Representation and Space: The Quest for the "Total" Medium

○ CMS.801 **Media in Transition :: Prof. Jeff Ravel** [Fall 2004]

.:: Marianthi Liapi [SMArchS Candidate in Design and Computation . MIT . liapi[at]mit.edu]

"Throughout history we have lived in different spaces and architects, using different alphabets, have given them form: informal space, gestural and primitive, pre-Miletus (or pre-alphabet); the space arterialized by the Greeks and the Romans; the sacred and mystic space before Giotto; that perspective space of the Renaissance; the industrial and mechanical, analytical and non-perspective space after Cézanne. Each new space on arriving has required new principles and new alphabets that have been created through difficult, exhausting, rough but exciting processes."[1]

The purpose of this paper is to argue the importance of built space as a representational medium and to reveal how its value has been shifting and mutating throughout the passage of time. Primarily I will focus on the nature of the representational ability of space by researching how it has been fluctuating from explicit to implicit manifestations by following the changes that derive from human evolution. While these attributes are in constant motion, even within the primitive constructed space, I believe that the period between the Renaissance (14th century) and the Modern movement (early 20th century) describes best a full cycle of architecture's capability to convey messages. Along these lines, I chose the historical course of a "pure medium"[2] to assist and guide me, and that is the evolution of the photographic camera. Marking the era from the camera obscura to the film-using Kodak camera, this medium has been dealing with visual representation like no other. I will present both mediums on tracks that incline and meet during the 19th century, when they both appear to finalize their cycles.

It would be scholarly though to describe first the very idea of representation so that to frame orderly the connection that I would like to point out. In order for the mind to comprehend what the body is involved with it must extend a mental virtual projection of

---

[1] De Kerckhove (2001), pp. 6.
[2] I use the term "pure" to describe any medium capable of disseminating messages with precise repetition.

movement, from a central point, a "nullpunkt,"[3] around a space that is reconstructed into the mind through points of reference that are meaningful.[4] Meaning gives stimuli to the human senses and to the human intellect and helps people to begin their immersed exploration[5] of "their" world. Representation can be understood as a translation of human perception[6] that creates a link between stimuli (input) and reaction (output) in people's minds to help them position and relate their bodies with their surroundings. It is encrypted information that enables links between materiality and mentality for the creation of points of reference. When stimuli occur, a mental process triggers the projection of a message. The representational value of the surrounding environment (built space and objects within it) lies in the way a link can be facilitated and in the level of impact that the message has in human activity. The greater the representational value of a medium, the greater its importance for people is.

Representation is identified with two layers. The first layer, the *explicit* representation, is processed through cognition and intellect, triggering the creation of memories. In the built environment, the explicit part is connected with the logic of structures, their exact form and the metric relationships of their components as well as with meaningful symbols like text, pictures or objects within space. The second layer, the *implicit* representation, is processed through the

---

[3] Jormakka (2002), pp. 76. According to Husserl "the body is always the Nullpunkt, the zero point of space: *"Thanks to the body, I am the center of things, an Ichzentrum with a body unlike any other, a Nullkörper."*"
[4] Bergson (1988), pp. 245. For Bergson, "extensity is the most salient quality of perception." It is the creation of an abstract space related to consciousness that can "unfold a series of changes of which the relations and the order exactly correspond to the relations and the order of our representations. In this "space" we visualize our action and in return we get reconstituted images from affective sensations." According to Bergson, after the spatial surroundings are perceived, we reconstitute meaning and memories through the extension of our cultural background. The memories we construct are the vague images from the translation of the seen objects. A rich visual environment is charged with meaning that will leave a long lasting impression and subsequently a more meaningful memory or sensation. A high representational architectural space succeeds, in this manner, in delivering its message with the proper acquaintance to the customs of the society that produced it.
[5] Norberg-Schulz (1988), pp. 30. "The concept of place, thus, has two meanings: place of action and point of departure. Hence it represents what is known and what permits man to depart towards a more distant goal."
[6] Norberg-Schulz (1988), pp. 19-20. "Perception (…) functions in a way, which is basically different from scientific analysis. The experience has a 'synthetic' nature; it grasps complex wholes where components that have no logical relationship are nevertheless integrated. But that does not mean that we always experience a similar world." "Differences in subjective value (…) influence the perception of a physical dimension."

senses, triggering the creation of experiences.[7] The implicit part is connected with the general

form of the structures towards the feeling that their spatial elements and conditions produce:

the sense of height, the sense of width, the sense of light, which in turn produce the sense of

comfort, of awe and so on. A combination of both layers of representation constitutes human

living and learning processes. [8] Although the input provided from the totality of the human

senses is of great importance for feeling and experiencing a building, I will concentrate, for the

purposes of this paper, on the aspects around visual representation that are directly connected

with the camera.

Now I should analyze the elements of architecture that gave, in the first place, the

reason for making this connection. During their existence,[9] people take up space and through

space they exist. The manipulation of space to fulfill their material and mental needs is the

subject of architecture.[10] The primary element of architecture, its first "dimension," is function:

architecture must shelter human activities. In the simplest image that the human mind

recollects, a building must stand up, protect from the elements and provide spaces that people

can use for their daily needs. When this condition is satisfied, form emerges, affecting human

memory and experience through a process of representation. As soon as humanity achieved a

---

[7] Ibid., pp. 181. Robert Ventury refers to two kinds of meanings: "the spatial ones which stem from the interaction of interior and exterior forces, and the iconographic ones, which are determined by memories." Recently Ventury defined architecture as a "shelter with decoration in it."

[8] Ibid., pp. 11-12. "In the past, the world was accessible as a qualitative totality, of which man himself formed a part."

[9] Ibid., pp. 193. "As 'existence', man is evidently something more than a thing among things. He is also in the world as 'mood', 'understanding' and 'discourse' and as 'being-with' others." (…) The term 'mood' is used to describe the immediate state-of-mind with which man identifies his environment. The word 'understanding' describes the cognitive mechanisms with which man orientates in space. The word 'discourse' denotes the communication of meaning with which man expresses the spatial characteristics of a situation. The term 'being-with' refers to the structures of social interaction that a man shares with other people.

[10] Ibid., pp. 31,37-38. "(…) Life interprets itself as space, in taking possession of the environment. (…) What happens does not only partake in a spatial structure, but is also linked with a system of values and meanings, and thus acquires character and symbolic importance." (…) "Man does not become a citizen of the world if he does not belong to any place. The citizen of the world has to settle within the totality, and he understands that his place forms part of a larger whole, at the same time as this larger whole represents a continuation of his existential space."

cultural and technological status that understood this property of space –the second dimension of architecture- it begun to manipulate it in order to produce constructions with additional value that would represent the diversification of an advanced civilization.

The implicit layer of representation is the one that architecture made inherent. It became directly involved with the human experience even from the most primitive settings. The explicit layer of representation, on the other hand, has a different relation with space since it has the ability to personalize the surroundings through the use of memories.[11] It also requires a certain level of sophistication that was probably achieved from the first cave paintings at Altamira.[12] This kind of representation was attached on the structures as decoration (mostly paintings) and/or ornamentation (mostly sculptures usually from the same material the building was constructed).[13] Even though today specialization renders the two manifestations of representation diverse and distant from each other, I believe that in the past they were considered to have equal value and importance.[14] The detachable nature of the explicit representational attribute found in the built environment made it ephemeral in a way, fluctuating between values that reflected the general cultural changes of societies. A clear cycle, that depicts this argument, can be identified between the periods of the Medieval Ages to

---

[11] Rybczynski W. (1986), pp. 43. When Mario Praz was writing about the philosophy of interior decoration he used the word Stimmung (atmosphere, mood, feeling, ambience) to describe the "characteristic of interiors that has less to do with functionality than with the way that the room conveys the character of its owner, the way that it mirrors his soul." The personalization of the private space is evident even in nomadic cultures. The feeling of security and familiarity it produces is enhanced through the attachment of images or objects that extent this relation to the past and wish a good fortune for the future.

[12] http://campus.northpark.edu/history/WebChron/Prehistory/Altamira.CP.html

[13] Davenport (1991), pp. 30. Painting and sculpting were the two main ways of representation prior to the development of the "pure" mediums. The two were fused in the decoration of built space with the intention to transmit meanings, ideas and personal characteristics. "The two coexisted compatibly, as each represented a different dimensional mode. Paintings were normally two-dimensional works on canvas; sculpture represented all three dimensions."

[14] Norberg-Schulz (1988), pp. 26. "Architecture, being an artistic activity, unifies factors of the most different kind in a single synthetic form. As a synthetic activity it has to adapt itself to the form of life as a whole."

the early 20th century, from the undecorated spirituality of medieval times to the extrovert verbosity of Baroque, and then to the undecorated functionality of Modernism.

There are many reasons why I chose to engage the evolution of the camera as an assisting medium in this narration. Firstly, the camera itself evolved from a built space, a dark room,[15] to a portable object. Secondly, it gradually evolved from a "rather cumbersome sketchpad"[16] to an independent "pure" medium that stripped both art and architecture from their explicit expressive ability. Thirdly, the time that it first appeared as a sophisticated apparatus coincides with the rise of the Baroque. From that moment on though, while the significance of the camera was rising, the values of the Baroque era begun to decline. Fourthly, the two protagonists symbolize the struggle between romanticism and rationalism, the spiritual idealism and the scientific reasoning, the abstract and the precise.[17] Furthermore, as a sub-consequence of the first reason, history witnesses the itinerary of the contemporary trend to idolize objects, leaving spatial surroundings as backgrounds, canvases and discreet surfaces that don't reduce the significance of the object.[18] This is the direct result of conveying the explicit representational attribute to this "independent" form that people can carry in our age of mobility.

This kind of mobility started to affect human activity from the time of Renaissance when the notion of capitalism[19] emerged and the stagnant social relations of the theocratic and

---

[15] Rosinsky (1984), pp 5.
[16] Davenport (1991), pp. 30.
[17] Norberg-Schulz (1988), pp. 12. "In its extreme form the 'scientific' approach reduces the world to a set of 'resources' and man to a complex of 'needs'. Thus existence becomes devoid of meaning."
[18] Norberg-Schulz (1988), pp. 180. "Today, the split of thought and feeling seems stronger than ever before. Various 'design methodologies' have brought the functional approach to its culmination, and architectural semiology has reduced the dimension of meaning to a mere question of habit and taste."
[19] Crary J. (1990), pp.10. "Modernization is a process by which capitalism uproots and makes mobile that which is grounded, clears away or obliterates that which impedes circulation, and makes exchangeable what is singular.

militaristic feudal states[20] entered a phase of reformation.[21] This impetus can be identified in the form of two main dynamics, one of political and the other of scientific nature, both in the direction of breaking the constraints that absolute powers, such as nobility reign and Catholic Church, exerted at the time. A closer view to the socio-political conditions will point out the rise of the merchants and the emergence of an ambitious middle class. Monarchy saw into this the opportunity to reinforce its power by weakening the feudal lords who constituted the nobility class. As Risebero notes, "during the 14th century the national monarchs of Europe, recognizing the growing influence of the urban middle class, formed alliances with them and began to dominate Europe politically and economically, at the expense of the church and the aristocracy."[22] The merchants soon formed the bourgeoisie that continued ever since to press for more recognition since their lineage was preventing them from tasting more power.

The monarchs' alliance with the people constituting the middle class, who until then had never been organized in a similar social way, posed no threat at the time to their hegemonic role. On the contrary, along with the emergence of the gunpowder war technologies, the monarchs found a new potential source for soldiers that begun to render knighthood obsolete. It was clear that the character of war had changed forever. Unavoidably this fact had a direct impact on the European medieval cities, the nature of which started to shift from defensive to residential. The castle like forts welcomed commerce and along with

---

This applies as much to bodies, signs, images, languages, kinship relations, religious practices, and nationalities as it does to commodities, wealth, and labor power."

[20] Norberg-Schulz (1988), pp. 17. "In the Middle ages, reality was understood as an ordered cosmos. Every social role, every human product and every human action got its meaning in relation to this order. All the elements of reality thus were qualitative and their significance was determined by divine revelation." (…) " The following epochs are characterized by man's wish to free himself from this conception. (…) He wanted to be free to explore reality unrestricted by dogmas and traditional ideas. (…) The medieval building was replaced by a growing collection of experiences, (that one day would make man) able to face the world as it is."

[21] Risebero (1979), pp. 119-121.

[22] Ibid., pp. 107.

that "apartment blocks were added and windows enlarged, reducing their strength but increasing their comfort."[23]

Under these circumstances, the concept of the architect reappears in history. It is found in the evolution of the master-mason profession who now achieves greater status through his work while his physical involvement in the building process is being reduced.[24] As a direct effect of the individualization processes that were taking place, masons, who until then were commissioned with the construction of religious and governmental projects only, begun to undertake private funded projects. Along with the idea of the architect, the conditions allowed for the emergence of a personal decorative style. Decoration became the artistic means with which masons could now distinguish themselves.[25] The simplicity of the spiritual and the military structures was replaced by personalization and beautification. Function gave way to aesthetics.[26]

Scientific research on the other hand was pursued by people who saw the inflexible religious beliefs as an obstacle to human progress through the understanding of tumultuous world.[27] The exposure of the "primitive" academic elite to the Greek-Roman classics broke the

---

[23] Ibid., pp. 107.
[24] Ibid., pp. 118-119.
[25] Risebero (1979), pp. 19.
[26] Ibid., pp. 109-118. Religious architecture created structures of great magnitude and richness that "reflected the wealth of their sponsors." Moreover, the architectural style of churches moved towards a more decorative nature, where even structural elements of the building became "decorative features carved onto the surface of the stone shell (…)." Despite the clear, in spirit, gothic style of the churches, their architectural design exhibited a plethora of individualized characteristics, revealing the "growing identity of national culture and the increasing autonomy of the individual designer (…). A common European tradition based on skills and experience handed down through practice rather than theory had yet allowed local styles to emerge and individual (yet anonymous) talent to flourish."
[27] Ibid., pp. 121.

boundaries that the apocalyptic view of the world posed and opened up the way towards a more humanistic thought.[28]

The production and manipulation of space was also affected from that perspective. The known paradigms from Antiquity, which were banished in the past because of their pagan patronage, gradually begun to influence architectural practice. Inspiration came not only from the ruins themselves but also from the writings of Vitruvius.[29] Architects like Brunelleschi experimented with the application of different styles, leading to more playful and more ambitious buildings.[30] Individualistic vanity was evident. Society was undergoing a change and architecture was there to visually represent it on the built environment.

The sense of change affected the people in the cities, aspiring a mixed feeling of freedom and fear. This feeling was captured by some visionary people who either begun to struggle for social evolution or tried with their works to fill-in the spiritual gap that was created in the metaphysical domain from the degrading of the church's authority. A rationalized way of thinking was formed, putting the foundations for the coming Age of Reason.

The invention of the printing press provided the impetus for popular knowledge at first and scientific research later to spread widely.[31] People were exposed to a medium that could

---

[28] Ibid., pp. 114.

[29] De Kerckhove (2001), pp. 11. Marcus Vitruvius Pollio was a Roman writer, architect and engineer, active in the 1st century B.C. He is the author of *De Architectura*, the first written work about the architectural discipline known today as *The Ten Books of Architecture*. In Vitruvius work, buildings are presented as "spectacles, not as places where comfort, communication, social interaction, health or other physiological considerations dominate." (…) "Vitruvius included many considerations about proportionality among the volumes and the geometry of structure, but the overall perception of the building is dominated by visualizing its façade. In other words, the building is quite literally a theory, something to look at, a theatrical construction."

[30] Risebero (1979), pp. 124. "Brunelleschi is sometimes credited with having been the first to analyze the laws of perspective, which allowed painters accurately to represent three dimensions on flat canvas, and architects to investigate spatial effects before they build."

[31] Risebero (1979), pp. 114-124. The evolution of writing in the Middle Ages reached a dramatic climax in the 1450s, when Johann Gutenberg invented the moveable type printing-press and revolutionized human communication. Printing "enabled a rapid increase in the transmission of ideas in written form: the medieval tradition of communicating building knowledge by practical example was superseded by the spread of theoretical

store and deliver messages, a medium of "repeatable precision that inspired totally new forms of extended social energies."[32] Printing was actually the first "pure" medium to challenge the built environment by bringing about statements for the reduction of the importance of space. At the time, built space was perhaps the most powerful or influential medium of representation, with its importance being measured by the messages that it was able to convey, both explicitly, through specific drawings or sculptural ornamentation, and implicitly, through the overall assembly of forms, openings and other design features.[33] Libraries, for example, were more than an organized pile of building materials. They acquired their meaning from the scrolls, the books, the selves, the studying and the sense of tranquility that they radiated. The invention of printing from movable types challenged the idea of the library as a space by delivering a similar experience to everyone who owned a book.

In order to go deeper and explain this argument, I will employ the story of the evolution of the camera obscura. The camera obscura was an apparatus produced from the ways of scientific observation.[34] It was constantly undergoing refinements and modifications[35] for scientific, artistic,[36] and eventually for public use. Its scientific nature was derived from the fact that it was considered to be an apparatus for subjective vision in a time when scientists and philosophers were arguing about the value of observation.

---

ideas." Regarding architecture, the first book to be printed by the Gutenberg method was Leone Battista Alberti's *De Re Aedificatoria,* published in 1485. It was the first attempt to lay down a set of theoretical design rules since those of Vitruvius, on which it was largely based.

[32] McLuhan (1964), pp. 170-172.

[33] Kern (1983), pp. 138.

[34] Crary J. (1990), pp. 29.

[35] Davenport (1991), pp. 4. "Danielo Barbaro, noted that a lens could be substituted for a pinhole, resulting in a further sharpening and brightening of the image." In the late 17th century, they tried to increase its portability by constructing cumbersome tent like rooms. By then "the camera obscura had become a familiar tool for artists, draftsmen, and scientists." The images produced were described as "a perfect duplicate of life itself."

[36] Rosinsky (1984), pp. 9. "(…) The camera obscura has allowed artists, scientists and philosophers to view the world as a flat image. Two-dimensional renditions of visual reality seem to be more manageable and easier to grasp than reality itself."

The effect produced by this apparatus follows a simple law of optics, well known from ancient times.[37] Inside a black box, the making of a whole on one of its sides will cause the appearance of the exterior view as an upside-down image on the surface of the side parallel to the hole. When a lens was positioned into the hole, it was observed that the dimensions of the inner compartment were directly linked with the properties of the lens used. Scientists greeted the camera obscura as the first subjective image projector and people as an amazing phenomenon that everybody should have the experience of using it.[38]

From an architectural perspective, the camera obscura was not only an apparatus but also a specialized built environment, the spatial characteristics of which represented the life and the status of its owner. Its interior was a dark room[39] with the dimensions to function and also to accommodate a human user.[40] Furthermore, the dimensions of the apparatus as a whole were not limited to its function, as in many cases one could see that it exceeded its regular size. The reason for that was to draw attention and consequently to be a popular success. The bigger size was also intended to delude the users from what was really happening and to seclude them from the simple mechanics. At first the apparatus was positioned indoors but soon it was

---

[37] http://brightbytes.com/cosite/what.html. "The earliest mention of this type of device was by the Chinese philosopher Mo-Ti (5th century BC). He formally recorded the creation of an inverted image formed by light rays passing through a pinhole into a darkened room. He called this darkened room a "collecting place" or the "locked treasure room." Aristotle (384-322 BC) understood the optical principle of the camera obscura. He viewed the crescent shape of a partially eclipsed sun projected on the ground through the holes in a sieve, and the gaps between leaves of a plane tree. The Islamic scholar and scientist Alhazen (Abu Ali al-Hasan Ibn al-Haitham) (c.965 - 1039) gave a full account of the principle including experiments with five lanterns outside a room with a small hole. In 1490 Leonardo Da Vinci gave two clear descriptions of the camera obscura in his notebooks. Many of the first camera obscuras were large rooms like that illustrated by the Dutch scientist Reinerus Gemma-Frisius in 1544 for use in observing a solar eclipse. The image quality was improved with the addition of a convex lens into the aperture in the 16th century and the later addition of a mirror to reflect the image down onto a viewing surface. Giovanni Battista Della Porta in his 1558 book *Magiae Naturalis* recommended the use of this device as an aid for drawing for artists. The term "camera obscura" was first used by the German astronomer Johannes Kepler in the early 17th century. He used it for astronomical applications and had a portable tent camera for surveying in Upper Austria."
[38] Crary J. (1990), pp.31.
[39] In Latin, camera obscura means dark room.
[40] Davenport (1991), pp. 4.

moved outside. This transition created a necessity for supportive elements that could keep the apparatus steady when installed in diverse environments and also to facilitate its transportation. The exterior ornamentation was excess enough to manifest luxury, trend and noble "lineage." The camera obscura was an apparatus that combined a scientific "miracle" with entertainment reserved for kings.

The assumptions one could make from its construction and its form, in the context of the 16th century, are social, regarding the origin of the people who first used it, economical, regarding the status of the owners, and practical, regarding its function as a device. Furthermore, the spatial experience within it was intimately connected with every individual's experience of private space, thus reducing uneasiness and increasing comfort. That alone suggests that the visual vocabulary used was following the guidelines of a context readable by anyone, regardless of social or educational status, and thus understood and communicated easily.[41]

The "text" of the form was evident in the age where most of the people wanted to show something and the accessible means to do it was through their homes and their interior accessories (ornament and exhibited artifacts[42]). The rate of illiteracy at the time was extremely high so in absence of other means of expression visual communication would suffice. The established architectural-artistic elite begun to seek out for new meanings and as a result, more grandiose and more abstract conceptions evolved. New styles were formulated and more specific ways of expression, in relation to the place, were produced.[43] The identity of a place,

---

[41] Norberg-Schulz (1988), pp. 195.
[42] Ibid., pp. 61.
[43] Risebero (1979), pp. 118-119. "By the end of the 16th century, though local methods of construction would persist in humble buildings, this tradition was a thing of the past. The lodge system had broken down in favor of the guild system: big buildings were built less by integrated multi-skill teams than by collections of craftsmen of different trades. A designer was often a man of considerable status, separated by education and class from the

through diversification, grew in importance since the number of people traveling and migrating grew. In every place, people wanted to have a visible local identity that would make them feel more special[44] and at the same time, within a spirit of expansionism, it would be an "export product" to follow the merchant expeditions.

Western civilization was expanding its interests and consequently its presence all over the world. This expansion was a direct follow-up of a seafaring technological progress that produced better means of transportation and created an economical philosophy, an early capitalism that required an ever-growing market.[45] The dynamism of the expeditions was also evident in the field of science but the scientific community of the time was not very keen in producing something practical, being affected by the practices of the classic philosophers whose works they studied.[46] The political status can be described as a continuous challenging of authority from the well-established bourgeoisie that incited public disorder.[47] These actions led to the significant events of the Lutheran act[48] and to Cromwell's revolution.[49] These two

craftsmen on the site, whose skill was more intellectual than practical; he became increasingly remote from the building process itself while seeking to control it more and more. (…) High status gave the designers (artists or architects) greater freedom to develop their modes of expression."

[44] Risebero (1979), pp. 147 "North European towns continued to grow and ornate their public buildings making them picturesque in character and rich in classical detail."

[45] Ibid., pp. 129 "Europe's exploration of the world was stimulated originally by the capitalist classes, looking for new ways to India and China (…). Suddenly increased sources of silver and gold brought inflation and price increases to Europe as a whole, the middle-class merchants prospered, and the poor fell even farther behind, setting the pattern for the economy and class-system of the later industrial age."

[46] Ibid., pp. 129. "Scientific discovery also flourished, though technology did not necessarily benefit. Science had for so long been the branch of philosophy, while technology was the province only of the artisan, that the two did not meet immediately."

[47] Ibid., pp. 130-137. The exposure to a more rational and competitive system led people to rely more on the philosophers' beliefs rather than heaven. As the interest in their world grew, it became apparent that life on earth, far from being irrelevant, merited serious attention and improvement. Furthermore "the growing reliance of philosophers on reason rather than dogma turned many minds away from traditional forms of faith, and there was almost universal disillusion about the corruption of many of the church's practices."

[48] Ibid., pp. 137. The "escape" of Papal rule showed simultaneously that catholic authority was more political than spiritual and oppressive and that freedom can only be achieved through struggle.

[49] Ibid., pp. 157-160. Cromwell's revolution had a shocking audience realizing that Kings can be executed and that they do not reign under the blessing of a Higher power.

events shook the very foundations of absolute power, replacing it with more dispersed ruling systems. However, these events opened every possibility for the future and the oppressed.

The acquired independency from absolute, authoritative figures and constitutions, in relation with the upgrading of the living conditions, created a strong sense of individualism and an increasing need for representation. People wanted to tell their personal story. That was, of course, more evident with the 'new princes' of the capitalist world.[50] Architectural practice had to move away from the strict code of the Medieval Ages. The new needs for expressive flexibility marked the necessity for a merging with the arts. Discoveries of findings from the Antiquity, which exhibited the elaborate ornamentation the ancients used to express their cultures, strengthened all aspects around this mergence.[51]

The result was the birth of a new style, the Baroque.[52] Full of ornamentation and expressive forms, the Baroque architecture became the most influential medium of all times.[53] All people who could afford it, from kings to wealthy merchants that is, wanted to create a house that would not only reveal, or rather "radiate", their status and fortune but would also

---

[50] Ibid., 130. "By the beginning of the 16th century it was plain to some that although the old medieval system might be collapsing, an oligarchy of a different kind was developing in its place. (…) Everywhere the 'new princes' of the capitalist world climbed to power and begun to dominate political life." Niccolo Machiavelli's treatise *Il Principe*, published in 1513, was written specifically to further his own political career at the Medici court, but its realistic analysis of contemporary political life and its practical advice on how to gain and to retain power made it relevant to all such 'new princes'. Their homes begun to be little palazzos that gave shelter to their narration of achievements.

[51] Risebero (1979), pp. 134,146-7. "A search for new means of expression gave rise to impatience with the rule-book and even with the principles of building construction. Significantly, perhaps, much of the impetus came not from a conventionally-trained architect or craftsman but from a painter or sculptor." The requirement for more expressive effects elevated the importance of ornament even over the architectural principles. "Bernini, like Michelangelo, was also a sculptor, and had a similar disregard for architectural rules, which he subordinated to sculptural effects (…). His spatial effects were essentially theatrical, design to draw the viewer into the composition and involve him totally."

[52] Ibid., pp. 146. "The word *barocco* is a jeweler's term to describe a rough pearl or uncut stone. The lack of classical refinement in the style of Maderna and his successors has given us *baroque*."

[53] Ibid., pp. 137. "Palladio's great influencing on architectural design lay chiefly with the publication of his famous *I Quattro Libri dell'Architettura* (The Four Books on Architecture). It was printed in every European country from 1570 onwards, and did much to publicize his concern with classical form and proportion."

narrate their achievements.[54] Meanwhile, the social structure witnessed shifts that increased the gap between the wealthy and the poor.

On the other hand, the intellectual upgrade that started with the printing revolution was now well established and the exchange of knowledge was taking place faster and faster. This was further facilitated by Protestantism, which was indirectly in favor of scientific advancement.[55] In addition, science and technology began their own mergence, delivering more and more results that could be translated to products with a practical use. The Age of Reason marked its beginning by bringing into light a new hybrid form of the scientist-architect[56] ready to represent the glory of the new age.[57] The re-establishment of philosophy though and the freedom of expression empowered by significant events during the previous century were about to lead to a turmoil that would later be diffused either through colonization and aggressive expansion (as Great Britain did) or revolution (as in the case of France).

By the 18th century, the age of exploration had almost ceased[58] and the age of exploitation begun. The wars between the nations stopped and the new age found them trying to gather resources (taxes) and, some of them, to establish a sound economical base to support

---

[54] Norberg-Schulz (1988), pp. 93.
[55] Risebero (1979), pp. 160. "(…) Faith in the written word had greatly encouraged the spread of literacy, and with it the universal spread of ideas, including the scientific ones."
[56] Ibid., pp. 160. "In the 17th century, science and technology were only just beginning to come together, presided over by the Royal Society, founded in 1645 by a group of wealthy dilettanti insatiable for knowledge on every subject, from language to astronomy." "Science at that time consisted of observing the natural world and recording and classifying it; using the methodology developed by Descartes and Bacon, scientists were now able to construct theories based on observable fact. Galileo, Kepler and above all Newton were able to extend dramatically man's view of himself in relation to his world. In the years to come, science would vastly increase man's technological powers." The first and most known of the hybrid scientist architect is Christopher Wren an architect, classicist, mathematician, astronomer. His accumulated knowledge enabled him to "predict with more certainty the stresses in his structures than any architect hitherto. Science and technology were coming together and were to cause great changes in society."
[57] Ibid., pp. 155. "From the 17th century onward, the artistic and philosophical ideas accompanied the rebuilding of many European city centers, or the founding of new ones in colonies overseas (…)."
[58] Ibid., pp. 165.

a stretched state. This condition led Europe to an unprecedented cultural unification,[59] depicted by a new, almost homogeneous, architectural style. Even as the Baroque started to give its place to the most sophisticated *Rococo*[60] the shift was simultaneous to the cities of Europe.

The main characteristic of this style was that ornamentation was more lavish[61] but redirected towards the interior of the buildings, where it mattered more for reasons of representation, leaving the exterior slightly plainer. (Perhaps the huge gap between wealthy and poor contributed in this during an effort to avoid too much attention). The new style was trying to show a more industrialized urban picture of society, when at the same time it was becoming more representational inside where the life of the individual was presented.

The same style was traveling at the colonies with significant difference, even though it originated from the states in which the colonies belonged. The private funding of the colonies that belonged to Northern Europe, for example, gave way for a limited quantity of refined resources and skilled artisans, resulting to plainer building structures. In addition, the religious beliefs of the majority of the Northern colonists rejected ornamentation as vanity.[62] The colonies of Spain and Portugal, on the other hand, maintained the architectural styles of their homelands since they were all state-funded.

Society structures were shifting again. Bad management and administrative decisions expanded the gap between ruling authority and people. To make things worse, the economy theories of the time were cruel with the productive class, while they demanded an ever-

---

[59] Risebero (1979), pp. 167 Europe had not been so unified culturally since the 13th century.
[60] Rybczynski (1986) pp. 89. Rococco is a decorative style with its origins traced in France. "The word Rococco is a pun on Barocco where 'roc-' comes from the word rocaille which means shellwork or pebblework, a characteristic motif. "Rococco architects were fond of decoration in the form of shells, foliage, and extravagant scrollwork, all of it usually finished in gilt. Everything that could be decorated was (…) Rococco features were almost never found on the exteriors of French buildings (with some exceptions in Italy and Spain)."
[61] Risebero (1979), pp. 171. Churches' interiors, although spatially simple, were "lavishly decorated with rococo ornament and painted designs in an almost overwhelming profusion."
[62] Ibid., pp. 165.

growing market. The growing wealth of the states led many ruling monarchs to a lavish life with huge expenses that were expected to come from taxes. At the end of the 18th century, the French revolution and the US War of Independence caused for once again the redistribution of power and the circulation of ideas.

The leaders of this second wave of revolutions were the intellect bourgeoisie rather than the wealthy one.[63] The establishment of a rational world was coming close with a pace accelerated from the success of the two revolutions. Scientific and technological progress was considered the main vessel for freedom and emancipation. New buildings that addressed social conditions were designed with the dimension of function as their top priority.[64] The first signs of the devaluation of the representational value of architecture appeared (since the rational way of thinking reduced the value of intuition and abstract meaning) when the architectural theorists started to get influenced by the teachings of the *philosophes*.[65] This argument is further proved by the fact that architecture began to gravitate towards Classicism.[66] In periods of uncertainty, architecture had always been exhibiting the tendency to return to styles of the past that were considered well established and concretely founded. In the domain of painting, the growing urge for realism made representations more vivid and the connection with

---

[63] Ibid., pp. 185. An era when "the idea of social revolution was very much part of intellectual life."
[64] Ibid., pp. 185. "As social awareness increased, new building types were required…buildings designed to promote health, welfare and social responsibility (…)."
[65] Ibid., pp. 183-185. "French *philosophes* and their German counterparts (…) sought for a rational explanation of existence and, believing that human understanding was capable of coming to terms with the problems of the world, looked forward to a better future. Their idea of progress, to be based on values which somehow had been lost, offered an unprecedented intellectual challenge to contemporary society." "Architectural theorists of the late 18th century were caught up by the dynamism of the *philosophes*. Buildings, it was thought, should express the essential grandeur of man both by their sublimity and by their reference to his dignified past (…)."
[66] Risebero (1979), pp. 167 "In art, a kind of unadventurous classicism reflected this era of pragmaticism."

mathematics and perspective more intense.[67] Romanticism was still dominant, perhaps in contradiction to the "pragmatic" view of rationalists.

Meanwhile, the accelerating pace of the scientific culture was gaining ground continuously over the weak-founded romantic beliefs. From the late 17th century and onwards, traveling was facilitated in an unprecedented way that made it easier for western researchers to "hit the roads." Their discoveries brought forth the issue of subjectivity. Many intellectuals were unwilling to accept the "tales from abroad" and discussions regarding human perception and subjective representation erupted.[68] The pragmatic world had only one medium that could be considered as subjective and that was the camera obscura.[69] The simplicity in its function provided people with the advantage of relative precision, even to amateur users.[70] During the years after its sophisticated development (at 1560) the camera obscura was repeatedly upgraded to accommodate further needs. The aspect around those upgrades that interests more this paper is the one considering their dimensions and their design.

The portability of the camera obscura transformed through many stages. Its initial mobile stage was following a semi-portable design that kept all the spatial and stylistic characteristics of the first fixed one. Additionally, it could be deployed as a small room or tent or even as a carriage, and also transported outdoors for the needs of entertainment, science or art. The technological advancements around the lens and the surface of reflection within the

---

[67] Davenport (1991), pp. 5. Advancements were required by painters, such as Canaletto, and scientists who were using the c.o. extensively. "They insisted on perfect perspective representations" thus "a more sophisticated lens system". Canaletto was a trained artist and his need for precision was noted in the expense of "sacrificing of pictorial freedom". Most of the users though were amateurs since there were methods to use this photo-graphy with little or no training.

[68] Risebero (1979), pp. 165. The quest for absolute, "total" mediums begins with science seeking subjective means and not poetic narrations (the nature of architectural representation). "'Descartes', as the writer Boileau said, 'has cut the throat of poetry, and there is no doubt that during the period in which Cartesian thought dominated Europe, the late 17th and 18th centuries, a market intellectual change was taking place."

[69] Crary J. (1990), pp. 5.

[70] Davenport (1991), pp.6 Expeditions to the world and the use of camera obscura and camera lucida "became as indispensable as notebooks allowing voyagers to complete visual diaries as well as written ones."

camera obscura led to further transformations. The apparatus became gradually an object with a relatively small size, simple and functional.[71]

One could argue that this was the first constructed space that left the abstract domain of architecture and entered the world of logic. Literally one could trace in this process the gradual disappearing of the ornamentation –the representational element- on the device's surfaces. Furthermore, along the path of its evolution another significant variation emerged: the camera "lucida."[72] Lucida was a much more portable device, but despite that, its precision was questionable. Its importance though is significant, for it made evident, along with the camera obscura, the need for a medium that could capture images from the life of individuals, rendering the skill to sketch obsolete.

Through a more intensified analysis, one could identify the two basic categories of principles that were to guide the evolution of such a medium. The first category reflects the fact that the specific medium would be above all an apparatus and thus it should be functional. In the same category also lie the design principles that rested on the creator's point of view. The functional properties were imposed strictly by the technologies in optics and physics and the proposed advancements were explicit. The scientific aspect of the camera, that was the precise tracing of natural images, demanded for improvements that would lead to better images and portability.

The entertaining aspect, on the other hand, demanded for better representation that would make the experience richer. The public wished its experience to begin from the outside of the camera itself. So the ornamentation was once again the element that was going to tell the

---

[71] Ibid., pp. 4-5. Evolution of its dimensions led to 24-inch box, which facilitated the inscriptive effort.
[72] Davenport (1991), pp. 6. "In 1807, (…) William Hyde Wollaston constructed the camera lucida," a much lighter variation, a simple and portable apparatus that helped artists simply transcribe "on paper the view seen through a prism."

story of the camera's noble lineage and its travels, marking it more desirable to the public's eye.

The bourgeoisie was the main audience for a spectacle like that, as they were also the main clients for the architectural practice. In this manner, one can understand that this audience was susceptible to a similar vocabulary as the one that architects and artists provided. The variations of the camera obscura intended for the field of entertainment continued to exist, until today, and the responsibility for its design, due to their size, is still commissioned to architects-designers.

This "vocabulary" was constituted from symbols and patterns, as well as paintings and sculptures. The whole scenery was a place where the owners showed themselves being depicted. The irony is that the only classes that architects could represent were the wealthy ones since they were the ones that afforded to commission their design practice. The truth of the matter here is that the representation of the society during this era is truly the representation of a small portion of it: the upper class. In truth the architects were employees and never actually tasted freedom. The upper class though employed them and supported them since they were considered their "principle means of communication."[73]

This is evident in the shift to classicism again. Beyond its relation to the *philosophes*, the return to the "glorious" Greco-Roman style was covering the need "for a civic architecture to impart grandeur and dignity to the various aspiring regimes."[74] Paradoxically, the same style fitted the two political extremes of the time –monarchy and democracy- "from Napoleon's

---

[73] Risebero (1979), pp. 207. "Architects and engineers had never the freedom of expression that artists, and poets had. "The nature of their profession and the way it had developed placed them firmly under the control of the ruling classes, whose principle means of communication they now were. The great architectural and engineering works which were to follow 1848 –uniquely impressive, popularly appealing- were an important means of giving a false air of unity to a divided society."

[74] Ibid., pp. 188.

nascent empire to the fast developing Union of American states."[75] It is the age of imperialism and young republics. They both long for symbols that would represent either the imperial glory of the empires of Alexander and Rome or the democratic Athens and the Golden Age.[76] Though the architectural forms were spectacular and impressive, bearing the meaning that was longing to be delivered, ornamentation was sent to an evident retreat, despite the fact that impressive wall-paintings and sculptures adorned interior spaces and presented great figures and achievements of the state.

The other side that endorsed classicism was one of elevating importance. It was the academic community. The Greek-Roman style was a symbol not only of political meaning but of academic also. The free spirit of the classical thinkers could be mediated through analogous surroundings. It is obvious that from this point of view, the architectural form of the neoclassic style was in total harmony with this aspect of the western academic society. It is true that many universities worldwide chose this style to shelter their activities (e.g. MIT).

The impressive form though was not followed by the analogous decoration. The modesty that academia was pursuing was a restrictive factor for excessive representation. The glorification of the whole institution was acceptable but not for the individual members. The general form was enough to transmit the open ideal of research and the notion of linkage with the classical thinkers for pursue of knowledge and gain respect and awe. Personalization and narration of stories within the interior of the structures was not necessary, though not entirely useless. There were many things that the walls had to say, among them lists of names of

---

[75] Risebero (1979), pp. 188.
[76] Ibid., 188. "While architects in baroque developed an original style, the architects of the beginning of 19th century turned to a "faithful reproduction of the forms of the classical world. The use of this neo-classical style allowed the politicians of Prussia and England, as well as those of America and France, to consider themselves by implication the rightful heirs of democratic Athens or imperial Rome."

presidents, donors, best students and known researches to name but a few. But they lacked the grandiosity and the magnitude of previous times.

Modern critics of architecture consider the turn to Classicism to be the first failure of architecture to follow the progressive world and adapt to the characteristics of the industrial age.[77] In order to make this shift as painless as possible, the employment of a well-supported solution as a temporal vessel seemed acceptable. The inability of architecture to find an honest style under the "burden" of the rapid developments and the re-position to another classical style of the past, the neo-Gothic,[78] is a sign that during the 19th century architects tried to maintain the communicative abilities but lost their way, incapable of promoting new ideas and thus salvaging principles or beliefs.[79] Only scarce theoretical efforts were made in the direction of setting principles, like the *"The Seven Lamps of Architecture"* (1849) by John Ruskin, where he describes the "seven prerequisites for good architecture,"[80] not in an influential way though. Architects gradually entrenched themselves and never formed a solid base of argument leading to the "purge" of Modernism.

There was one group though that emerged from the class of designers that was perfectly aligned with the principles of science and progress. They were the engineers.[81] They

---

[77] Ibid., pp. 188-191. "The architecture of the time had no Goethe or Beethoven. (…) Architects failed at first to make the leap forward into the 19th century, and (…) they responded to the new opportunities of the industrial revolution merely by retreating into traditional forms and methods." Persisting with the traditional architectural form was a symbol of continuity in a changing world. "Architects were seeking inspiration from the past to produce buildings which would represent their patrons as upholders of eternal values."

[78] Ibid., pp. 203. "As the time went on, more and more styles from the past came into vogue, each with its own associational meanings to set beside the religiosity of Gothic and the aristocratic dignity of Neo-Classical."

[79] Ibid., p. 194.

[80] Risebero (1979), pp. 194. John Ruskin, in his book *The Seven Lamps of Architecture* (1849) described the "seven prerequisites for good architecture, among them truth to materials, the beauty of natural forms and the life given to anything which is hand-crafted rather than machine-made."

[81] Ibid., pp. 194-197. The industrial age gave birth to a new class of designers, the engineers, who were ready to come to terms with the constructional opportunities offered by the industrial revolution.

approached design only from the view of forces of nature and economy of material.[82] Their prime employment was in the construction of civic infrastructure, roads and bridges. At first, they were working with architects, especially for the construction of bridges in the urban environment. Even if at start the architects were considered the heads of the design team, their only involvement was limited along the lines of the aesthetic dimension. Gradually the architectural part was driven away and the engineers took total control of these projects. Their designs were soon mostly devoid of aesthetics, although the scale of their constructions and the use of contemporary materials, like iron, made an impression.

The production of iron through molding allowed for the forming of iron-made decorative patterns[83] on the built elements, but the fact that they were mass produced rendered them incapable of conveying a deeper meaning. This kind of ornamentation was not representing something personal, but only gave a clue for the designer's or the caster's aesthetics. It seems like there is a phenomenon of inertia, that of continuing to employ decoration for just the sake of it and not for its representational purpose (this condition continuous until the end of the 19th century and thus ornamentation is easily proclaimed totally useless). The use of decoration was found at a larger extent in applications in the urban grid. The constructions made of cast iron for covers and colonnades were meant for the protection of shoppers from the elements[84] and they were rich in decorative patterns.

Historically, the iron buildings that would remain in the public's mind were the exhibition halls. From the early 1800s, a new type of construction evolved: the glasshouse.

---

[82] Ibid., vpp. 217. The simplicity and the straightforward structural expression of some buildings pointed the way to the functionalism of the 20th century.

[83] Ibid., pp. 200. This the effect of practicality oriented towards economy with the construction of colonnades to protect shoppers on expensive London and Paris avenues at the late 19th century.

[84] Ibid., pp. 213.

Architects ignored this kind of scheme since they did not identify it as a building but as a practical construction, like a warehouse. The designers of glasshouses were not even engineers, but gardeners.[85] The truth is that the only principle for them was the creation of an artificial environment, enclosed but open to daylight, that would allow the controlled growing of plants while forming an indoors garden.

The properties of that design were gradually appreciated by the public. The combination of openness and light offered an unprecedented spatial impression that soon changed these places to a "trendy" destination. These properties were considered ideal to shelter the events of the international exhibitions. England, the most industrialized, thus the most progressive nation in the world at the time, decided, in the spirit of capitalism and globalization, to host such an event. It would "symbolize this industrial, military and economic superiority of Great Britain,"[86] making the rest of the world jealous but awed.

Along these lines, in 1851 Joseph Paxton designed and built a huge glasshouse, the famous Crystal Palace,[87] to host the first international exhibition. It was made out of cast iron and glass and because of its size it was thoroughly calculated. The fact that the building hosted 6 million visitors, made a huge impact and practically in no time similar buildings begun to emerge throughout Europe. These constructions were largely considered symbols of the industrial revolution.[88] Along with the construction of more expanded bridges that connected the world, glasshouses were idolized as a triumph of scientific calculation and industrial production.

---

[85] Ibid., pp. 200. Joseph Paxton that designed the Crystal Palace was a garden superintendent.
[86] http://www.victorianstation.com/palace.html
[87] Ibid.
[88] Risebero (1979), pp. 197. "From the early 19th century and on, the harnessing of energy, the scientific application of knowledge and the speed of communication allowed the western world to develop at an unprecedented rate. The revolution took place in England between about 1780 and 1850. It reached France, Germany, Belgium and Switzerland by the mid-19th century and northern Italy, Sweden and Russia by the 1900s."

However, the magnanimous construction was mainly used as an envelope for an exhibition of industrial products. Even if the form was impressive, the building was intended to be nothing more than an inspiring background to the exhibition. The real protagonists were the products. One can argue that the era of the object begins along with the age of mass production and speed. The objects begin to absorb many values and meaning in them, and thus becoming more and more important in representing people and activities. Scientists and inventors popped up literally everywhere, searching for principles, theories and technologies that would lead them to the production of new and powerful objects and moreover, that would make life easier. The importance of these objects, though, increased human dependency on them. Their becoming more connected with their users increased their representational value.[89] Still, this ability was indirect since the assigned meaning would have been transmitted through the human involvement with narration. A "pure" medium would never rely on the human factor to deliver its message.[90] It was autonomous.

This is evident and true in the development of the camera. The scientific research finally found its way to inscribe light directly to the image.[91] The use of hand was no longer necessary. This is the cross-over of the camera to the realm of representational purity. With a procedure unspoiled by human involvement, the first photograph was taken (not made) in 1826 at Gras by N. Niepce.[92] The demanding group of researchers welcomed the arrival of a device with which they could register precisely and subjectively.[93] It was considered an invention of

---

[89] Crary (1990), pp. 3.
[90] Davenport (1991), pp. 58.
[91] McLuhan (1964), pp. 190.
[92] Davenport (1991), pp. 6. "In 1827 Joseph Nicephore Niepce (…) was the first to stabilize the camera's image. " "His most familiar image (and one which is generally regarded as the "first photograph") took eight hours to expose in bright daylight."
[93] Ibid., pp. 16. During the first years after the announcement of its development, the world did not know exactly how to use it. "Painters used it as sketchbooks while scientists considered it as a great tool "but they were not quite certain in what context."

same importance for the scientific world as were the steam powered machines for the industry of transportation. It was the unbiased eye that inscribed nature by itself. In a matter of years, the camera was already widely employed for scientific purposes.[94] An accelerating procedure of introducing the camera into everyday human activities begun, influencing large groups and changing the way people regarded the world. The elevation of the sense of vision and the foundations for a society of the retina were established.[95]

Yet, the social conditions of the time did not permit the rapid deployment of a condition that the medium itself would help change. The rural people of the past have always believed that nothing ever changes because the cycles of history were slow moving. That was the belief that these people were carrying with them when they migrated to the cities from the 16th century and on (an attitude that was also related to their theological beliefs). Their economic condition was a restrictive factor also, since the income of the lower classes, which formed the majority of the population, was just enough to deal with the survival issue. There was no place left for philosophical contemplation.[96] From the second half of the 19th century and on that specific view of the world would change forever. Every generation was experiencing something new, thus helping its rapid establishment even outside of the growing cities. The increasing effect of the technological progress that promised a utopian future, where humans

---

[94] Davenport (1991), pp. 59. French physicians were using photography in conjunction with the microscope and astronomers in conjunction with the telescope as early as the 1850s. Scientific society "believed that an impersonal view of the natural world through photographic representation was the key to social progress." "The many views of the natural world taken by most early expeditionary explorers were unaesthetic and unsentimental," while the explorers wanted to be completely disassociated with romanticism. They were striving for subjectivity.

[95] De Kerckhove (2001), pp. 37.

[96] Risebero (1979), pp. 203. "In fact, 19th century society, despite prosperity and despite revolution, was still desperately unequal; exploitation by the aristocracy had been exchanged for exploitation by the bourgeoisie, and the black slaves in America, the peasants in Europe and industrial workers everywhere formed a submerged majority whose rights were ignored."

will be free from physical activity, in conjunction with the advance of theoretical studies, involving philosophy, psychology and social science, created a sense of social awareness.

Political theories were developed to help reform and upgrade the conditions of living of the lower classes.[97] Photography proved one of the most influential instruments in this struggle that could provide evidence to theories and incite reactions.[98] Uprisings and conflicts would follow with limited visible success.[99] Despite that, the message of a sleeping menace did reach most of the western countries that took steps towards reformations, avoiding the worse.

On the other hand, the upgrading of the living conditions for the majority of the population was a boost to the economic conditions, since the consuming public increased. Mass production, a direct result of the industrial revolution, demanded a larger market. It also reduced the prices that characterized the hand-made items. Photography played a key role here also by providing cheap representations for the people in much better prices that any painting would cost.[100] By the end of the century, anyone could have his/her likeness and his/her activities depicted in a portrait.[101] Enjoying something that was once reserved for the upper classes unavoidably created a feeling of pride.[102]

---

[97] Ibid., pp. 207. Engels, showed that the desperate class-struggle was the result of the economic structure of the modern world and Marx in his work, the Capital, formulated the inevitable revolution of the masses.

[98] Davenport (1991), pp. 42-45. "Social culture photographers need not be aesthetically or technically "perfect"." The "social" photographer has "two basic characteristics: a humanitarian point of view and a basis in fact. People are ordinarily the subject of social culture imagery" and his images "are normally straightforward and un-manipulated." The first social culture project that affected the public was that of Thompson and Smith during the 1870's that "presented a "true" photographic representation of the abject poverty in their society". The power of the social images was such that as soon as they were exposed to the general public reformation programs were implemented. Photographic images presented facts that helped society reach an equilibrium of social justice, difficult to be achieved without the medium. The impact of the medium was so raw and powerful that it was/is capable of provoking social activity.

[99] Risebero (1979), pp. 207. In 1848, Europe was once more in a state of revolution. (…) The struggle was short and violent and ended almost everywhere with the re-establishment of the old order.

[100] Davenport (1991), pp. 19.

[101] Ibid., pp. 77.

[102] Ibid., pp. 17.

An increasing national pride was an image that was exported in the scope of western

expansionism. Political, social and scientific expeditions traveled around the globe to promote

their agendas.[103] The employment of photography in all of these fields promoted their

efficiency and it can be argued that it was the need that led to its invention and not that the

invention of it that brought the changes described.[104] Despite the difficulty to operate it at first,

the camera was used extensively.[105] The increased need for it though urged the modification of

its design with a fast pace. Only 30 years after its initial development, the camera was a

common item enjoying tremendous recognition.[106]

Continuing a practice that uses the alterations in the design process of the cameras as an

indication that manifests the shifting from "meaningful" to "functional" space, it should be

pointed out that until now all the modifications of the first camera models were of

technological nature. Cameras evolved to more flexible and reliable models producing

representations that were considered perfect since there was nothing else for them to be

compared with. The aesthetics of the new apparatus lacked any significant beautification (in

some cases discreet decoration was employed to signify models of higher quality) since it was

purely functional. There also was no room for personalizing features since the object was

---

[103] Ibid., pp. 60.
[104] Ibid., pp. 45-47. "Almost since its inception, photography was perceived as a method to understand different cultures or subcultures within a given society." The already considerable activity of exploring the "ethnic" or "foreign" to the western society, employed with a lot of excitement. The public started to see, becoming acquainted (even feeling superior) with the global conditions, instead of the more objective imagery provided by sketching. The photographic contribution to this kind of scientific/sociological effort was peaked in the fact that could "capture the customs and lifestyles of vanishing cultures." On the other hand the multi-cultural population of countries like the US was exposed to people that didn't expected it, perhaps creating some racial or related to ethnicism problems.
[105] Ibid., pp. 18, 22. At the early stages of photographic use the whole procedure was not free of the use of space. Large tents with lightproof ability and equipment needed for their use. Furthermore it required some technical experience for the process that most people didn't have.
[106] Ibid., pp. 21. "The people started to carry on them pictures – representations of their loved ones – from the late 1860s and quickly a trend having little pictures to give as carte-de-visite emerged – the "cardomania." This new trend is showing in my opinion the developing transition from the traditional representational methods to detached objects with compressed meaning, product of a "pure" medium. The great extend of this shift is evident with the sale of 70,000 pictures of the late Prince Alfred at his funeral at 1861."

mass-produced. From that moment on, the camera was detached from the spatial constrictions that the camera obscura had.

The aforementioned points clarify the fact that the previous practice to represent the activity through the decoration of the spatial features was considered to be outdated. The narrative dimension was perfectly covered with the immediate products of the medium itself. No dramatic representation was needed since the outcome was pretty explicit and more impressive. On the other hand, technology was a trend by itself and just by being considered as such it neither had the need for noble patronage nor for links to a respected past. The camera of the time reveals the aesthetics that were introduced from the early mass-production period: simplicity of form, with a strong point on the mechanics of the apparatus in order for it to function properly.

The stronger point of the camera was its ability to take photographs. In this way the camera was the tool that elevated the explicit side of the notion of representation to an unprecedented peak. (Representation as a mind activity related to material objects has two sides. The one is the explicit, where the image directly narrates itself or helps the narration of certain stories or events, like hunting for example, an activity depicted in mosaics, paintings and pictures throughout history. The other side of representation is the implicit one, where abstract ideas and notions are fused in the materiality of an object (sacred idols) or a space (church) and transmit its message virtually. The immediate result of this is that traditional mediums like painting or architecture lost one side of their meaningful or communicative ability. That fact brought revolutionary changes in these fields leading to a virtual schism between them (regardless that the two practices considered to be joined the product of their

world was completely different. Only the use of the computer allowed these two fields to

reunite at the end of the 20th century).

On the other end, photographers were continually tried to enter the domain of the arts

equalizing themselves with painters.[107] Even if they accomplished to create an artistic part of

photography[108] they met little success in reaching the painting's status, at least until the end of

the 20th century.[109] The most direct effect was that explicit representation took a big market out

of the hands of the artists, whose main occupation was the creation of family portraits (usually

at their evryday activities) and landscapes.[110] Another employment was the painted decoration

of interiors of houses with compositions that in some ways represented the history and the life

[107] Davenport (1991), pp. 35. Photographers tries to enter the artistic domain. "Pictorialists (…) strove to shoot dreamlike images that mirrored the sensibilities of the painting establishment". Photography tries to become artistic in two ways. First through dramatic representation of every day life. Second through abstract and expressive images that were trying to express feelings through composition rather than topic (it is a direct association to the artistic movement of the 1900s)

[108] Ibid., pp. 106. The effort of photographers to enter the domain of art had as a result that a certain style of photography was expressive in the exact way that "realistic" painting was representing its subjects until the end of 19th century. The new art, the "high-art", that evolved on the change and in the 20th century disassociate itself from its traditional values that nevertheless were easily comprehendible thus acceptable from the general public. One could argue here that photography took the place that painting was holding as a representational tool (since it worked better than painting in this field and carried more explicit information) and pushed painting in the field of abstract expression.

[109] Ibid., pp.39. "Painters, since the invention of the medium, have enjoyed the freedom to selectively compose from "life" through the addition or deletion of subject matter or color. …, photographers have not historically had these choices. The new computer systems of the 1980s and 1990s now allow photographers the option to radically alter existing imagery in terms of both coloration and composition." Today there is reunification between painting and photography since both are considered visual art. This merge between painting and art is described in the prophetic words (or desire) of P.H. Emerson "… the modern school of painting and photography are at one; their aims are similar, their principles are rational and they link into each other; and will in time, I feel confident, walk hand in hand". The development of the digital art installation, in my opinion, forces this union. It is evidence of a merging tendency between non-digital media to strengthen their position and ensure their existence. The digital media take the traditional ones as humble servants as Zola said that photography should be at the late 1800s. The new transition that exists in the air shows that the future of representation lies more in a network of devices through our environment that not only represents the world around us but also augments it. (sites of augmented reality from periskopio). Also the manipulation of the images by computer rip of the subjectivity of the medium and in this way opens the door to art.

[110] Davenport (1991), pp. 76. People exhibited a desire to be represented, themselves and their activities, in their surroundings through paintings from the prehistoric era. As the quality of painters and tools improved so the ability to represent improved, especially for the creation of a portrait. Prior to 1750s though "the 'common' man was very rarely represented for posterity" as the protagonist. Everybody who was ascending at the social ladder wanted to develop a sense of self-worth and that was accomplished through representation techniques that made evident the ascendancy. That was a little "palace" designed for the middle and upper-middle class and their portraits depicting them and their surroundings. Until the development of the camera that representational ability required a lot of wealth so it stayed out of reach for the majority of the people.

of the owners as well as their lineage. All of these activities were usually very time-consuming

and expensive too (longer time means larger cost).

The photograph came to challenge the first part of a painter's activity since it was more

accurate, faster and cheaper. The second part remained to the artists' domain but it was

declining following the rip of that aspect in the construction of space. The reaction of the artists

was manifold. One portion of them used the camera as a "sketchpad" to help them in their

work, especially during the first years of its appearance.[111] Some were employed by

photographers, usually changing professions in the process.[112] Finally, the majority of the

artistic world raised an opposition.[113] Many artists started to question the practice of artistic

expression trying to escape this stalemate and sought to find new ways to express themselves

and their surrounding environment. They realized the decrease of their ability to represent

explicitly so they moved towards the area of implicit representation.[114]

An "escape" was found in the effort to depict the unseen and the not obvious. Artists

begun to represent impressions of life or a surreal world. The first crucial movement towards

that direction used one of painting's considered handicaps – time. The painter could capture

---

[111] Ibid., pp. 32. During the early years of photography, naturalist painters, such as Delacroix, were amazed by the given reality and "actively appreciated the role of photography in its relation to art."

[112] Ibid., pp. 32. At first the portraits taken by cameras were lifeless and catatonic. Unemployed painters were given the task to remedy this problem by toning areas with small amount of pale color to make the images more real. Later some painters left their practice to become photographers since they thought to be closer to this subject than any amateur, others fought photography and lost and others tried to integrate it in their work with more or less success. In general, though, painting left the realm of realism and adopted a more expressive style with the use of more abstract and blurry images that gave the qualities of time and dynamism.

[113] Ibid., pp. 31. 1839, "Writers at the time were posing the possibility that artists would be driven to starvation when machines usurped their function. This concern was, of course, shared by the painting community. In a concrete move, the painting establishment attacked. The painters employed every disparaging method imaginable to discredit the new process." Strong words have been written. Indicative are the articles of Charles Baudelaire, writing about "the ill applied developments of photography."

[114] Ibid., pp. 34,35. The most active or flexible part of the artistic world disagreed with using photographs to assist painterly precision and that they should disassociate with it completely. The photograph carried "too much truth" and missed other factors (expressive or virtual ones) that became more and more important in the art world. The words of Joseph Pennell are indicative: "If you photograph an object in motion, all feeling of motion is lost."

certain effects through the passing of time and not as a snapshot.[115] The effect of the

overlapping layers of paint led to hazy but very expressive and dynamic forms, while

maintaining the basic perspective of realism, that gave a different sense of the context and the

content of a painting. That artistic movement was to be called impressionism.[116] A gateway

opened up for artists to leave the domain of reality and enter the domain of the virtual world.

Many moved to the fringe of society,[117] losing their previous status but entering a world of

difference and freedom of expression that was unimagined by others. The new art was purely

implicit, abstract and non-representational,[118] based on the synaesthetic side of human nature

rather than the logical one. The visual representation they produced could be better described

in terms of music rather than of a spectacle.[119]

Architecture could not follow towards that direction completely, despite the fact that

efforts were made to "shift."[120] The reason for that is that the product of architecture has

always been based on function, so a non-functional, irrational approach would be solely artistic

and would not be classified as a building, a constructed space that is to shelter human

activities. In addition, architects were still commissioned to do many projects that maintained

the tradition of the past, since society changes its habits slowly. Furthermore, the growing

involvement of the engineers in construction was also threatening the architectural practice by

exploiting the architects' inability to adjust. This fact brought them either on denial or on the

---

[115] Ibid., pp. 6.
[116] Davenport (1991), pp. 35. "Excellence in expression alone was stated as the primary factor in production of art works. The idea of perfect representation was disregarded."
[117] Risebero (1979), pp. 228. During the 19th century, the gap between artists and the public became wider: "it became *de rigeur* for the artist to reject society and for society in turn to scorn, misunderstand or merely ignore him." That was mostly noticed with poetry and painting rather than architecture, which "required society's acquiescence if it was to be built. But even here, the principle of 'L' art pour l' art' was gaining acceptance, and architects entered the coterie of elitist intellectuals."
[118] Davenport (1991), pp. 37.
[119] Risebero (1979), pp. 244.
[120] Ibid., pp. 230, 241.

defensive. Most of the architectural work at the end of the 19th century was still Neo-Gothic and Neo-Classic[121] but new ideas started to erupt.

By the end of the 19th century, a scenographic approach to design evolved that was eclectic, pertaining to the value of representational elements but with a tendency to exaggerate.[122] At the time, most of the "pure" media had been developed. It is an age where the images of the streets became graphic with different kind of trends fusing together: traditional and new, local and global.[123] The "globalization"[124] of the Victorian era urged for exaggeration and magnitude and as a result, a tremendous amount of products flooded the markets. All people wanted to be part of this by transforming their dwellings into small museums about themselves.[125]

The well-established mechanical-industrial world was moving faster and faster, elevating the works of engineers that facilitated movement or glorified the industrial capability of a nation with exhibition constructions. These "glorious" achievements, which were considered to serve the higher purpose of national advertisement, were empty of content.[126]

---

[121] Ibid., pp. 210.

[122] Ibid., pp. 203 "(…) pompous façades were designed with an ulterior purpose in mind: (…) to make (the buildings) respectable to a suspicious public (…)."

[123] Ibid., pp. 222-225. "As a result of the industrial revolution, architecture had assumed many different forms, and the turn of the century presented a vivid contrast between extremes: on the one hand (…) the architects-engineers were moving towards an aesthetic which derived from the structural method used; on the other, an attitude persisted that architecture was a matter of style.

[124] Davenport (1991), pp. 54-55. "As the world continuous to shrink through technology and communication, we find ourselves part of a melding global culture."

[125] Kern (1983), pp. 156. "With the flood of industrial goods in the 19th century, Europeans lost their sense of the dignity of space and rooms were cluttered with knickknacks and mementos, bird cages and aquariums, ornate picture frames, moldings, drapes, and overstuffed furniture. Large interior spaces were thought to be a sign of incompleteness or poverty. As Siegfried Giedion observed, these fashionable interiors 'with their gloomy light, their heavy curtains and carpets, their dark wood, and their horror to the void, breathe a peculiar warmth and disquiet."

[126] Risebero (1979), pp. 216. "The architectural form of a great medieval church was only partly demanded by the need to enclose a large space. Much came form the way its designers saw the building in relation to society outside. (…) It did act as some kind of visual and social focus for the town, and also as a symbol, invoking certain concepts about God, the church and the world. (…) Function and unity were combined in a unity of form and content. But the structural masterpieces of the industrial age, though dazzling in terms of form alone, were almost

The only message they conveyed was the abstract sense of pride. The publicity that they enjoyed though made the traditional constructions "shrink" even more.[127] In addition, the development of more "pure" representational mediums rendered the value of built space, as a medium, lower, facilitating that way its transmutation to a background for objects to be presented in.

This was also evident in the development of the Kodak photographic camera.[128] The new characteristics: reduced size (following the principle of miniaturization), increased mobility, and increased amount of data that could be stored. Moreover the Kodak camera was weatherproof and robust. Its key feature is found in the simplicity of its use, which opened up the opportunity for anyone to own and use one. Professionals in this field never ceased to exist since the need for better quality results increased too.

The open market was successful and as a result the advertising and marketing departments began to consider how to approach the public better. Paradoxically, there was an increased concern noticed around the design of the object, but this effort was directed more towards the packaging rather than the "box." The packaging became the well thought of aspect where the creative designing effort went to.

The evolving capitalism created an ever-increasing competitiveness. People had to be lured to buy the product. It is apparent that the camera was considered an object, independent

empty of content. They performed no central function –the Eiffel tower had no function at all- and were not symbols of any central philosophy of their time, except insofar as they were intended to evoke some generalized feeling of confidence in the achievements of the age. Their underlying purpose (…) was the promotion of economic growth."
[127] Ibid., pp. 208-210.
[128] Davenport (1991), pp. 22-23. It was in 1871 when the development of Richard Leach Maddox's idea of gelatin dry plates emerged, that really revolutionized the process. Seven years later the modern film was born and "people were suddenly able to simply take pictures, not make them." At 1888 George Eastman's company, Kodak, provided a camera small in dimensions, easy to use, hand-held and backed up so good that is evident in the slogan "you press the button, we do the rest." This camera altered totally the field of photography allowing access to anyone.

of anyone or any space. The image that it was projecting was the one on the packaging and the images produced, with which the buyer/owner is to be related. Its aesthetic was dictated directly from its function with little additional effort not to impress but to seem more advanced. In any case, there was no room for extreme alterations of the required characteristics for both functional and economical reasons. The time when the actual price of the object becomes lesser, the cost of promotion begins. Nevertheless, the actual power of the Kodak camera as a representational medium was so high that changed radically the way people think, act and communicate, exactly like all the other "pure" mediums, the phonograph and the radio, did.[129]

The products or the effects of the "pure" mediums, that also indicated who a person was, left the built environment with only a basic function, which is to cover the need for spatial accommodation, since the personalization of spaces was mostly left up to them. This was also a consequence of the fact that people started to move a lot (mobility induced by capitalism) and a place in the city ceased to be considered something "eternal" that passes on from generation to generation. The value of land increased too as capitalism was taking a hold of the architectural productivity, so such a practice became uneconomical.[130] The houses in the country and rural places that still held these values together were more representational and warm than the city-apartments.[131]

Architecture begun to strip off from its representational elements, since they were left without much value. Architects saw one last peak when the movement of Art Nouveaux

---

[129] McLuhan (1964), pp. 126.
[130] Risebero (1979), pp. 233.
[131] Norberg-Schulz (1988), pp. 11. "To our grandparents (…) a house, a well, a familiar steeple, even their own clothes, their cloak, still meant infinitely more, were infinitely more intimate, -almost everything was a vessel in which they found something human already there. Now empty, indifferent things are intruding, sham things, dummies of life (…)."

emerged. Art Nouveau though lasted for a very little time, since it was an artificial decoration that lacked the involvement and the personification of its resident.[132]

The movements with which architecture entered the 20th century were to produce a huge impact on the history of design: De Stijl,[133] Modern, Futurism and Constructivism.[134] The gist of that time was largely affected by globalization,[135] on the one hand, with the increasing communication abilities and the breakthrough transportation mediums. On the other, people found the groundbreaking discoveries in physics that revealed a world of energies and forces, space and time and their unimagined relationships that were heard as stories of science fiction.[136] The new media were transmitting these new findings and they were generally adapting to them with a fast pace.

The futurist movement was much more intense and revolutionary[137] but less influential since it declared a state of progress that could not be achieved at the time. Its manifested an ideology based on "eternal, omnipresent speed,"[138] that was impossible to be materialized in architecture. The Futurists created an impression though that the emerging architectural movements still used as a theoretical background the idea of speed achieved through digital revolution.

---

[132] Risebero (1979), pp. 225. "Art Nouveau was essentially decorative, even two-dimensional, and did not form part of any radical appraisal of the spatial possibilities of the new materials."
[133] Ibid., pp. 245. De Stijl: "reject the old, which was based on the individual and discover a harmony, through purity of form and color, which was by contrast universal. Their art and architecture (…) was purged of all forms except the most severely rectangular and of all colors except black, white and the three primary colors."
[134] Ibid., pp. 241.
[135] The people of the WWI era were referring to the world as global village and that's why the conflict that came at 1914 was called world war or great war.
[136] Ibid., pp. 242.
[137] Ibid., pp. 233. "They set out to express the dynamism of the new machine age: 'a roaring motor car which runs like a machine gun is more beautiful than the winged Victory of Samothrace'." They never built something
[138] Jormakka (2002), pp. 6.

The Modernists' movement, expressed through the theories of the Deutscher Werkbund, tried to cope more pragmatically with the idea of progress in society towards industrialization and the beautiful simplicity of the machine, the clarity and dynamism of physics and the dynamic social movements that declared unification and equalization for all.[139] In general, they dismissed[140] the notion of decorative elements and they tried to represent abstractly the aforementioned beliefs with clear, dynamic, interlocking forms, with priority to function ("form follows function")[141] and integration of health and quality of life design principles.[142] Furthermore, their design approach could be produced with mechanical means, either with prefabrication that led to cheaper houses for everyone or with modern materials, such as reinforced concrete. The core idea of the movement was the clarity of form, the adaptability and the ability of well-formed construction in high-rise buildings.[143]

The movement reinforced its position by producing an architecture that was totally focused on function and the overall feeling that a space could produce. The message that was delivered had to do with the direct impact that lightness, space and precision had on the human soul, with emphasis placed on the social feeling of freedom.[144] The reins now were held by

---

[139] Risebero (1979), pp. 230. In 1907, the Deutscher Werkbund was formed in Germany, an association of architects, designers and artists concerned with the application of higher design standards to industrial products and of industrial techniques to building design. The need to come to terms with the industrialist evoked a more cautious architectural approach."

[140] Rybczynski (1986), pp. 199. In 1908, Adolf Loos, a functionalist architect wrote a manifesto titled "Ornament and Crime" where he "advocated the abolition of all ornament from everyday life, including from architecture and from interior decoration." "He equated the urge to ornament with primitivism" in a modern world where industrialization prevailed.

[141] Risebero (1979), pp. 219. Louis Sullivan's famous dictum 'form follows function' (…) means that honesty of expression is an essential pre-condition in the creation of a beautiful building.

[142] Ibid., pp. 242.

[143] Ibid., pp. 258-260.

[144] Ibid., pp. 244. "The use of steel and reinforced concrete, which enabled the achievement of unprecedented effects of lightness, space and precision."

Bauhaus that is considered one of the most influential institutions of the modern times.[145] The

teaching and the principles of this school are being practiced until today.

The "hard" line though that was promoted by Modernism[146] and the evident lack of

"meaning," degraded its influence[147] and Post-Modernism raise to reinstate the lost

dimension[148] but with little success.[149] The truth is that since the major shift in architectural

practice during the 19th and 20th century, no true evolution to the representational value of

architecture has occurred since the "pure" mediums were developed to be better and better. On

the contrary, architecture either remained in (as) the background to shelter human activities or

it succumbed to the power of media creating spaces that obstruct human physical relationships

in front of sophisticated communication through the use of objects.[150]

The importance of the object, regarding the social status has been elevated, as it is a

measure of comparison. From the post-modern times until today, many architects craved the

recognition of objects and created projects that have themselves as priority. These buildings

were mainly large projects with considerable funding promoting interests that welcomed the

---

[145] Ibid., pp. 242-244. Bauhaus: an industrial design school founded at Weimar in 1919, which philosophy was "a closer relationship between the best artists and craftsmen on the one hand and trade and industry from the other." Rational design: the order derives from the logic of the building's structure and the richness of effect comes from its design detail. It placed emphasis on the social role of architecture.
[146] Norberg-Schulz (1988), pp. 17. "This attitude is clearly expressed in Hannes Mayer's* words from 1928: "everything in this world is a product of the formula (function times economy); all art is composition and therefore unfunctional; all life is function and therefore unartistic."
[147] Ibid., pp. 13.
[148] Ibid., pp. 181.
149 Kotsiopoulos (1985), pp. 217. The main view of today's critics is that the "dogmas of modernism impoverished architecture" (led architecture to impoverishment) and that contemporary architectural practice & theory should try to oppose these principles by re-discovery of meaning. Personally I understand meaning as the missing element of architecture in order to become more powerful is its representational value. The architectural practice today seems unconnected with emphasis to the characteristics that would identify it as object. Theory is also in a turning point without the ability to provide a concrete base that will be widely accepted and consequently a diversified built environment is produced. The single element that truly controls form and aesthetics today is the economic factor – from the extravaganza of the casinos to Las Vegas or the sophistication of the Guggenheim museum at Bilbao to cheap housing projects at any contemporary city.
[150] Risebero (1979), pp. 301. "At the beginning of the story of western architecture, (…) the building was a way of meeting people's needs, not only for shelter but also for self-fulfillment. By the beginning of the 21st century, the complex, fragmentary nature of the building process reflects the alienation of a sophisticated class-society."

attention.[151] The first computers and the more flexible design process that were developed during the end of the 20th century facilitated this tendency and many architects adopted such a design approach. Until today, extravagant projects have been evolved, in a way, merging architecture with patterns from painting and plasticity from sculpture.[152] These buildings, by all means impressive, are more connected to a society of glamour, in terms of cost in relation to efficiency, and completely disassociated with their surrounding environment, animated or static.[153] On the other hand, they make evident that the ability to manipulate the form and the embedment of digital media shows a glimpse of the future. The architectural theory and practice is brought now upon a threshold of creating a viable and meaningful use of the digital media tools, one of which I consider to be the representational ability of a building.

The ability of the informational revolution to affect and even absorb or mutate "pure" mediums,[154] in conjunction with the high level of sophistication and miniaturization that objects achieved when combined with the need for free movement, provides a tool for architects to re-shape their designs. The request for bigger images (projections) and spatial elements with interactive abilities provide the fertile ground for the development of a dynamic

---

[151] Ibid., pp. 296. "By the end of the 20th century, with a few honorable exceptions, museums and galleries had become (…) architectural tours de force, in which the buildings were more important than the collections, many of which were unconvincingly small –the essence, in fact, of post modernism, in which form was more important than substance."

[152] Davenport (1991), pp.27. During the next age, computers have completely changed the way photograph works. The ability to manipulate the data captured from a camera alters its value as a medium. It is the first step, the base in a process that has escaped the totality of a "pure" medium. "We no longer marvel at photographs. We take them for granted. We use them for information and aesthetic purposes." The effect of the digital manipulation affects all the "pure" mediums evolving them to another level, merging them in each other. Even if from economic stand point the existence of many items to buy is better the emergence of multi media is increasing (video, camera, mp3 devices).

[153] Risebero (1979), pp. 216. "The basic architectural paradox of the modern world is that "the greatest resources and the highest technology are so often used on those projects of most questionable social value."

[154] Davenport (1991), pp. 176. "Computers make our notion of light, as a prerequisite for generation of imagery, obsolete. The boundaries between art forms and their physical requirements are blurring." "While photography was initially hailed as a scientific discovery, then as a recording device, it was through manipulation of this medium that photography came to be regarded with respect in the art world." The ability of manipulating the real image makes it susceptible to more personalization and this way represents more than just the facts gaining some of the elements that painting took at their schism.

representational design process for the creation of an architecture of participation.[155] Wireless networks connected to computers, controlling an artificial nervous system that senses and reacts to the occupants' desires, providing hi-fi spatial projections are already well-established conditions. While the level of the potential intelligence of a building has been increased, through the use of digital systems, more and more devices, including the "pure" mediums, will be integrated in the building rendering its representational value higher again.

The "smart" building would connect people with every corner of the world (that has at least a basic communication device, such as a telephone) and project or transmit to its assigned user anything he/she will program it to do, absorbing all existing mediums in the process. The occupant of the "total" medium will use the surrounding space as the basic tool of communication and representation, accompanied by a portable device (a somehow more sophisticated cell phone with higher abilities). Architecture will then undergo one more "facelift" that will be greatly related to the real intangibility of the digital virtuality. Form and medium will be fused once again.

"Spaces are subject to changing perspectives, thoughts, and feelings and suffer the unceasing transformation of things in time."[156]

---

[155] Norberg-Schulz (1988), pp. 195.
[156] Kern (1983), pp. 149.

Bibliography

Bergson H. (1988) *Matter and Memory*. New York: Zone Books.

Crary J. (1990) *Techniques of the Observer. On Vision and Modernity in the Nineteenth Century*. Cambridge, MA: MIT Press.

Davenport A. (1991) *The History of Photography*. An Overview. Boston; London: Focal Press.

Jormakka K. (2002) *Flying Dutchmen. Motion in Architecture*. Basel: Birkhäuser.

De Kerckhove D. (2001) *The Architecture of Intelligence.* Basel: Birkhäuser.

Kern Stephnen (1983) *The Culture of Time and Space.* 1880-1918. Cambridge: Harvard University Press.

Kotsiopoulos A.M. (1985) *Critique on the Architectural Theory*. Thessaloniki: University Studio Press.

McLuhan M. (1964) *Understanding Media. The Extensions of Men*. 10th edition (2002) Cambridge, MA: MIT Press.

Norberg-Schulz C. (1988) *Architecture: Meaning and Place*. New York: Electa/Rizzoli.

Risebero B. (1979) *The Story of Western Architecture*. 3rd edition (2001) Cambridge, MA: MIT Press.

Rosinsky R. D. (1984) *A Lexicon for Camera Obscura.* MIT - M.S.V.S. Thesis. Cambridge MA: MIT.

Rybczynski W. (1986) *Home. A Short History of an Idea*. New York: Viking.

Other resources:

http://brightbytes.com/cosite/what.html

http://www.victorianstation.com/palace.html

http://campus.northpark.edu/history/WebChron/Prehistory/Altamira.CP.html