015. However, the most famous and also essential contemporary example for the typewriter art is, in our opinion, the sculpture of Claes Oldenburg: the *Soft Typewriter*, a.k.a. *Ghost Version* from 1963. Oficially classified by modern art history as pop art sculpture, the work is made by liquitex on canvas over kapok filling and wooden construction, cord, wood, acrylic glass plate and wooden base. Dimensions are 230 x 700 x 720 mm. in display at MMK/Museum für Moderne Kunst in Frankfurt am Main.

Technology, creativity and imagination in contemporary artistic education

Is it possible to institutionalize creativity, originality and imagination? Certainly not - but those must be allowed, encouraged and appreciated, until social and generational customs and habits are formed, especially the habit and structure of critical thinking, so important and strong in the educational stage of young adults and fresh former teenagers. University education in the field of visual arts - workshop/studio courses - should not be confined to traditional practical skills and abilities, those are anyway archived already, at any time recoverable and evolving through individual effort, if necessary. Precious resources and mainly time for education is now lost forever trying to connect current generations of millennials to traditional artistic methods and skills which have long lost any attractiveness. It means ignoring any realities at the beginning of the 21st century. All the considerations presented in this paper are based on the direct experience, starting with 2003, in teaching courses/studio workshops within a university of arts and working with many generations and typologies of arts students.

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Changing the paradigm of contemporary artistic education is inevitable, coupled with the connection to the technological realities of today society. Institutional adaptation is the most difficult, and we don't use anymore the term *reform*, because it is already demonetized and generates a rejection reaction, especially among older generations, already confused by the technological progress of unprecedented speed in history. And this adaptation does not require any special effort, it's just a slightly more open attitude: the main technological platform already exists and is in use for some time, even at the social level - the usual *smartphone* (or *i-phone*, as the case may be). This is the main technological vector that can radically transform the teaching of the studio courses into contemporary artistic education, turning them into real interactive courses. And it's not just about instant access to *google search*, which gives an instant reference to an artist, artistic movement or formal analogy, usually generating that *evrika!* moment - the supreme proof that the art student fully understood what he is taught at the course; the same value has the tutorials on *Youtube*, related to the artistic techniques - thus gaining valuable time in the teaching process; extremely useful are also the social media - *Facebook*, *Instagram*, *Twitter*, etc - for art students, those are a virtual gallery for their own artistic works and experiments, always accompanied by comments from a more or less demanding audience.

There is also the value of a smartphone as a creative digital platform, with its built-in camera that sometimes has better quality and resolution than a DSLR, and image processing applications that have reached the full scale and potential of a analogue darkroom in just three decades - and most applications are free of charge, it's true not the full resolution.

Conclusions

In today's world, technology is the essential component of creative and imaginative processes, constantly evolving as a form of cognitive language adapting to any human needs. As a form of knowledge and form of expression, contemporary art rallies to a constantly changing world and increasingly engages in the needs of the community, far from being an autonomous or highly specialized activity, the contemporary visual arts are integrating, by its interdisciplinary processes, through the social and community structures. Due to its extreme adaptability, can easily penetrate, analyse, catalog and record any realities, needs, dangers and opportunities, precisely because of the ideologic neutrality and universality of the attributes and versatility of the languages - the critical thinking. Interacting with anyone, anywhere, anytime and in anyway, is guaranteed. The quality of the artist and the status of an artistic project rallies on seemingly irreconcilable social and community structures and individuals - a sort of a *license to kill* empowering the creative and imaginative processes; most of the time, the art project moves and evolves easily through cross-sections of contemporary social stratigraphy.

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