Out of this World in Two Parts

Agostino De Rosa

"Touch is among the most demystifying of the senses, while sight is the most magical."

/ Roland Barthes, *Mythologies*, Paris 1957.

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See R. Grisoilia, *Le metamorfosi dello sguardo. Cinema e pittura nei film di Luis Buñuel*, Rome 2002; P. Bertetto, *L'enigma del desiderio. Buñuel, 'Un chien andalou' and 'L'Âge d'or'*, Rome 2001; J. Baxter, *Luis Buñuel*, London 1994; A. Sanchez Vidal, *Luis Buñuel*, Madrid 1991.

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The genesis of the script for 'Un chien andalou' is reconstructed by Dalì in an alternative way: according to the Spanish painter a 'paranoic' criterion of script composition would have been adopted, only way to guarantee the palindromis effect of the "multiple figuration" of the images. See S. Dalì, *L'asino putrefatto*, in Id., "Yes. The paranoic-critique revolution. Scientific archangelism", Milano 1980, pp. 170-171.

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First, the figurative subject of the eye is a constant in symbolist painting, then in surrealism. See as in J. Siegel's, *The image of the eye in surrealist art and its psychoanalytic sources, Part I: The mythic eye*, in "Arts Magazine", 56, 6, 1982, and Id., *Part II: Magritte*, in "Arts Magazine", 56, 7, 1982. On pictorial implications and on optical-figurative descriptions of L. Buñuel's work, see: E. Guigon, *Gozos de la mirada. Muestrario*, in "Los paréntesis de la mirada. Un homenaje à Luis Buñuel", exhibition catalogue, Teruel 1993; but also more recently, R. Grisolia, *Le metamorfosi dello sguardo. Cinema e pittura nei film di Luis Buñuel*, cit.

PART ONE: THE DENIGRATION OF VISION

Two series of images come to mind when one considers sight and the role of the observer in modernity in a century that has abandoned us without any apparent heritage. It particularly, but not so peculiarly, deals with two scenes from two films: the first, temporally more remote, is the short film entitled *Un chien andalou* (1928-1929)[1] by Luis Buñuel, a type of surrealistic stylistic exercise contrived with the luxurious complicity of Salvador Dali as script writer. According to Buñuel, the script derives from the intersection of the dreams of its two respective authors[2]. An alienating relationship, obsessive and mysterious, is established between the fictitious pictorial, cultivated by both authors and professedly surrealistic – evident in the continuous figurative references made to Redon, Magritte e Mirò[3] – , and the literal filmatic structure. More precisely, the final product results from the assemblage of scenes, done solely in the editing phase, organized according to dream-like and automatic stimuli, and altered by psychic text. In this way the construction of visual and narrative sequences returns to an ex-post time, and can be imagined as being created after the lens – mechanical sight of filmatic representation – set its gaze upon them. In this manner, the image lives a double life, unconscious and subliminal optics in the shooting phase, vigilant and rationally projective in the post-production phase.

The scene in the film which is indelibly imprinted in the observer's memory is, without a doubt, the one in which the protagonist's, (actress Simon Mureil) left eye is longitudinally dissected with a razor. [1-4] Buñuel doesn't contribute any ethical or criminal connotation to this action that takes place with a disquieting absence of reaction on the part of the victim, who sweetly offers herself up to the stupefied gaze of the spectator in a sort of vesalian pose. The scene communicates the inevitableness of the irrational gesture, but in the meantime foretells the operation that, *mutatis mutandis,* is about to allusively transpire, has transpired, and will transpire in the twentieth century on the spectator himself. By now, the latter is seduced by the scene to such an extent as to not to be able to refuse its oppressive and sadistic nature: ocular violence on the set, assumed by now as an element of scopic violence on the passive

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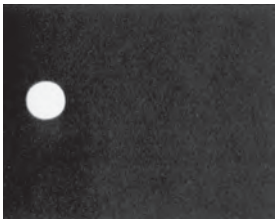

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M. Jay, *Downcast Eyes. The denigration of vision in twentieth-century french thought*, Berkeley, Los Angeles and London 1993, p. 258.

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See as in J.-J. Goux, *Descartes et la perspective*, in "L'Esprit Créateur", 25, I, spring 1985.

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R. Descartes, *The Philosophical Writings of Descartes*, 2 vol., tran. J. Cottingham, R. Stoothoff and D. Murdoch, Cambridge 1984, vol. 2, p. 21.

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Ivi, p. 166.

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See S. Kofman, *Camera obscura de l'idéologie*, Paris 1973.

1-4 Stills from *Un chien andalou* (1928-1929), directed by Luis Buñuel

observer, in a circular figurative *transfert.* According to some critics, the surgically performed – clean – incision executed by Buñuel himself seems to allude, alternatively "to an image of sexual cruelty against women, to a sort of symbol for the male fear of castration, to childbirth, to an indication of homosexual ambiguity, and to a complex linguistic game",[4] but is more credibly traced back to a violent and artificial poetic *mise en scène* of the disparaging act to which sight is the object.

The post-mortem action cannot but draw to mind a similar preceding dissection conducted by Renè Descartes (1596-1650), the most perspective and visual of French philosophers,[5] on an '*oeil de boeuf* when he introduces the metaphor of the *camera oscura* (dark room) in his *Dioptrique* (1637). The philosopher considered the *camera oscura* an instrument of the objective representation of reality which disregards the sentient and the will of the individual observer, that even functions, without the progressive degeneration tied to the breaking down of the tissues, in a subject deprived of life. He uses the metaphor of the *camera oscura* to figuratively allude to his precept of the releasing of the senses, basis for his *Metodo:* "now I will close my eyes, plug my ears, I will not mind my senses."[6] This catastrophic reclusion of the observer within himself, with respect to the world of ecological experience, represents Descartes' clear cognition of the inadequacies of physiological perception in the restoration of a dark and silent world placed beyond touch and sight, beyond hearing and taste, completely unknown to us if not for its ludicrous acoustic, visual, tactile and gustative projections, inexistent, when all is said and done, with respect to phenomenal reality that is and remains outside of us, occupying another space and dimension which are unrecognisable in their completeness.

To imagine Descartes in the act of dissecting a human eye or that of a rather large animal, such as an ox – cutting "....the three enveloping membranes of the rear sections so as to expose a large part of the liquid without spilling even a little" – to then substitute it for the most classical glass lens, and display it in adhered to the pinhole of a *camera obscura* [5-6], thus seeing "...an image of all external objects represented in natural perspective",[7] appear on the opposite wall, is a complex operation. On the one hand it offers us an observer that is now disembodied, who has given up his ties to the onlooker that defined him as a human being, becoming a cyclopean mammoth receptive organ;[8] and on the other hand it tragically refers to contemporary tele-cameras lying at ground level, that continue to film a war scene, one of the many conflicts that devastate the planet, from an unnatural yet optically coherent position, even though the camera man has already been wounded if not killed.

Yet more figures silently strike our imaginary vision. As before, they

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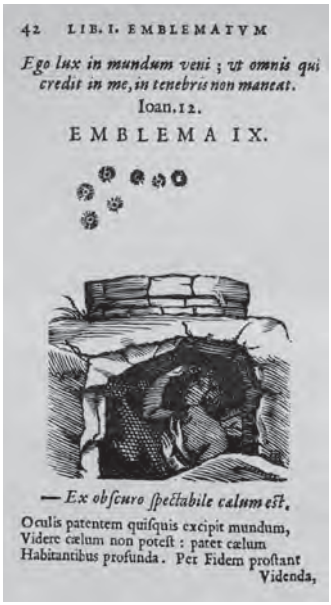
See. S. Beckett, *Film, complete scenario, illustrations, production shots*, New York 1969.



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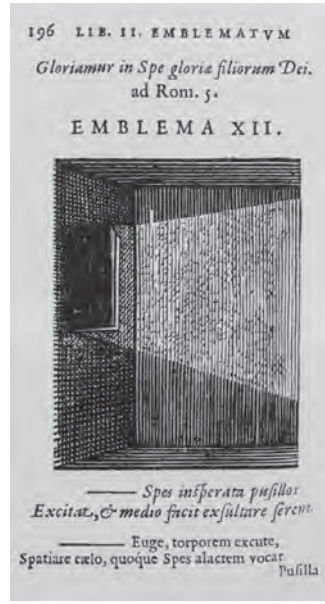

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See George Berkeley, *Teoria della visione*, edited by P. Spinicci, Milano1995.

5, 6 G. Hesius, *Emblemata sacra de fide, spe, charitate*, Antwerp 1636

are taken from a film—*Film* (1965), directed by Alan Schneider, adapted from Samuel Beckett's script—that is just as neglected by mass culture but is concise in its provision of interpretation on the eclipse of observing the subject.[9] Here, un unrecognisable, pale Buster Keaton, no longer wearing his sad clown outfit, is initially shown walking the streets of a city in ruins (post atomic New York?), trying to avoid accusing or simply questioning glances of passers-by: the continuous rebounding between *standard* shots and *point-of-view-shots* – in this case with a dirty and cataract lens – destabilizes the spectator's expectations, showing a character who is terrorized by the gaze of others. Keaton's intermittent movements reveal a deep fear for all that an image could disclose, perhaps an image *par excellence*, unknown by definition; the same blindfold that covers one eye leads us to imagine that the erasing of one of the two organs of sight could have been self inflicted to reduce the high level of shock connected to the act of observing and especially to the act of 'seeing oneself see': it does not seem altogether fortuitous that the blindfolded eye is actually the left one, almost as if the dissection of the organ of sight executed by Buñuel on the passive and silent Simon Mareuil, had migrated to Keaton's body, via filmatic and conceptual osmosis, to inflict the stigmata of the modern eclipse of the anthropical gaze upon him. The protagonist continuously seeks refuge and literally withdraws into himself each time his gaze meets any decorative element, in a desolate domestic interior, that could reflect his likeness or that could assume animistic human forms. This suggests a dreadfulness connected to sight. The photographic reproduction of a sculpted Sumeric face with disquieting eyes of absurd proportion and the only mirror in the room covered by a black cloth as if in mourning, induce a coagulum of a misanthropic and claustrophobic senses in the development of the short film which mysteriously dissolves at the end when, upon awakening from a light sleep, Keaton encounters the gaze of his *doppleganger* [7]: real terror erupts in recognizing ourselves, reflected in an absurd carapace, as belonging to a world where nothing is known, all is imagined, even if made up of pretences. It is not by chance that the *incipt* of the film, completely silent, is entrusted to the words of philosopher George Berkely, "*esse est percipi*", which is to say, "being is equivalent to being perceived".[10]

The undraping of the cloth could then be tantamount to the lifting of Mâyâ's veil, however without that cathartic value, more precisely of emptying out, that one recognizes in vedantic mysticism where it shows us how illusory reality is, how the only way to cognition is that of entrancement. As Elemire Zolla observes, it is in a psychic state defined as *samândhi that* this unveiling takes place, when the mind "… is not distracted by roaming eyes, by avid hearing, by a greedy tongue,

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E. Zolla, *Archetipi*, Venice, 1990, p. 8.

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See J. Crary, *Techniques of observer. On vision and modernity in the nineteenth century*, Cambridge (Mass.) and London, 1995.

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See L. Selfe, *Nadia. A case of extraordinary drawing ability in an autistic child*, London 1977.

7 Stills from, *Film (1965, starring Buster Keaton)* directed by Alan Schneider, screenplay by Samuel Beckett

by the tension of the skin, and, descending into the intimate, by incessant reminding, by restless imagining,"[11] in an *ante-litteram* Cartesian state. There is no one that sees like the mind, which, in this condition of mystic ascesis, affirms "I am", disowning the more usual "I am this", "I am that", and emerges enriched from the physiological detachment of reality because it expands beyond every perceptive limit: it no longer deals with a vigilante organ, sustained by ethics – that will end up becoming aesthetics – of rationality elevated to scatological dignity. In the West the mind, and especially sight, undergo the sensations of the outside world and attempt to establish a documental contact with it which is metric-projective in nature, ignoring the archetypal aura. Undeniably, over the course of centuries, human sight, referred to as a mechanical experience of registering images, with Descartes (and previously by Johannes von Kepler (1571-1630), and then by John Locke (1632-1704) and Gottfried Wilhem von Leibniz (1646-1716)[12], undergoes a progressive 'devaluation'. Initially this is because of the physiological inadequate nature of the sensory system, but successively because technology begins to produce instruments that allow for the creation of images in an independent way with respect to the human subject: sight, already de-anthropomorphized by Kepler, will now become subordinate to instruments that reproduce forms, even moving forms, through the application of simple physical laws in a natural way, so to speak.

Already, perspective represented a sort of visual regimentation, a geometric structure, that allowed for the imposition of rules and limitations on direct vision, translating the perceptible experience of perception of space into an icon, in its one 'sanctimonious' two dimensional projection: but the anthropic filter that characterized its modality of expression – the being run by sentient capacities, of the artist's choice and judgement – historically guaranteed it a sort of proud revenge with regard to all of human nature of its own making. It may appear paradoxical, but the very images that are produced in a controlled manner in the interior of a *camera oscura,* although considered conventionally more 'natural' or 'optically' correct, can turn out to be, in short, the most abstracted to perception: seeing that it is difficult to gain access to such data, the blunt, harsh exposure of one's own or someone else's retinal image, restored with extreme care using pictorial measures, assumes pathological more than physiological characteristics, as the studies on autistic perception by Lorna Selfe explain.[13] "That which is crucial for the *camera oscura* is its relationship between the observer and the indifferent, the undefined expansion of the outside world, and how its apparatus systematically carries out a cut or delimitation of that field, making it visible without sacrificing the vitality of its being. Yet movement and temporality, so

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Ivi, p. 34.

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Ivi, p. 39.

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J. Locke, *Essays on Human Understanding*, edited by A. Campbell Fraser, New York 1959, I, ii, 17.

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J. Crary, Techniques of observer, cit., p. 41.

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Representative dichotomy is taken from Leibniz (in Id., *Monadology and Other Philosophical Essays*, tran., P. Schrecker, Indianapolis 1965, pp. 157 fol.), when the philosopher to the different perceptions of the body on God's behalf and on man's behalf: in the first case, one has access to a representation defined by the author as *scaenographia* (perspective), in the second to *ichnographia* (that is seen from above, and from a bird's eye view standpoint). See L. Marin, *Portrait of the King*, tran. M. Houle, Minneapolis 1988, pp. 169-179.

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See AA.VV., *'A volo d'uccello'. Jacopo de' Barbari e le rappresentazioni di città nell'Europa del Rinascimento*, Venice 1999; also J. Schulz, *Jacopo de' Barbari's View of Venice: Map Making, City Vews, and Moralized Geography Before the Year 1500*, in "Art Bulletin" #60, 1978, pp. 425-474.

evident in the *camera oscura*, always precede the act of representation; time and movement could be seen and experienced, but never represented."[14] But on this occasion, the most interesting dialectic element that the *camera oscura* introduces, taken on as the first instrument that generates images that are observer-independent, is, above all, that of the disembodiment of the observing subject, definitively separating the act of seeing from the body of the user. As Jonathan Crary perceptively points out, this divorce permits the definition of the figure of "...an isolated observer who is closed in and autonomous within its dark confines. In an effort to regulate and to purify its relationship with the multiform contents of the world, by now 'exterior,' the *camera oscura* implies a sort of *áskesis*, or removal from the world. In this way, it becomes inseparable from a certain metaphysics of inner life establishing a metaphor, either for an observer who is a nominally free and sovereign individual or for a privatised subject confined in an almost domestic space, cut out from the external public world."[15] As Isaac Newton's (*Opticks*, 1704) and John Locke's (*Essays on Human Understanding*, 1690) studies show, a paradoxical operation is therefore possible through the use of the *camera oscura:* that is to say, the passage from physical instrument used to examine and register phenomenal data to psychic metaphor used to understand and interpret an individual's most hidden thoughts. In this way it becomes John Locke's "...studio of everything devoid of light,"[16] through which cognition is experienced. However, it seems evident that the role assumed by the observer in this device, in the gloomy room touched by a luminous diaphanous umbra, proves to be ambiguous: even if in Fifteenth century perspective the observer was allowed a limited space of mobility, with respect to the notorious *punctum optimum* foreseen by contemporary studies, inside which the images maintained their own projective coherence, "…the *camera oscura* did not impose a restricted place or an area with respect to which the image presented its full consistency and coherence. On the one hand the observer is disconnected by the pure operation of the instrument and is there as a disembodied witness to a mechanical and transcendent re-presentation of the world's objectivity. Yet on the other hand, his presence in the room implies a spatial and temporal simultaneity of the subjective and objective human apparatus. In this manner, the spectator is a fluctuating dweller of the darkness, a marginal supplementary presence independent of the mechanism of representation."[17] The different ideas of representation connected to these interpretative positions of reality – *perpsectiva versus camera obscura*[18] – can be well illustrated by two images: the first is a famous sixteenth century bird's eye view of Venice by Jacopo de' Barbari[19], that may be intended as an expression"…of the pre-Copernicus city, synoptic and all

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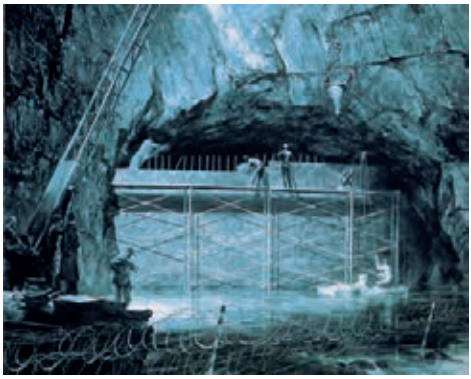

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20 J. Crary, *op. cit.*, p. 52.

21 C. Jenks, *The centrality of the eye in western culture*, in Id., edited by, "Visual Culture", London and New York 1995, p. 4.

22 See A. Robbe-Grillet, M. Tansey, *M. Tansey*, San Francisco 1993.

23 See M.C. Taylor, M. Tansey, *The Picture in Question: Mark Tansey and the Ends of Representation*, University of Chicago Press 1999.

24 1625, Enkhuizen; 1654, Amsterdam.

25 See D. Diderot, *Lettres sur les aveugles*, p. 319; and G. Berkeley, *Theory of vision vindicated*, sec. 71 (tran. it, *Teoria della visione*, edited by P. Spinicci, Milan 1995, pp. 110 fol.).

26 The title refers to various paintings by Gustave Courbert, depicting the Louen river valley, at Ornans (France).

8 M. Tansey, *The Innocent Eye Test*, 1981, The Metropolitan Museum of Art, New York

9 M. Tansey, *The Source of the Loue*, 1981, Sandra and Gerald Feinberg collection

absorbing like a unified entity",[20] the second is that of any Venetian urban scene by Canaletto (eighteenth century), in which the author optically reconstructs the image of the city through a collection of registered views from a *camera oscura* that scans the space, defined by Leibniz as a sort of nomadic observer, who finds order in the irrational chaos of the world through his auroral and objective vision: the most dyscrasic and imperfect binocular perception is substituted with the most aseptic mono-focal apparatus guaranteed by the presence of the pinhole.

The idea of an observer presupposes the presence of a subject placed in front of or behind the observed object, with one separated by the other by a physical gap. This order of pawns on a chessboard, emphasized by the modern culture of the image, has historically lead to a reduction of the experience of sight to pure perception, to "…a strangely self-inflicted mono-dimensionality and to a limiting abandonment to a natural order,"[21] of which we are all more or less aware. Thus, vision, traced back to pure mechanical process, contaminated by desire, by imagination and by necessity, produces the illusory idea of an 'innocent eye', which both Ernst Gombrich and Nelson Goodman brand as a 'blind eye'. But does an innocent eye exist?

The painter Mark Tansey[22], attempts to respond to this question in his well-known study[23] postulating the end (or ends) of the representation. In order to do this he turns to the use of figurative language. Tansey's *The Innocent Eye Test* (1998; The Metropolitan Museum of Art, New York) [8] shows a bovine intent on scrupulously examining an unframed Paulus Potter[24] painting that is displayed in a gallery. The animal does so under the austere gaze of historians and scientists who are supervising the experiment. By reviving the Cartesian bovine, this time alive and not artificially reduced to a constituent element of a *camera oscura,* Tansey brings back the utopic innocence of sight, to which both Denis Diderot (1713-1784) and George Berkeley[25] (1685-1753) often made reference – perhaps similar to that of the young fourteen year old, blind at birth, whose sight was restored in 1782 after a successful cataract surgery performed by Dr. William (1688-1752) – to a metaphor on the fruition of art, in which scientists question how and what we see. The futile erection of walls – symbolic and literal – that inhibit the false perception of reality are assumed by Tansey as pictorial material in *The Source of the Loue* (1990; Sandra and Gerald Feinberg collection)[26] [9] where the Platonic cavern in which the myth unfolds is definitively sealed and its entrance is surrounded by barbed wire: so closes a chapter on imaginary vision that individuated the *falsa credita* in the shadowy projections of sensorial cognition.

Sight represents, in Western civilization at least, the privileged

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See W.T. Mitchell, *Iconology: Image, text and ideology*, Chicago 1986.

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"ιδεα, exterior point of view, point of view, perspective, figure, form". See L. Rocci, *Vocabolario Greco Italiano*, Rome 1935, p. 905.

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C. Jenks, *The centrality of the eye in western culture*, cit., p. 1.

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See M. Foucault, *Nascita della clinica. Una archeologia dello sguardo medico*, Torino 1998; Id., *Sorvegliare e punire. Nascita della prigione*, Torino 1993. See also R. Evans, *The fabrication of virtue: english prison architecture, 1750-1840*, Cambridge 1982.

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See A. Barry, *Reporting and visualising*, in C. Jenks, edited by, "Visual Culture", London and New York 1995.

channel of access to the external world: if on the one hand it is considered as the king of the senses – autonomous, independent and innocent – on the other hand it is necessarily encrusted with worldliness, inevitability resulting as externally directed; therefore it is possible to distinguish between the idea of sight and idea as sight.[27] The same etymology of the term 'idea' shows its root in the verb 'to see'[28], reminding us that "…the way in which we think in Western culture is driven by the sight paradigm. Seeing, looking and knowing have become dangerously interchangeable. Thus the way in which we have ended up understanding the concept of 'idea' is closely linked to terms such as 'appearance', figure and image. As the 'first' Ludwig Wittgenstein (1869-1951) decreed: "An image is a 'fact'. And 'a' logical image of facts is a thought."[29]

The implicit risk in this dichotomous acceptation of sight was already branded by Michel Foucault (when individuating the seeds of the modern idea of the disparagement of sight. This was done during scopic processes of authoritative observation and hierarchal documentation of sanitary and criminal phenomena. The medical clinic model allowed the French sociologist and philosopher to catalogue single individuals. More significantly it allowed him to extend the surveillance to the entire urban space monitoring the hygienic and climatic quality of the city, its dense habitat, and the migratory flows to which individuals were subjected etc. Even more so, Foucault uses the *Panopticon* as the most important instrument of scopic surveillance. [30] He recognizes its particular features, not as much for the fact that invisible supervisors or guards were present – that 'centrally' and radically controlled the activities that took place in the cells or dwellings – , as for its specific architectonic configuration that induced a condition of permanent visibility sufficient enough to assure, in an automatic way, the success of the coercive action. *Panopticon* can be considered an example of 'inhuman technology', a type of translation of the principles of operation of the *camera oscura* to a prison scale. This is because the power of the supervisor – or of the observer – is irrelevant with respect to the operation that the scopic mechanism activates. In addition to these brief considerations, the control of increasingly more vast areas, involves the use of technologies and therefore of 'inhuman' methods of environmental surveillance – , according to Andrew Barry's[31] definition – such as *contour recognition.* Thus one understands how the question of technological sight that witnesses events documented elsewhere are central to the disembodying act which was referred to earlier: the impersonal and material characteristics implied by cognition, information and visualization connected to an act of remote documentation, establish modern criteria according to which truth is closely associated with vision. "It is true that that

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10, 11 Philibert de l'Orme, *Le premier tôme de l'Architecture*, 1567, The Good Architect (f. 382); The Bad Architect (f. 331)

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Ivi, p. 54.

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See B. Pedretti, *Lunario dell'architettura 5: l'immagine cieca*, in "Casabella", n° 593, settembre 1992.

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Actually in 1657 edition of *Le premier tôme...*, the two xylographies were placed at the end of the ninth book, and only in the successive editions they were placed below the text, at the end of the eleventh chapt. See A Blunt, *Philibert de l'Orme*, edited by M. Morresi, Milan 1997; P. Potié, *Philibert de l'Orm. Figures de la pensée constructive*, Marseille 1996.

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See J. Trilling, critical review R. Sennett, "The conscience of the eye: the design and social life of cities", (New York 1990), in "Design Book Review", n° 23, winter 1991.

which can be seen is rendered visible. But how can an observation that occurs in another place be taken on as certain grounds for an action?"[32] Can the answer be found in the 'blind' faith in the documentative and objective value of the non-human or human testimony that technological means of surveillance and production of images produce?

Why then, as Bruno Pedretti notes,[33] is the so-called civilization of the image relentlessly attracted by the blindness and by the metaphors connected to it? Above all, why is contemporary architecture attracted to the same?

Going back a few centuries one can recall how Philibert de l'Orme (1514-1570) sustained that in the rich supply of sensory organs, especially those of sight, a sort of overgrown sublimation of vision, resided the difference between the good and the bad architect: the two xylographies, in annotation to *Le premier tôme de l'Architecture* (1567),[34] show the bad architect in one [10]. He is dressed in the deceiving clothes of a sage and scholar, yet proceeds with haste, getting caught between the brambles, in a landscape that is punctuated with the presence of bovine skulls – symbolic of obtuseness – , and with a late gothic castle, indication of a style that has been surpassed. The absence of his hands, nose and ears alludes to his professional impotence and to his incapacity for logic. But, the element that is worth noting here is the absence of his eyes, that render him blind to the truth. In the second xylography [11], the good architect is also wearing the clothes of a sage, but in a manner that shows awareness. He is endowed with three eyes: with the first he contemplates God and his past works, with the second he reflects on the present in order to act with wisdom and with the third he predicts the future defending himself from possible accusations and calumnies connected to dealings with work. Here the setting is decidedly classic as symbolically testify by the ruins of a roman arch (the past source of learning), the solid rustic building (the *firmitas vitruviana*), the prayer temple (a place of necessary spiritual refuge) and the domed temple (perfection of the central plan), but also the source of wisdom and Cornecopia, symmetrically placed at the bottom part of the xylography. Today it seems that architectural procedures have lost this sensorial trinity, overcome by total blindness where objects are concerned. Or perhaps the objects' lack of transparency has the same effect, not allowing human sight to pass through them, with sight being considered always more vicarious with respect to technologies of representation, modelling and pre-figuration of reality: turning two the words of Julia Trilling, [35] it seems that contemporary intellectuals, including architects, "...can't use their eyes to see the complexity of life," often denouncing their role of privileged observer, disembodying the act of seeing and that of representation. Is it therefore by choice that

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The building is situated on Main Street in Venice, California.

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See P. Francastel, *Lo spazio figurativo dal Rinascimento al Cubismo*, Torino 1957.

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In particular, see stories “Le Montagne della Follia” (1936) and “L’ombra calata dal tempo” (1936) in H.P. Lovecraft, *Tutti i racconti 1931-1936*, Milan 1992.

a monumental sculpture by Claes Oldenburg (1929) and Coosje van Bruggen (1942-2009) showing a pair of binoculars with lens turned to the ground, was placed in the entrance of the *Chiat/Day/Mojo* building,[36] advertising agency building, designed by Frank O. Gehry (1929).

Can the complexity and multi-stratification indicated by Trilling lead to a shutting down of the contemporary architect's, or users of their works, channels of perception? Are these works so autistic in providing for the 'client' and not the observer, in acknowledging an evaluation of the function of architectural structures and of their superficial action rather than a look at more profound reasons for the way in which they were made?

Signs from architecture and urbanism explicitly indicate that a unitary and cosmogonic vision that can be incarnated and tectonically translated into forms of buildings and cities, no longer exists. Thus objects opacify, in spite of wasteful glass surfaces and of bio-morph configurations: if it is historically true that architecture has always been drawn first and then constructed, as Pierre Francastel's aphoristic affirmation with relation to the Renaissance[37] states, it follows that even the actual urban and architectonic scenario was first imagined and then realized, but according to the way in which human sight has a limited space of survival. In looking at some contemporary architecture it is impossible not to think back – with the eyes of the mind – to the buildings that populate some of H.P. Lovecraft's stories.[38] According to the author they were constructed in a past of which man cannot and must not commit to memory: their unconceivable dimensions, the absurd inclinations of their floors, the repulsive expansiveness of their openings, the non-functional furnishings, the malicious projecting corners, are all elements that describe visually intolerable spaces. It is because they were designed and executed by physiologically abnormal and sensorially deformed pre-human beings. However, with a few exceptions, softening the use of adjectives and without being so dramatic, the same definitions could be used to describe some of the most published contemporary architecture. Past evidence – a form of disparagement of sight on an advertising scale – provided by architectural magazines induce a sort of benevolent narcosis effect on the observer who considers his/her freedom of judgement ever more restricted: yet how many of the illustrated architectural structures belong to the rare genre of places in which the observer is confronted with the limits and of the potentiality of his sight? In which of those spaces can we find ourselves as 'seeing oneself see', reflecting on the physiological and interpretative capabilities of our own sensorial organs?

"...It was a consistency.
I seemed to be able to reach out
my hand and touch it.
It was so intense.
The darkness was so intense..."

/ *Charles Duke Jr.*, Astronaut and member of the Apollo 16 space team.

39

James Turrell was born in Los Angeles, on May 6, 1943, son of an aeronautical engineer of French origin who immigrated to California in the 20's, and of a Quaker woman, from whom he inherited a profound religious belief. In 1965 he obtained a diploma in the 'psychology of perception' at Pomona College. At the same time he developed a strong Interest for mathematics, astronomy and geology, as well as for painting, sculpture and the history of art. For many years his passion for airplanes and photography, passed on from his father, constituted his only source of Income for survival and to fund his Installations. James Turrell's mature work dates to around 1966, when the artist rented the Mendota Hotel, Ocean Park. He used it as his living quarters and studio, transforming its interior into an ideal container for his first installations. In 1968, along with Robert Irwin, he was asked to participate, in the Art & *Technology* promoted by the *Los Angeles Museum of Art* and conceived by Maurice Tuchman: it was then Turrell became in contact with Dr. Edward Wortz, a theoretic physicist afferent at the Garrett Aereospace Corporation, with whom he developed the study of several sensorial deprivation techniques.

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F. Fröhlich, *The location of light in art: from Rembrandt to Op-Art and Light Environment*, in "British Journal of Aesthetich", vol. XI, London 1971, p. 60.

41

G. Panza di Biumo, *Natura, land art, ambiente*, in "Lotus", n°89, Milan September 1995, p. 91.

PART TWO: "A PLACE IN WHICH ONE CAN SEE ONESELF SEE"

If one searches for an answer, I believe one can find it exactly in those expressive circles in which art meets with science and architectural experiences: the most emblematic case is that of James Turrell's[39] work. His installations and environmental scale designs establish intense co-action with the observer who, overexposed to luminous carefully studied stimuli, modifies his own perception of space. The process of interaction with the work pushes us to accept our own visual capabilities, to ask ourselves with greater insistence if that which we are perceiving actually coincides with phenomenal reality: our eye still functions in a Cartesian manner, but now an interpretative effort is demanded of the sentient capabilities of the observer so as to understand that that which he is seeing is his way of seeing. It deals with an hermeneutical approach to the subject of vision and light – from which the former is derived – , that can only briefly be fit into a well established stylistic trend like that of *Light-Environment Art,* whose goal is to submerge the spectator in the radiant and shady flow that is generated by light: in this expressive context, the work, "… does not represent nor cause the light, but is physically made of light"[40].

The compositive nature of James Turrell's installations restore that intangible and unique character that is typical of luminous radiation: such works cannot be purchased, displayed in one's living room or, in the traditional sense, in a museum, they occur. They have the characteristics of a *happening* in which many artists often interact. They are responsible for the production of sounds, noises, and smells that resonate and perceptively envelop the spectator in a fruitive sequence whose goal is to suspend the awareness of self. "This process establishes a relationship between the artist's quest and the environment that becomes the instrument with which to create the piece. This is no longer colour, the brush, the canvas; but walls, spaces, light, openings that lead to the exterior as in the constructions of an architect."[41]

James Turrell's works are highlighted in particular for the use of light and shade as sensorial territories in which man can cancel out his own physiological limits and explore his own interior dimension.

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C. Adcock, *James Turrell. The Art of Light and Space*, Berkely 1990, p. 8.

43

Most of the time, the projector is found on a small platform, suspended from the ceiling by metal chains; in several installations the images are projected through a hole made in the ceiling. Turrell also used slide-projectors with xenon bulbs that draw the behaviour of a punctiform source near with greater precision consequently guaranteeing a more clear and ample projection.

Turell recognized the area of his work in the hazy confines between light and shadow right from his earliest works: in particular, the *Cross Corner Projection* pieces begin a subtle game between the role of the environment and the revealing, or even disoriented action, of light. Some appropriately perforated metallic sheets, in slide format, are projected according to precise angulation, on corners and immaculate walled surfaces that are immersed in darkness. In one case, only one projection is revealed to deal with one solid luminous area, with fading edges; in the other case, a window or an unusual skylight, apparently inundated with brilliant light shows the impossibility to look out from it. And even though the definition of optical illusions doesn't enter into Turrell's poetics, the consternated effect that the appearance of these works provoked was extraordinary. With regard to them, Craig Adcock writes: "The impact of all the *Cross Corner Projections* is a function of their interaction with space. The brilliant light seems to exert a non physical pressure – even though perceptive – on the dimensions and the form of the room in which it is projected".[42]

Turrell created the first installations of this series in some rooms of his studio (the ex *Hotel Mendota,* Ocean Park, California). The rooms were transformed into pure box-shaped forms, with painted white plastered walls and with acoustically insulated ceilings; any windows were walled up. A beam of light, created by a slide projector with quartz halogen bulbs,[43] was directed towards a chosen room, in a given area, creating the illusion of a form in relief, suspended between the floor and the ceiling: in *Afrum-Proto* (1966) one perceives the image of a luminous parallelepiped anchored to the dihedral which is formed by two vertical walls; the illusion that the floating luminous form is real is accentuated by the fact that the observer, shifting within the room and placing himself at a certain distance from the projected light, perceives the alternation of the apparent contour of the parallelepiped in a physiologically correct, even though illusory, manner. A different focalisation of the light image can also create the illusion that a mass is either in the room or outside of it. It can also alter the perception of the exact collocation of the centre of the projection that, in general, is placed along the direction that is defined by the diagonal of the space, precisely in the opposite angel of the room. As mentioned earlier, the relief effect is obtained by channelling the projector's light through a metallic plate that was opportunely perforated: in the case of *Afrum,* the perforation has the form of an irregular hexagon that, if projected on a wall in its entirety, would appear as an enlarged image of its same shape. Instead, directing the beam of light towards the corner of the room "…will have the impression of a mass that seems to behave according

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C. Adcock, *James Turrell. The Art of Light and Space, cit.,* p. 12.

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The *Ganzfeld* is a total perceptive field that produces sensory alterations, that can sometimes even be found while looking at the sky: indeed, "when there are objects in the sky – clouds, aeroplanes, telephone poles, stars – , it seems transparent, but when it is empty and illuminated by sunlight, it is presented as an essentially undifferentiated field of blue whose distance and position is difficult to estimate. ". See C. Adcock, *op. cit.*, p. 137. The *Ganzfeld* can also be interpreted as a 'nothing field', that can appear to be of infinite depth to some observers, or capable to induce an 'internal' hallucination, an image without space or content.

to the laws of linear perspective. When the images are projected into the corners, the ambient light directly reflected from the illuminated area, makes the intersection of the walls that are above and below the images, seem like they are actually placed behind the apparent mass."[44]

Attracted by these forms, hypothetically floating in space, by these 'non-Euclidean shapes,' the observer suspends judgement, now having the illusion of three-dimensional forms, now recognizing their nature of flat images; for Turrell this flexibility of the work to sympathetically react with those who observe it connotes his work as a 'perceptively malleable' art. That is, it is ready to redefine its own territories and those that are traditionally destined to the spectator. This takes place since the same space that hosts the projection sensibly modifies – or at least appears to modify – its own spatial attitude once a *cross-corner projection* appears. With this acceptation, it is possible to find the only potential connection between the 'forms' created by Turrell's works and the virtual spaces portrayed in traditional representative art; both of these create the illusion of a three-dimensional space that does not coincide completely with the phenomenal space. This theoretically quiet and serene interaction between light, shadow, and space has been translated as a work of ambiguous deciphering on the part of its users. In 1980 the artist, along with the Whitney Museum of New York where the work was shown, were sued by numerous visitors who, having been victims of the deception, had reported lesions or fractures incurred due to attempts made to enter the *City of Arhirit*, an installation of filtered solar light that exploited the *Ganzfeld*[45] effect of a total field of vision. This process of isolation of light cut out from common perceptive experience induces a new – perhaps subdued – understanding of the cognitive processes that are normally taken for granted. For Turrell, this sensorial re-awakening, in some ways *Gurdjeffian,* makes 'seeing the act itself of seeing' possible for the observer: in this way, he is on the edge between rational cognition and intuition, between tangible reality and immaterial dream, continuously obliged to evaluate cultural trappings in order to be able to transcend them. According to Turrell, it is also important to have access to the pre-cultural state of vision. When isolated from its context, sight returns to its archetypal and functional role, almost tactile, thanks to which, by observing the blue side of the basin of a crater or by sitting in an almost totally dark space, either an average person, an astronaut or a physicist can experience something similar to that of the amazement of an infant. "The revealing experience lies in the understanding of how our senses are reacting, more than in that which we see. It is by choice that Turrell himself reputedly affirmed that his goal is to continue reconstructing the Platonic myth cavern, until its secret is continuously

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F. Bergamo, *Un altro orizzonte: il progetto dell'Irish Sky Garden di James Turrell*, degree thesis (unpublished), Venice 2005, p. 3.

47

Skyspace is usually made up of a room of a variable planimetric shape, with an open skylight in the intrados of the floor slab that puts the room in direct contact with the exterior. The viewer, sitting on the bench which perimeters the internal space, is unable to make out the ceiling's thickness. This is thanks to the particular creation of the skylight's border. This effect of total perceptive field (*ganzfeld*) gives the viewer the impression that the sky rests directly on the floor slab. See C. Adcock, *James Turrell. The art of light and space*, Berkeley, Los Angeles, Oxford 1990; AA.VV., *James Turrell. The other horizon*, Vienna 1999.

48

R. Bright, *When light is lost, life is lost*, in Id., edited by, "James Turrell Eclipse", Londra 1999, p. 10.

49

As is known, it deals with a space of variable dimensions, totally impervious to light. A small hole is made (stenope) in one of its vertical walls. Its exact function is to capture external light and to project objects that are found outside of the room itself onto the opposite wall to which it is placed. Above all, the *camera oscura* seems to be an instrument that favors observation, that facilitates drawing, allowing for a more precise reproduction of reality: in a few words, to become a mechanical surrogate of the physiological process of vision.

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Paul Klee as quoted in, P. Virillo, *Sight without eyesight*, in AA. VV., "James Turrell. The other horizon", cit., p. 218.

unveiled."[46] For example, this tactile characteristic of sight is revived in Richard Bright's description of the experience undergone in observing the diurnal sky of a *skyspace*[47] entitled *Air Mass* created by Turrell at Hayward Gallery (London) in 1993: "Its colour was so intense: I'd never seen it so blue. I couldn't touch it, at least not with my hands, but I could with my eyes. It had to do with an internal drama. I could sense its changes, while it became increasingly darker. But was that colour only a memory, or perhaps a dream? Now it was black, a black that was so intense that it could make you crazy. I couldn't see the stars when I looked through the opening, but I knew they were out there. But it wasn't an empty darkness: it was full of something that came from the past and it had the potentiality of something that had yet to take place."[48]

In this way, the *camera oscura*[49] in Turrell's work, metaphor for disembodied sight, becomes a place in which our senses are stimulated to the point of inducing a new visual and gnostic awareness in the observer: with respect to the prevailing fruitive model – seconded by modern digital surveillance technologies – within which "the objects now perceive us",[50] here the mineral world of robotized vision is undermined by animal sight. As in the Homeric tale, in which Ulysse's dogs eyes are the only ones to recognize his owner who appeared before the Proci under false examining, so in the Californian artist's subterranean rooms, is it the organic human gaze that demonstrates the fallacy of the Cartesian model of cognition through evidence: in its most pure alchemic meaning, this time sight is so de-valued, that it is restored to the *albedo* of its original nature.

Even though Turrell's work is similar to that of other American minimalist artists who use light as artistic medium – for example Dan Flavin (1933-1996), Bruce Nauman (1941) etc. – , it demonstrates certain aspects that are completely original. Above all, the images have a strong *aural* characteristic. They seem to imply a founding ritual of space, which is based on the revelation or on the removal of light. These works are also noted for the difficulty of representation in drawing as they are all based on the fading out of the confines between reality and imagination and on the ambiguity of perception.

In 1974, James Turrell chose the Roden Crater [12] as venue to express his creativity. From that time onwards it has been the premise for his most ambitious and fascinating work. Roden Crater is an inactive volcano, which is located on the edge of the Painted Desert, in Arizona. This Crater's underground 'body' was selected for the creation of adjoining and totally subterranean rooms from which one could experience numerous celestial phenomena and the alteration of visual and acoustic perceptions. The interest shown by various worldwide research organizations (Nasa, *in primis*), in this almost complete architectural complex, lies

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New York studio *Skidmore, Owings and Merrill* presently deals with the creation of the Roden Crater project executory drawings.

12 Roden Crater view from south-west, Arizona
(© photo by Agostino De Rosa)

in the complex and stratified nature of the concepts of spatial configuration and perception that Turrell's work involves, reinforcing the interdisciplinary nature of making architecture, once again definable as a place where art and science can find mutual correspondences for exchange.

The work is stylistically located in the so-called Californian Minimalist *milieu*. However, unlike works by artists such as De Lap, Mac Cracker and Gray, that created pieces with rigid materials – whose perceptive complexity was derived from cast shadows and from reflections generated by physical forms – , Turrell's works, right from their beginnings, are characterized by images of light that create floating forms composed of intangible materials *par excellence*, that is light. Turrell's intent is that of materializing light, to use it as a physical element and to take advantage of visual perception as a means to understand his art. The integral part of this work is the transformation of the crater into a large-scale work that will be related, by means of light, to the surrounding environment. For the actual projection Turrell turns to the collaboration of architects and engineers[51], while, for that of cardinal and astral orientation of the individual spaces, to the help of archeo-astronomers. Even though it is monumental in dimension and conceptually unprecedented, the Roden Crater project was not conceived to commemorate events of historical recurrences, but wants to be a type of place in which human perception is celebrated. For Turrell, it is the synthesis of years of intense work: actually, here, the artist's goal is to take advantage of studies and ideas that inspired his preceding installations and to use them in this masterpiece in such a way as to be able to benefit from the visual quality associable with natural day and night time light. Light, the cornerstone of the entire project, penetrates the entire interior crater body through openings and tunnels that are almost invisible from the exterior: the various stairs function as bellows of light, the bodies of subterranean pools act as lenses and the tunnels as optical ducts that exalt the images of the Sun and Moon. The form of the spaces, that represent the entire project, is not determined by aesthetic principles, but rather by the space's principle function: that of capturing, directing and conserving light.

The structure was entirely thought out in reinforced concrete even if the use of local natural materials like sandstone, basalt, and volcanic ash is foreseen for the art spaces and pathways. As mentioned previously, the Roden Crater is a natural inactive volcano – which last erupted between 1864 and 1865 – located about fifty miles north east of Flagstaff, Arizona. It is surely the youngest mountain of a vast volcanic region that is still quite active; at one time it belonged to a rich tycoon, owner of the entire estate that, after years of constant negotiations, decided to sell it to the artist. A pre-established route will not exist

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13 Interior view of Alpha tunnel (© photo by Agostino De Rosa)

14 View of Alpha Space (or East Portal) from the Alpha Tunnel (© photo by Agostino De Rosa)

15 View from the Crater bowl of the Alpha Space, Roden Crater, Arizona (© photo by Agostino De Rosa)

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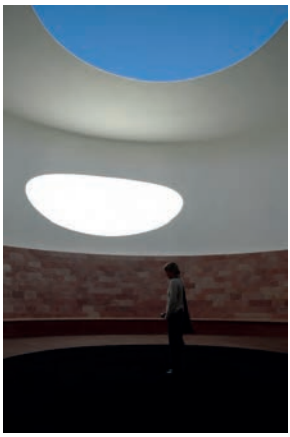
The team, coordinated by Agostino De Rosa, and is composed of architects Francesco Bergamo, Giuseppe D'Acunto, Isabella Friso, Gabriella Liva, Cosimo Monteleone, Alberto Sdegno. Digital elaborations of the *Roden Crater Project* were carried out in the Department of Architectonic Projection, *Dipartimeneto di Progettazione Architettonica* (*dPA*) and the The Digital Architecture Laboratory, *Laboratorio di Architettura Digitale* (*LAR*) at the IUAV University, Venice, between the years 2003-2006. For more details about the Roden Crater project, please see: A. De Rosa, *James Turrell. Roden Crater Project. Geometrie di Luce*, Milan 2006; U. Sinnreich, edited by, *James Turrell: Geometry of Light*, Berlin 2009.

within the crater. Nothing will be imposed as each space will present extraordinary phenomena at every moment of the day and night.

Arrival to the site is an integral part of the project. There are various ways to reach the crater: one can get there from the West, by crossing the flat expanses of the *Painted Desert*, on a road that leads to a gorge situated on the north-eastern side. From there one proceeds on a path that follows the ridge of the fumarole, situated at a height of about seventy-five meters with respect to the desert. From here there is a route that goes up to the slopes of the crater where one can enjoy a progressive sensation of expansion of spatial vision. An alternative and more efficient way to reach the crater would be to get to the Sunset Crater National Museum by car from the North, more precisely from Flagstaff, and head east to the site from there. During this journey, one can observe many mountainous peaks that are part of the San Francisco volcanic park. From the base of *Sunset Crater*, Roden looks like an inclination that gradually descends towards the Painted Desert. Twenty miles still separate Roden Crater from *Sunset Crater*. During the crossing one will come upon several natural parks before arriving at a depression where one is constricted to abandon ones method of transport and proceed on foot. The complexity of these itineraries is important as it provides an articulated temporal and visual scenario that will remain imprinted in one's mind for a long period of time.

The creation of an aviation field for the landing and taking off of small planes has been foreseen. This will provide another way in which to arrive at the site. It will be a way to observe the entire complex in its ensemble from the sky.

This grandiose project has not been completed in its entirety [13-17]. The removal of desert land and of imposing lava obstructions – necessary operations for the construction of the subterranean rooms – demand considerable economic investments, which Turrell meets through the sale of his works. Above all costs are met thanks to generous financing by collectors or by private foundations. The ascertainment of the long period of time that it will take to complete the Roden Crater Project gave birth to the idea of creating an interactive digital model of the entire complex. This idea came about as the result of scientific co ordination on the part of IUAV University of Venice and myself. Critical and documental descriptions – whether from the figurative or techno-scientific point of view – of the role that light, shadow and the reading of celestial phenomena plays in the definition of James Turrell's architectonic spaces will be a result of this combined effort. The outcome of this research, conducted by close contact between the Venetian team[52] and the Californian artist, has been available for viewing in the spring of 2006 in an exhibit at Galleria Gino Valle, Venezia; in a exposition at Villa Panza,



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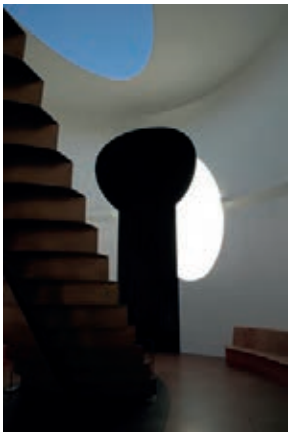


17b

Sound composed by Maria Pia de Vito (voice, live electronics) and Michele Rabbia (percussion, live electronics).

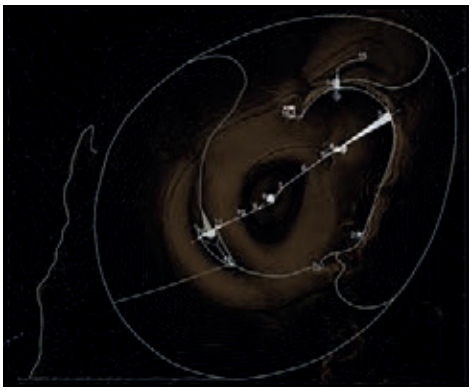
16 Interior view of Crater's Eye, Roden Crater, Arizona (© photo by Agostino De Rosa)

17 Alpha Space (or East Portal), Roden Crater, Arizona (© photo by Agostino De Rosa)

Biumo Superiore, in 2008; and expecially in the amazing exposition held in Palermo, at Galleria Nazionale di Arte Moderna, in 2009. Above all, in addition to digital reconstructions of each one of the individual installations, the unprecedented combined methods of so many findings that were involved in Turrell's work will also be shown. This will define the roles that the project and its geometric representations play in the interior of a constructed space that is situated between architecture tout-court, environmental-landscape and archaeo-astronomy.

The presentations have showed executive drawings, relative to each individual space, on panels where the various relative scientific – astronomical implications will be highlighted in clear and rigorous language. Beyond this, it will offer the spectator the possibility to understand real spatial functioning in relation to cardinal and astronomic orientation. Thanks to three-dimensional physical models created in nylon powders, but above all through the use of high level Info-graphic digital animation, it has actually been possible to virtually move about through the rooms of the Roden Crater project, and in an alternation of day and night time simulations, to discover which constellations or celestial and luministic phenomena to be experience in them. The exhibits also showed a series of documents relative to those that can be defined as historical antecedents of the project. Turrell himself recognizes them as Inspirational sources for his work: the large *khmer* settlement of Angor Wat (Cambodia) the Eighteenth century observatory planned by maharaja Jai Singh in Jaipur (India). Both are shown here in an unprecedented digital and multimedia guise, thanks to which the visitor can ideally 'move' within the interior of the architectural structure that define its spaces. The expositive and acoustic setting[53] – expressly planned – aimed to immerse the user in a unique spatial and sonorous continuum, capable of focusing his attention on particular perceptive experiences altered by light and shadow, in harmony with James Turrell's work. In particular, the characteristics of the rooms [18] from which digital clones were reconstructed are:

North Space is a space that is located in a complex part of the crater: directly connected with the *West Space*, in the west, and with the *East Space*, in the east. It consists of three principle underground elements. The first corresponds to a cube shaped room in which a large square *skyspace* is located. It is similar to the one that Turrell planned for the Italian installations located in villa Litta near Biumo Superiore (Panza and Biumo Collection, Varese); the second consists of a *piazza* from which a large stairway leads to the base of the mountain. Also, from this intermediary place, a curvilinear path under an open sky leads to spaces to which the North Space is connected. The third element, certainly more interesting, is represented by a circular room that functions as a



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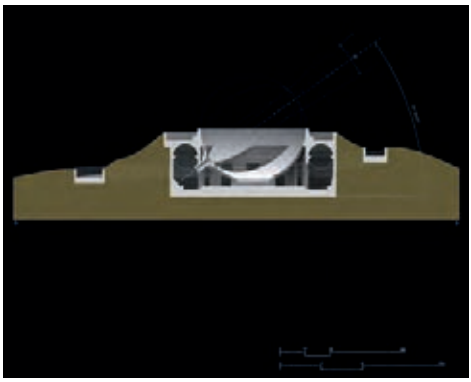

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"*Dark Spaces* are spaces that are completely dark, usually soundless and almost anechoic. They are accessed through a filter-route to then proceed to take a place in a position from which one observes moving projections that are of very low luminosity. The required duration is of at least fifteen minutes. For the first ten minutes the internal visual situation is conditioned by the images of the external environment that were previously memorized by the retina: it deals with an experience to which one usually pays little attention because we generally immediately substitute a 'strong' image with another one. As they vanish, the visual experience becomes softer and the faded projected images begin to become confused with the idioretinal ones until they become progressively defined. These works also serve as instruments to explore the confines between that which one imagines seeing or that which one sees with one's imagination (even in so called 'lucid dreams' that mostly involve the peripheral area of the retina) and that which one sees 'physically'". See F. Bergamo, *Un altro orizzonte..., cit.,* p. 8.

18 Roden Crater project, overall plan

19 Longitudinal cross-section of the South Space: in evidence, the alignment between the telescope and the North Celestial pole

camera oscura: a biconvex lens that captures the light of the stars and the planets was inserted in its cover. It is possible to observe the projection of the surrounding celestial space in the interior of a circular area placed on the ground during the progression of the day. Instead, some subtle lights that come from the Moon, from Mars and from Jupiter, the most luminous planets at the Painted Desert's latitudinal lines, are projected during winter nights. North Space also hosts an Installation that recalls preceding works by Turrell, belonging to the Dark Spaces series,[54] works that directly affect the resolution capacity of a sight organ that has been Immersed In darkness. A large stairway leads the visitor from this last space to the exterior of the crater: its incline is at about a 45° angle and faces the North Star. North Space was planned expressly in relation to this, to indicate the star's apparent and progressive change of position due to the oscillation of the Earth's axis.

West Space occupies a diametrically opposite position with respect to the *East Space* and is solely and directly connected with the *North Space*: it was planned for observing the sunset, in contraposition with the *East Space* that involves the sunrise. This space is composed of three principle rooms: the first is a cylindrical antechamber in which a circular shaped *skyspace* is placed, and serves to capture natural light. One descends towards the second room through a tunnel. It is entitled *Veil-Shallow space*, while next to it is the third and last room, *Sunset Space,* which has a distinctive oval planimetric form. In the *West Space*, the sun progressively fades until its almost total disappearance from the first to the third space.

South Space [19-20] is considered a natural astronomical observatory from which it is possible to see numerous celestial phenomena with the naked eye. *Saros,* for example, is a temporal cycle ascribed to the moto of the motion of the moon Moon. It was discovered in ancient Babylonia and completes itself every 6585,32 days (18 years, 11.33 days) and that is the result of a fortuitous and complex relationship between the Sun, the Earth and the Moon. The configuration of this space permits the prediction of both lunar and solar eclipses sufficient precision. As it is known, we have eclipses when the Sun, the Earth and the Moon are all aligned and the Moon is at such a distance with respect to the Earth that it's apparent diameter results as slightly larger than that of the Sun. When the three celestial bodies find themselves in this position, a small part of the Earth's surface enters the Moon's umbra. It is only from this area that it is possible to see the partial eclipse. During the solar eclipses the Moon projects its shadow on the Earth, while during the lunar eclipse, the exact opposite takes place. The eclipses occur when the three bodies lie on the same plane, that is when they are aligned along the so called 'line of nodes', characterized by the ecliptic intersection – the plane on the

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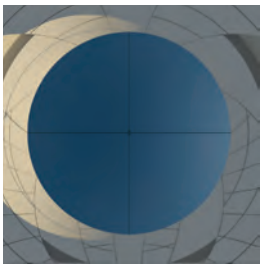

20d

20 Interiors (during the daytime) of the South Space

a-b View of hollow cap form the entrance of access' tunnel

c View of passageway toward the naked-eye telescope

d View of rim's cap, at twilight, seeing toward celestial vault's zenith

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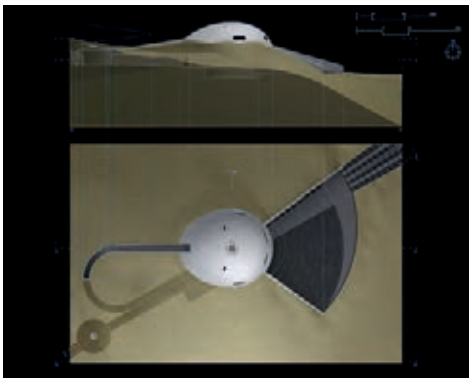
"The *Wedgeworks* series is developed beginning with *Lodi* in 1969, still at the Mendota Hotel, and can be interpreted as a 'three-dimensional" variant of the *Shallow Space Constructions*, imagining the shifting (usually rotating the wall by 90°) and by shortening the partition wall that is present in them. Lamps are positioned behind the corner of the secondary wall and are carefully set. The light that is given off by them creates the clear image of a semi-transparent veil which extends between the corner of this wall and the corner of the principle wall, which is further away and on the opposite side. Such a screen, obliquely 'extended' seems to have the consistency of matter, almost like a colour film that separates two different spaces (on occasion the rear cuneiform appears illusorily illuminated in white), while in reality it deals with only one characteristically uniform space, or at least that is the way one would perceive it if one were to exclude the coloured luminous sources." F. Bergamo, *op. cit.*, p. 6.

Earth's orbit – with the plane of that of the moon. Only in this case can the umbra of the Moon can hit the Earth's surface giving way either to an eclipse of the Sun or to a eclipse of the Moon. A minimum of four to a maximum of seven eclipses can occur each year. It is possible to foresee them with close approximation, keeping in consideration that the 'line of nodes' does not remain fixed but completes its rotation In 18 years, 11 days and 8 hours on the plane of the Earth's orbit. After this period, the Sun, Earth and Moon return to their original positions and, in consequence, the same sequence of eclipses will be repeated. This recurrence is called the *Saros Cycle* and includes seventy-one eclipses: forty-three solar and twenty-eight lunar. Two eclipses, alternated with a Saros cycle, will be visible in different regions of the earth's surface since this doesn't correspond to a whole number of days. The excess of eight hours corresponds to a rotation of the earth of around 120° measured in the longitudinal sense. *South Space* is made up of a circular shaped central room in which a skyspace of the same shape is located. It is so large that it can frame the *zenith,* the point of the celestial sphere that is found to be perpendicular to the earth's surface in relation to the observer. During the more clear days, the portion of the sun that is visible from this opening will assume an intense blue colour. This space is also enclosed by a helicoidal ramp that opens up on the landscape at various levels.

East Space [21-22] is directly connected to the *North Space*, with the *Fumarole Space* to the west and with *South Space* to the south. This space faces the Painted Desert and consists of a complex group of rooms that follow one another in linear succession. The first space that one encounters is slightly cuneiform. From here, stairs lead to a superior level, to a space with a square layout on which a cubic *skyscape* is developed. This space opens out onto the east through a large opening that covers a visual angle of about 60° and is completed by a hypostyle body of water, placed at its centre. From a predetermined position on the stairs, the observer's eye will be at the same level as the water's surface. In doing so, it seems to coincide with the horizon line. If one looks towards the external passage from this *leonardesque* position during the first hours of morning, one can observe the light of dawn gradually intensify. The rays of the rising sun and their reflection in the hypostyle pool will give life to a *Wedgework*.[55] The cuneiform room and *skayspace* were planned to observe the movement of the sun from the day of the winter solstice to that of the summer solstice. At dawn sunlight can pass through a buttonhole made in the space's most tapered part of the wall and be projected on the curvilinear wall placed in front of it.

During the winter solstice (22nd of December), light is only able to penetrate the cube shaped room, while on the day of the summer solstice



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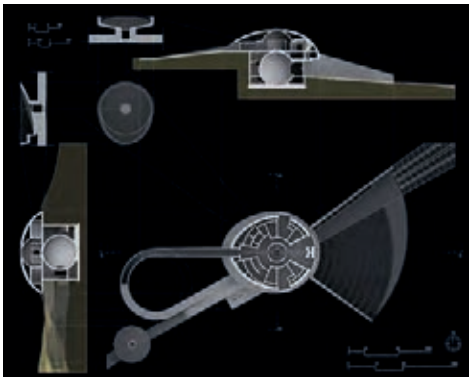

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21 Overall plan and south elevation of the Fumarole Space

22 Middle ground plan, cross and longitudinal sections of the Fumarole Space: in evidence, the heliostatic chamber and the skybath

(21st of June), it can reach and infiltrate any space by means of the various routes and be projected on the wall placed just behind the main stairs. This phenomenon amplifies and modifies the spatial quality of the entire environment. When the sun crosses the East opening, its rays, which are reflected in the water, project changing and reverberating images on the rear wall. The water slightly ripples due to air currents, producing some strange luministic and chromatic effects, even in surrounding spaces. In the mean time, the triangular shaped space darkens due to the progression of the day, and consequently, at sunset, the light will appear like a thin ray of pink and blue: this later phenomenon represents one of the most beautiful open sky spectacles observable from Roden Crater. The two openings also function in such a way that artificial and natural light meet along planes of Intersection now made perceptible.

Fumarole Space is directly connected to the *East Space* and is aligned with the *Sun and Moon Space.* Situated at ground level, it occupies an intermediate position between the two spaces. The architectonic characteristics of this space recall eighteenth century astronomical constructions of Jai Singh in India, especially the great *Samrat Yantra.* It is composed of five principle spaces: the first constitutes a large ramp that transforms into a stairway, following the course of the terrain, and that is oriented towards the summer solstice position – phenomenon that takes place every year on the 23rd of June and represents the moment in which the sun transits in the most northern point of it's apparent annual course. The particular form of this ramp, and especially its curvature, was studied in such a way as to permit visitors to observe the position of the sun during the summer solstice along the south wall, and the point in which the moon appears along the north wall. The second space constitutes a cylindrical room placed just on the inside of the construction: it acts as a lens, projecting through the tunnels, the image of the sun on the large monolite stone of the Sun and Moon spaces. It was also conceived to capture that arch of solar light that happens at sunset whose visibility lasts only for a few minutes, but that inundates the room with an ethereal blue and pink colour. The third and fourth spaces were planned to house some *Dark Pieces.* With this in mind their walls were covered by sand and plaster. Finally, the fifth space was planned to be particularly sensitive to light: a pool is foreseen for it whose goal will be to capture light, but it is also surrounded by a Faraday cage whose function is to filter the sounds that come from the exterior. The Faraday cage is an instrument used in physics to demonstrate the distribution of electricity on the surface of bodies, and is generally made up of two components: a metal cage to which strips of paper are attached, both internally and externally, half way up and an electroscope that connects to the internal surface of the cage through a metal coil.

The goal of this simple electrostatic object is to detect the presence of electric charges. Environmental sounds can only pass through the higher opening of the cage and the space acts as a little telescopic radio. This environment is therefore conceived not only to receive the natural light of the sun, the moon and the stars but also to capture radio waves that are transmitted within the pool: while the water receives this type of wave from the acoustic space, the principle room captures the external environmental sounds. For example, in certain favourable environmental conditions, one can hear the Great Falls of the Colorado River at about four miles east of the Crater. Turrell was inspired by several earthly works like the high reverberation cisterns in Massada and Qumran for the planning of this environment.

The two tunnels, situated on the major axis of the crater, were designed as links but they also function as optical channels that capture and project natural light. The East Tunnel, that connects the East Space with Crater's Eye, has an inclination of about 15° and is rotated towards the east at about 61° with respect to the north: It seems to point to the north-east, in the direction of the rising of the sun and towards the summer solstice. Instead, the west tunnel, that connects the Crater's Eye with the Amphitheatre, is practically specular and faces the southwest in the direction of the point in which the sun sets, towards the winter solstice.

No matter which route one takes within the Crater, *Alpha Space* is the last space that one encounters before entering the *Crater's Eye.* Actually two specular *Alpha Spaces* exist with respect to the eye of the crater and they are positioned at the end of the two tunnels. It consists of a cylindrical room with elliptic layout, in measured dimensions in which a *skyspace,* that is to say a large opening in the cover, of the same form is to be placed. The walls are completely white and reflect different nocturnal and daytime lights; a steep stairway that leads to the ridge is placed in the centre of the room and permits one to take in the progressive change of perspective with respect to the celestial vault and to the horizon. If one directs one's gaze towards the *skyspace* from the interior of the tunnel that leads to the *Sun & Moon space,* constructed with a unique 'key-hole' section, one can enjoy the particular sensation that makes the sky to appear to adhere to the hole in the floor slab covering. As one continues up the stairs, exiting this space, this sky 'membrane' seems to expand and transform into a huge vault above the crater.

Situated precisely at the crater's centre, just above a cistern of underground water, the *Crater's Eye* is surely one of the most Interesting spaces of the entire Turrellian project. Conceived as a reverse concave hemisphere, it functions like a 'naked eye' astronomic observatory. The architectonic characteristics recall those of the observatories built

by Jai Singh at Jaipur in India. Turrell himself affirms to be inspired by the famous Maharajah, in the forms of his architecture: architecture made for viewing celestial events. Indeed, as in *Jai Prakas Yantra,* here as well, one enters from the lowest part of the installation, to then climb and observe the exterior through spherical embrasures in the structure of the basin. The form, comparable to a concave meridian, was designed to permit the observation of several celestial events that involve the sun, the planets and the moon, and the viewing of the eclipse, the apparent course of the sun that seems to change position from low to high. One can position oneself on any of the several platforms that have been planned, depending on the events that one wishes to observe: the lowest ones are for viewing the summer eclipse, the highest for viewing the spring equinox (March 21) and the autumn equinox (September 23), that meet the moment in which the celestial longitude of the centre of the sun is equal to 0° or to 180°, that is to those days in which daylight hours are equal to those of darkness.

The *Sun & Moon* space is connected in the east with the *Fumarole Space* and in the west with the Alpha *Space*. It is a circular space in which the visual axis of the two entrances run perpendicularly to the surfaces of a sheet of rock, of monolithic form, positioned exactly in the centre of the room. Therefore, the space functions like a *camera oscura,* in which the two access tunnels serve to project the images of the sun and moon, from the East and West respectively. Both images remain sharp for only about two minutes: for the remainder of the time *Sun & Moon* will be inundated with a light that generates a *Ganzfield,* uniform and without a focal point. Every 18.61 years, when the Moon reaches its most southerly declination, its image – including its large craters – will be clearly visible within the room, while one would be able to view the projections of the sun two times a year, at the solstices.

Situated at the southwestern base of the Crater, the *Amphitheatre* is directly connected to the second *Alpha Space* and is a multifunctional platform. When there are no programmed representations, it also functions as a simple space of light.

As this brief description demonstrates, the artistic research of James Turrell in the *Roden Crater project* involves multiple disciplines and interests (astronomy, archeo-astronomy, buddism, Zen meditation, ecology, the study of primitive cultures, science, architecture, sci-fi, and the artist's passion for flying), but each of these revolves around an immobile centre, constant and omnipresent: perception, above all visual. It has a way of structuring and de-structuring itself through the controlled use of artificial and natural light. As noted by Theodore Wolff, James Turrell's work allows for several exegetical levels: "….as motivated on

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T. Wolff, *Introduction*, in "Occluded Front, James Turrell", edited by Julia Brown, Los Angeles 1985, cited in C. Adcock, *James Turrell: The Art of Light and Space*, Berkeley 1990.

the aesthetic level; as an accurately calculated demonstration of certain laws applicable to perception and to human cognition; as a demystifying process that strives to augment knowledge of how the relationship between man and his environment functions; as an instrument used to investigate subtle transcendental or metaphysical mental states".[56] Even though Turrell doesn't seem to attribute any mystic-religious significance to his artistic creations, the light archetype traceable to its Quaker roots is strongly connected to them – as the names given to the two renowned *skyspaces*, *Meeting* and *Second Meeting,* by the artist recall – , and to the correlated practises of silence and of the gathering of light.

Light is an instrument intended to expand the confines of perception and to implement knowledge of the phenomenal world. For Turrell, it is not a vehicle of information, seeing that it is information in and of itself. Therefore, the question arises; in the case of similar works, is it permissible to use traditional methods of geometric representation and shadow theories (even through the most sophisticated software for digital rendering) to reconstruct the changing borders of their appearances?

The response should be negative; Turrell's works are un-representable and point out the inadequacy of the idea of a rectilinear propagation of light, and therefore of shadow. Instead they allude to the quantum model that is prevalent today that, non-the-less, has not yet found a coherent translation in graphic terms. Above all those works stimulate the observation of shadowy phenomena all together analogous with that which Is provoked by luminous phenomena, thus suggesting to us, in some manner, to redefine the laws of sight. Perhaps our internal eye, able to read secular stratifications – both physical and metaphysical – of a symbol that Is as naturally iconographic as shadow, has been blinded by a Manichean concept of representation that, illuminating every corner of it's theoretical framework, has answered to rational needs, to a tectonic or mechanical end. In this way we have most likely lost one of the values associated to drawing, that with the precise description of shadow, in a fit of *hubris*, tends to fix the eternal changing motion of the sun on paper or on a digital screen.