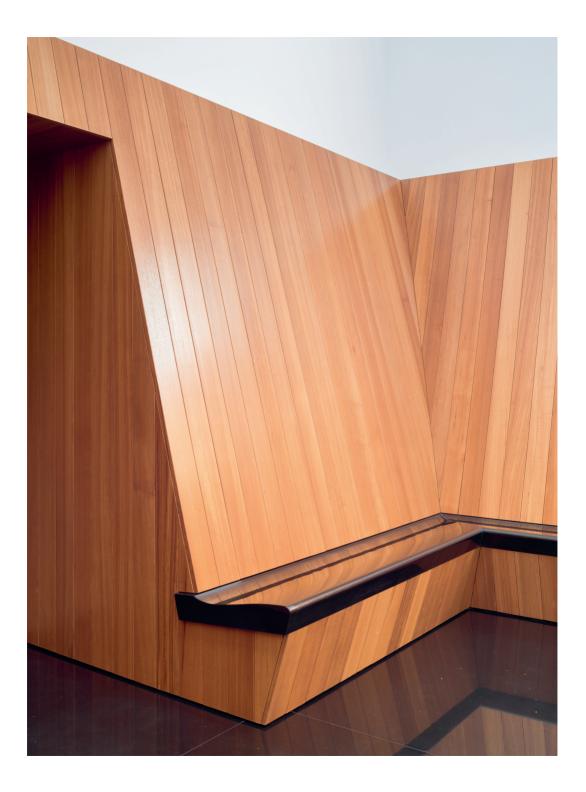
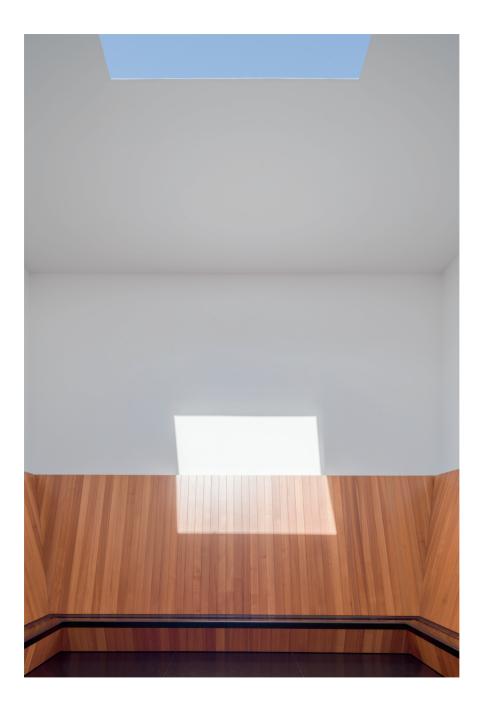
James Turrell Skyspace

VOORLINDEN

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James Turrell, Skyspace in Museum Voorlinden (2016)

PREFACE

Voorlinden and light

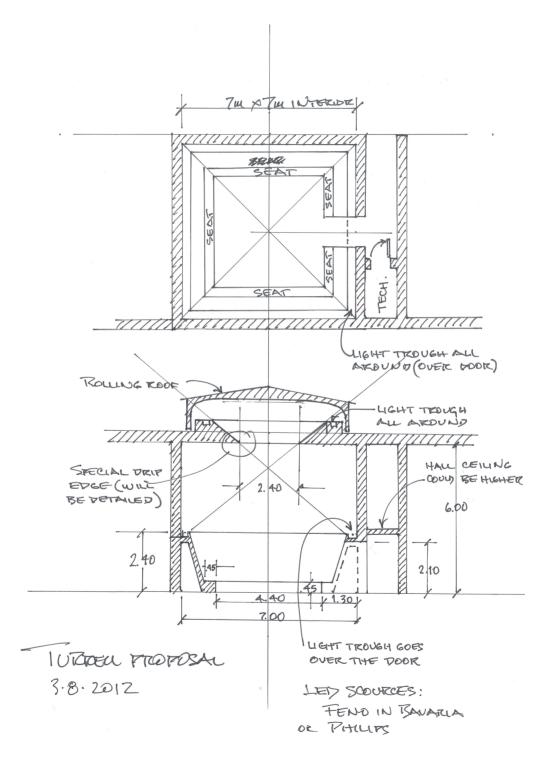


The environment of Museum Voorlinden (2016)

There is something special about the light along the Dutch coast. Precisely what makes it so special is difficult to describe. The light here changes often with the variable weather, turning from deep blue into a misty, pearly grey just moments later. The interplay between clouds and wind lends the rays an active quality that keeps the senses piqued. The omnipresence of water, in turn, adds all the colours of the rainbow to the light.

One senses the presence of that light strongly in the area surrounding Museum Voorlinden. Small wonder that painters of The Hague School found so many subjects for their work in these surroundings. There's the beach and the sea on one side, the polder with its shrouds of mist on the other, and everywhere a vast sky arches overhead. For landscape painting, the quality of local light has always been of paramount importance. When nineteenth-century painters wanted to paint *en plein air*, they travelled to places with remarkable light. This was nearly always in the vicinity of water: for instance, Domburg, Nieuwkoop and Bergen in the Netherlands. An objective comparison of the light in different locations is impossible. But what one *can* do, is get to know it better. The American artist James Turrell (1943) first came to the Netherlands in 1975, when he flew to Amsterdam in his own private aircraft in order to prepare his retrospective at the Stedelijk Museum. He wanted to get to know the light in Amsterdam because he intended to fill the gallery spaces with daylight and light projections. The colours and its rapidly shifting nature make the light in Amsterdam different from that at Turrell's home in Southern California. There, the light is stable: harsh and clear above the dry desert, scattered in a sharp brilliance above the ocean. Even the Los Angeles smog reliably creates spectacular effects of light with smouldering layers of pink and turquoise that seem to glow from within. In 1992, on his second visit to the Netherlands, Turrell wanted to familiarise himself with the light of The Hague, where he was making preparations for a large work in the dunes. This was 'Celestial Vault' in Kijkduin, an artificial crater in which people can lie back, watch the light and observe how the sky stretches up to form a cupola. [p. 30]

Turrell has attuned his work in Voorlinden to the specific light and surroundings as well. Inside the museum, a space has been constructed with a square opening in the ceiling through which you can see the sky. Visitors of the museum can watch the colours of the twilight slowly shift at sunrise and sunset, growing brighter or darker. The interior space is lit, as Turrell has composed a lighting programme in harmony with the transitions of dusk and dawn. The changing light inside makes for a spectacular contrast with the light outside. It is an intense and compelling experience that lasts approximately one hour.



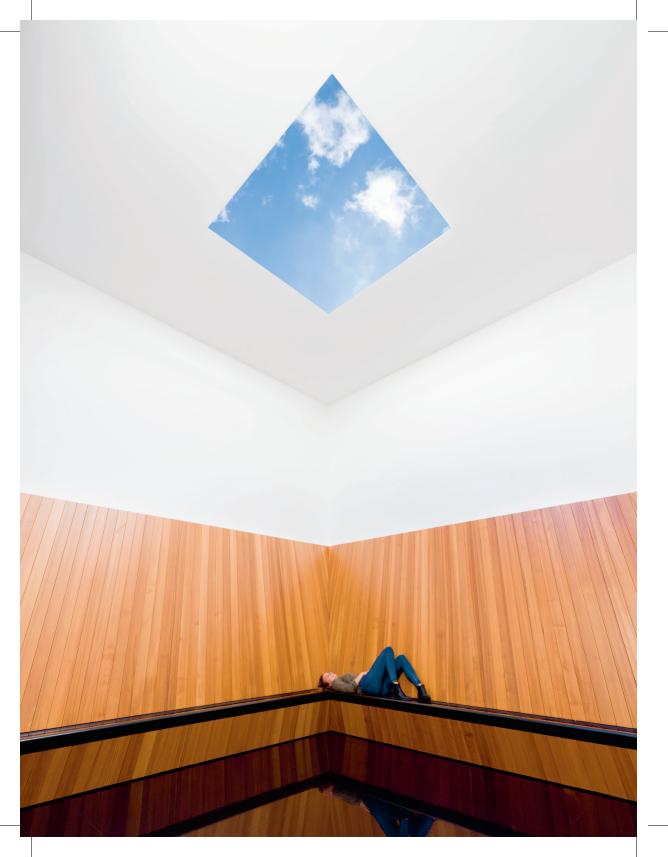
CHAPTER 1.



Currently, Turrell has realised eighty-seven variations on a space such as the one in Museum Voorlinden. The earliest of these dates from 1974, while the most recent one can be seen in Wassenaar. The *Skyspaces*, as this series of site-specific works are called, are spread out all over the world and can be seen in museums, private homes, educational institutions, places of worship, a swimming pool and even a hotel. Each of them is different. The aperture can be square [p. 14-15], round or oval [p. 19]; they may be located at sea, in the mountains or in the middle of the desert; they can be incorporated into a building or freestanding. What's truly important is what the structures have in common. They are always soberly decorated, with benches against the walls and an opening through which you can observe the interplay between the interior and exterior light. The opening has a bevelled edge, creating the illusion that the sky is tumbling downwards before coming to rest on the edges of the skylight, like a single blue plane, almost within reach.

Each of these spaces was made for viewing in the light of dusk and dawn. Turrell has repeatedly claimed that our eyes are made for soft light. [1] Bright light has a blinding effect: our pupils contract when the sun is high overhead. Not only are sunset and sunrise meaningful moments in every culture, it is during the twilight hours when we are able to experience the colours of the sky and light most intensely.

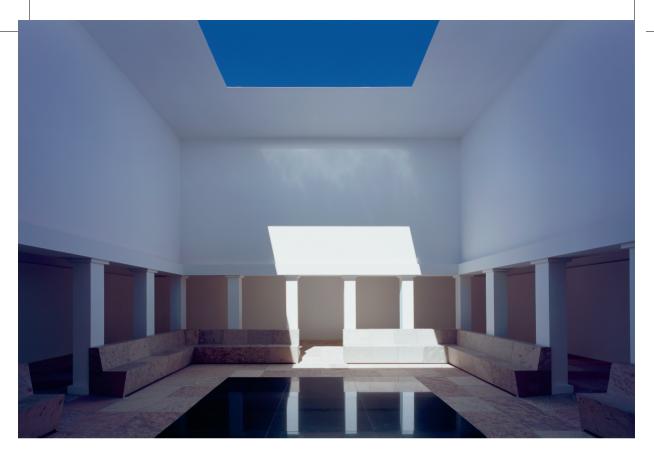
Turrell has composed a lighting programme for his 'Skyspace #88' which takes the twilight conditions in Wassenaar into account. Meteorologists distinguish various phases of twilight, depending on the sun's position below the horizon. With the onset of evening dusk, the light of the sun is scattered weakly through a strongly coloured sky. It only becomes truly dark during astronomical dusk, when the sun is situated 12 to 18 degrees below the horizon. At this point, colours disappear and one is barely able to see. In the morning, the stages of twilight are reversed. The duration of the complete twilight cycle varies, depending on the season and the latitudinal position. Turrell installed and fine-tuned the lighting programme himself in situ; it applies an average that is effective for all twilight periods and weather conditions. [p. 17] Turrell has also taken the weather into account: the



programme is attuned to the fact that a clouded sky is lighter in colour than a clear sky. A domed roof slides over the opening, closing it outside the hours of sunrise and sunset. Lighting elements are hidden in grooves in the ceiling and just behind the benches. When the skylight is closed, the square opening displays a light programme composed solely of artificial light.

The lighting consists of LED bulbs, concealed from sight behind the back of the benches. Turrell used neon tubes for earlier models of the *Skyspace*. but was faced with the disadvantage that these lights go out when dimmed too much. LED lighting offers Turrell the opportunity to make more subtle transitions and achieve a broader palette of coloured light. The effects are breathtaking. A summer evening twilight can start off with a soft, pale blue sky with a last scattering of clouds. That colour can then change into a pastel green or pink, before gradually adopting more vivid hues of blue, green and orange in the course of the evening. The sky can even take on tones of aubergine, yellow and golden brown. But it's not just the colour that changes: the fabric of the light changes as well. Sometimes it's translucent, sometimes it seems almost grainy, and sometimes it's opaque. Deeply saturated colours press the air downwards, creating the effect of a plateglass cover across the skylight. Less-saturated colours allow space for the light to move and give the air volume again. The 'temperature' of the light alternates between warm and cold, while black-and-white contrast exists between a milky-pale evening sky and the shadow-shrouded interior space. Certain sequences are repeated. Much the same way a composer repeats passages in a piece of music, Turrell repeats phrases of light. "I'm playing the music of the spheres", he remarked during the installation in Wassenaar. ^[2] The final chord here is pitch black. Not the blackness of paint on canvas, or even the colour of coal – those kinds of black still reflect light. This black is "a complete black body, absorbing and sucking light. It arises simply out of the contrast between the inside of a space where there is light in relation to a space where there is none." [3]

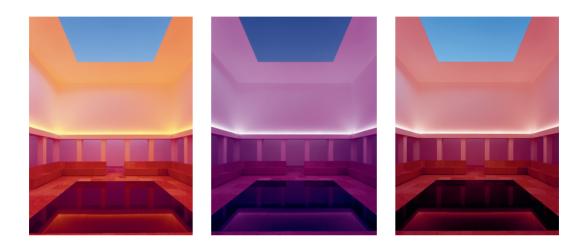
The ability to see colours stems from a complex neurological process that has no direct relation to the perception of light. While this may sound odd at



James Turrell, Unseen Blue (2002)

first, one can also see colours with one's eyes closed, and in one's thoughts and dreams as well. And if one firmly presses on closed eyelids with one's fingertips, there are colours then, too. The colours we see are products of perception itself. According to neurobiologist Denis Baylor, *"the rich colors that we see are inventions of the nervous system rather than properties of light itself."* ^[4] Like proverbial beauty, colour is 'in the eye of the beholder'.

The eye contains sensory receptors – known as cones – to pick up wavelengths of light. We use other receptors – the so-called rods – to perceive the intensity of light, measured in the number of photons reaching the retina. A complex web of neurons transmits the wavelength and intensity of the light to the brain. Specific cells in the eye contain photopigments that



enable the brain to register colour. The same principle applies to colours that arise out of the contrast between artificial LED light and the natural twilight hues. In effect, the eyes themselves *make* these colours. Everyone is familiar with the phenomenon of simultaneous contrast: when a colour changes in appearance as another colour is placed beside it. And we have all experienced afterimages: the contour of an object that floats, for one fleeting moment, across your field of vision in the complementary colour.

Colour contrast has long been a principle of visual art. In fact, Leonardo da Vinci (1452-1519) wrote about it. Painters since him have utilised it both intentionally and intuitively. Turrell, however, doesn't work like a painter. He is not concerned with painterly effects. Although the experience of twilight

in his *Skyspace* is certainly an aesthetic one, Turrell's work is primarily about the sensation of perception itself. *"It is only because we give the sky its color that I'm able to change the color of the sky through the context of vision"*, he says. *"You will notice during the change from day to night an intensity of color that you will find nowhere else. If you then go outside you will see a different colored sky. You color the sky."* [5] His *Skyspace* shows the viewer how his or her own eyes give colour to the sky.



CHAPTER 2.

Light, space and perception



James Turrell, Piz Uter (2005)

A work of art by Turrell is something one must experience first-hand. Its secrets are contained in the act of seeing. This requires no special knowledge on the viewer's part, or being well-versed in contemporary art. It is possible to understand an artwork by Turrell through long and attentive viewing: that's all it takes. Turrell has pointed out repeatedly that it's not about what *he* sees, it's about what the viewer sees. "My work is more about your seeing than it is about my seeing, although it is a product of my seeing." [6] The viewer's eyes colour the sky; the viewer's eyes give shape to the vault of the sky; the viewer's eyes flatten the sky into a plane of colour. For Turrell, that is what it's all about: the joyful perception of one's own seeing. In his earliest works, Turrell employed simple devices to achieve this end. In later pieces, like the one in Museum Voorlinden, he uses more advanced techniques. His earlier work is spare and minimal. The later work is more expressive. But his basic philosophy has remained unaltered throughout the years. "First of all, I am not dealing with an object. The object is perception itself. Secondly,

I am not dealing with an image, because I want to avoid any associative symbolic thought. Thirdly, I am not dealing with a special focal point, either. With no object, image or purpose. What are you looking at? You are looking at yourself looking." [7]

Turrell creates spaces where one can experience light directly and without interference. The aim is not to have the light render something visible – what matters is the visibility of the light itself. Turrell disassociates the light from its source, isolates it and rearranges it in such a way that it can be experienced as a physical presence within a space. The viewer watches the light materialise into a seemingly tangible shape, or how it becomes like mist suspended in the air of the room. Turrell brings the distant airspace closer to the viewer, close enough to touch. It's not possible, obviously, to take hold of light with your hands. Still, on numerous occasions, visitors to one of Turrell's installations have been seen reaching out to touch the light.

By showing us how light can amass volume, change colour or fill a space, Turrell's work explores how we perceive. He wants to make us aware that we are seeing, to feel it happening. Turrell has described his art as 'sensitive', in that that he intends to connect the viewer with his or her own senses. He wants to offer the observer an experience of pure perception, of a nonverbal thought process. "You can feel things with your eyes, observation is much closer to thought than words," Turrell once told Edy de Wilde (1919-2005), director of the Stedelijk Museum Amsterdam, during a flight in his small plane over the Arizona desert. [8]

Turrell's art has increasingly been described as contemplative and spiritual. An hour spent in the *Skyspace* certainly counts as such an experience. While the meditative aspect of his *Skyspaces* is undeniable, what's more important is Turrell's preoccupation with light, space, and perception. ^[9]







CHAPTER 3.

Background and education

James Turrell was born in 1943 in Los Angeles and grew up in Pasadena, California, United States. His father was an aeronautical engineer and worked in education, running the vocational tech department of his son's high school. Purcell senior's interests extended beyond the technical and ranged from astronomy to psychology and philosophy. His father's books introduced Turrell to the ideas that would occupy him later in life. He has kept his father's book collection to this day. His mother attended medical school, but never practiced medicine.

Turrell has often spoken of his early fascination with light, sharing numerous memories. When he was six years old, he pricked pinholes in blackout curtains in an attempt to make his own starry sky. He remembers being fascinated by the light of the television sets emanating from the homes he passed by at night, and how he could figure out what programme was on by seeing the pattern of the light. He remembers how–under his father's guidance–the students at Pasadena Junior College made their own aeroplanes.

INNER LIGHT

Perhaps more importantly, Turrell's mother belonged to the religious fellowship known as Quakers and the artist himself was raised in that faith. Quakers believe that each of us can experience the divine within ourselves. They refer to this spiritual experience as 'inner light'. Turrell remembers how his grandmother used to tell him to "go inside and meet the light." "My grandmother believed the purpose of meditation or contemplation was to wait upon the Lord and meet up with the light inside." [10] Quakers wait, collectively and in silence, for the inner light during their gatherings, which are known as meetings.

Quakers live an austere life, which is why the places where these religious communities gather are soberly furnished spaces with chairs or benches placed against the wall. The designs of the *Skyspaces* greatly resemble Quaker meeting rooms. The second *Skyspace* that Turrell created, after many setbacks, in PS 1 in New York, was titled 'Meeting' (1980–1986), which is a direct reference to the places where Quakers gather. [p. 27]



James Turrell, One Accord (2000)

Although Turrell was initially reticent in speaking about his Quaker background and how it relates to his work, he later began to refer to it himself. [11] In fact, he designed two of his *Skyspaces* especially for Quaker communities. 'One Accord' (2000) in the Live Oak Friends Meeting in Houston (TX) [P. 24], and the 'Chestnut Hill' (2013) in Chestnut (PA), which was intended as "a sanctuary for anyone who values quiet contemplation and stunning visual beauty." [12]

FLYING

Turrell considers his hours of flight time to be just as instructive and meaningful for his work as the time he spends in his studio. He got his wings at the age of sixteen, yet repeatedly insists that he first experienced flight by reading about it. ^[13] The books of literary scholar and aviator Antoine de Saint-Exupéry (1900-1944)—Turrell's father owned rare editions—were especially important to him. ^[p. 25] In his stories, De Saint-Exupéry wrote about his own experiences as a pilot. For instance, he wrote about how variable air pressure can create spaces between airspaces. These spaces are not defined by physical boundaries, but only by light itself. Turrell has frequently described his own flying experience in relation to these spaces within an airspace. *"For me, flying really dealt with these spaces delineated by air conditions, by visual penetration, by sky conditions. These are the kind of spaces I wanted to work with – very large amounts of space, dealing with as few physical materials as I could."* [14]

As a conscientious objector in the 1960s—Quakers are pacifists—Turrell participated in nongovernmental peacekeeping missions during the Vietnam War. Because he already had a license, he was deployed as a pilot. Flying over Southeast Asia (he even rescued a few monks from Tibet), Turrell got to know the architecture, the stupas and temples, and the Buddhist culture of the area during that time. This brought together his interests in flying and spirituality in a unique way at an early point in the artist's life.

The aeroplane is a recurring theme in Turrel's life and work. In order to earn a living, he accepted commercial assignments working as a cartographer and restoring old aircraft. This provided an opportunity to master the craftsmanship which would later enable him to hone his spaces and installations to perfection.

The experience of flying taught Turrell a great deal about perception. High up in the sky, one has a better view; yet depending on the aircraft's position, perception changes. Distances are judged differently, slopes



Illustration from the book 'Le Petit Prince' by Antoine de Saint-Exupéry

appear steeper or flatter, the horizon curls up and bends downwards again with each climb and each descent. And perhaps his most important experience: one can get lost in the sky. Human senses developed for orientation on the ground are useless at great altitude. Both De Saint-Exupéry and Turrell describe how one can become disorientated in the spaces between the clouds, where there's nothing for the eyes to hold on to in the 'white-out' effect of sunlight or moonlight reflected off the clouds. Such an experience is both awe-inspiring and terrifying.

THE PSYCHOLOGY OF PERCEPTION

In 1961, after having finished high school, Turrell attended Pomona College in Claremont to study mathematics. He also took courses in astronomy, chemistry and geology. In the end, he was most interested in the psychology of perception, in which he earned a Bachelor's degree. Turrell studied the psychology of J. J. Gibson (1904-1979), the philosophy of Maurice Merleau-Ponty (1908-1961) and the observations of astronomer Marcel Minnaert (1893-1970) at Pomona College. These three strains of thought were to prove vital in framing his work theoretically.

According to Gibson, perception is a dynamic process. He challenged the notion that looking is a passive registration of the world as projected onto the retina, the same way a camera works. He argued that there is no initial perception that is consequently registered by the brain. Perceiving is a continuous interaction between an active observer and the sensory information from the environment. Humans register the world through all their senses simultaneously. The sum of this information is registered directly by our consciousness and then used to guide our actions. Gibson's premise is that sensory information is directly taken in and registered by the perceptory system itself. Looking is, in itself, an act of thinking.

It's no coincidence that Gibson developed his theories on the basis of pilot-training programmes at the start of the Second World War. When flying, knowing the aircraft's position in relation to its surroundings is a matter of life or death. The pilot must base his or her actions not only on



James Turrell, Meeting (1980-1986)

the instruments, but on his or her perception of water, air and land, rocks, expanses of sand, rivers and pastures as well. The qualities of objects, such as soft and hard, and the texture of surfaces are equally important. As far as seeing is concerned, all this information is communicated through the structure of the surrounding light. [15] In other words: in order to see a thing, the light around it must have a structure. *"To perceive things rather than no-thing, the light must be structured."* [16] What is true for pilots in *extremis* is naturally true for everyday perception as well.

The optical arrangement surrounding us changes when the observer is themselves in motion. Visual perception is therefore a matter of perpetually constructing reality in relation to one's surroundings. In doing so, one draws on remembered earlier perceptions as well, including– crucially–information from other senses. Merleau-Ponty's phenomenology was a revaluation of sensory consciousness and a critique of Cartesian thought. René Descartes (1596-1650) saw man as a pure, thinking consciousness – and as a result Western philosophy adhered to a distinction between body and spirit for a long time. Central to Merleau-Ponty's thinking is the primacy of perception, the immediate experience of life, a term that is closely linked to Gibson's 'direct perception' theory. Merleau-Ponty assigns existential meaning to our perceptions. A human being relates to the world by being a part of it, by moving around in it, by physically and sensorily being in the world. Man and world, subject and object, are not separate entities. Together, they form a unit, to Merleau-Ponty's mind as well – one that is engaged in a dynamic process. Human beings are aware of themselves and of their perception at the same time. If I touch my left hand with my right hand, the left hand is an object. At the same time, my own touching makes it the sensory experience of myself as subject, of myself during the act of touching. [17] Translated to Turrell's work: I am perceiving my own perception.

According to the philosophy of Merleau-Ponty and Gibson's psychology, the world is a reality that we construct using our senses. Seeing is not a passive registration of visual stimuli, but rather a nonverbal form of thinking and knowing.

Minnaert was a physicist and astronomer who conducted groundbreaking research into the luminosity of stars. He also used the knowledge he gained to make his discipline accessible to a wider audience. In his three-volume standard work 'The physics of the free field' (1937), Minnaert explains the laws of nature based on everyday phenomena, things anyone might encounter during a stroll in the countryside or a walk through town. For twenty years, he methodically recorded his observations, documenting them in 'walking and perceiving' journals. He supplemented these observations with his knowledge of astronomy, biology, geography and meteorology. In the first part of his trilogy, 'Light and Colour in the Outdoors', Minnaert describes the myriad manifestations of reflection, refraction and curvature of light in the landscape. He lists



Minnaert's diagram and explanation of the "celestial vault"

the various changing colours of twilight and explains why it is difficult to judge distances. He even mentions glowing plants and stones. For Turrell, the English translation of the first volume of Minnaert's work was more than an exercise in popular science. In Minnaert, he recognised someone who loved—and sought to understand—the sensual opulence of light. [18]

In his book, Minnaert discusses the phenomenon of the apparent flattening of the dome of the heavens. Minnaert asserts that while we do not perceive the sky as an infinite space above us, we don't quite see it as a half-sphere either. Instead, we see the sky as a vault whose height overhead seems less than our distance from the horizon. Turrell's work in Kijkduin is based on this phenomenon: the sky above us has a shape that changes relative to our position. [p. 29] When we stand up, the sky becomes flatter towards the horizon, and when we lie down it becomes more domed. What the viewer experiences in Kijkduin—and then perhaps consciously realises for the first time—is that the sky, due to the refraction of light in the atmosphere, presents itself to us as an infinite space. And that the shape of the sky changes as we move. In other words, the shape of the sky is a construct of our perception. [p.30]

ART EDUCATION

At Pomona College in the 1960s, Turrell had encountered the new territory being explored in the American visual arts. He has vivid memories of a John Cage (1912–1992) concert, saw a retrospective of Marcel Duchamp's (1887–1968) work and attended happenings by Claes Oldenburg (1929). It



James Turrell, Celestial Vault (1996)

became increasingly clear to him that art was the best medium for his ideas. *"I remembered feeling that this was the arena."* [19] In 1965, after having read an advertisement in the magazine *Art Forum*, Turrell enrolled at the University of California in Irvine. This was a relatively new university, offering an adventurous curriculum. Here, Turrell intended to study art and art history.

While Turrell attended U.C. Irvine for only a semester and a half, eventually earning his MFA from Claremont in 1973, this brief period was enough for him to come into contact with up-and-coming members of the California avant-garde, and with established artists and curators who helped him gain entry into the Los Angeles art scene. Turrell took classes with Tony DeLap (1927), David Gray (1928) and John McCracken (1934-2011), whom he befriended. Turrell admired the 'presence' of McCracken's sculptures but disliked the polished and seductive finish of the artworks. This socalled *finish fetish* was characteristic of West Coast art at that time. He took courses in art theory and art history with Walter Hopps (1932-2005) and John Coplans (1920-2003), who were not only university lecturers but also curators at the Pasadena Art Museum.

THE ART OF LIGHT AND SPACE

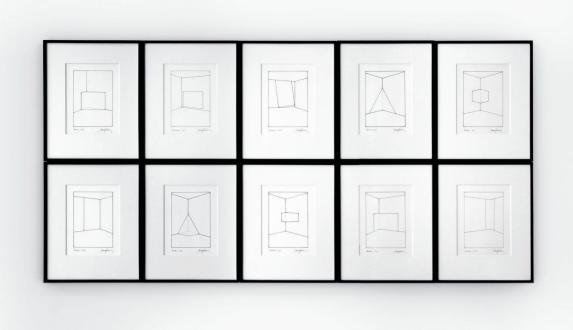
The visual arts didn't exactly feature prominently in the California of Turrell's younger years. Culture was dominated by advancing technology, the latest developments in space travel and the entertainment industry in Hollywood. This wasn't necessarily a disadvantage. "Californian artists aren't burdened with an artistic tradition," Edy de Wilde wrote. "They don't feel hindered in their expression by comparisons putting them into perspective with the art of previous centuries." [20] "[...] one thing about Los Angeles is that it was tasteless", Turrell has said, "and that is freedom because it has no barriers. You need to have a tasteless city, and that's the problem with New York – a little too much taste. It is taste that is actually censorship. L.A. did not have it, and it was a great place because you could do anything in it." [21]

Far away from the European artistic tradition and the good taste of New York, West Coast artists were free to follow their own paths. In mid-1960s California, artists searched for new and individual means with which to express themselves. They experimented with unusual materials such as fluorescent light, gas, polyester and plexiglass. They used volatile and variable elements such as light, shadow, time and space, sound and silence, fire and smoke. Most of the time, their artworks were impossible to transport or exhibit in galleries. Their work was labelled 'the art of light and space'. Besides James Turrell, the most important exponents of this movement were Robert Irwin (1928), Larry Bell (1939), Doug Wheeler (1939), Eric Orr (1939-1998) and Maria Nordman (1943). While they were familiar with one another's work, the artists didn't belong to a formal collective. [22]

Although the Californian art of light and space followed its own trajectory, it had many aspects in common with the art of the 1960s. At that time and place, like in the 1960s, the accepted notion of art became the subject of debate and people started to question what actually constitutes a 'work of art'. Some began to resist the notion of art as a unique and marketable commodity. The traditional, physical work of art—painting or sculpture—disappeared from the forefront of art for several decades. Art dematerialised; ideally, the tangible object was dispensed with entirely. Conceptual art no longer dealt with form and material, but with ideas and meaning. Artists wrote texts, took documentary photographs, made short films and experimented with video. Artworks became theatrical occurrences through happenings, actions and performances. In land art and installation art, a piece became part of the place where it was made or displayed.

Light art aligns with the conceptualism of the 1960s because both tend towards the immaterial. They also differ in important ways: in light art, the sensory experience is paramount, whereas in conceptual art, the idea and meaning prevail. According to art historian Tony Godfrey, language is the basis for understanding conceptual art. ^[23] Turrell's work is not preoccupied with meanings in search of articulation – it's about nonverbal, immediate perception. Light art was considered—especially at that time—to be related to minimalism, New York art and art from the East Coast of the U.S. in general. It involves simple, highly reductionist objects and clearly outlined forms that create tension between a work of art and its surroundings. The art is direct, with a strong presence and a determinedly material aspect. The West Coast had its own distinct version of minimalism. Works by Turrell's teachers—McCracken, DeLap and Gray—were used to illustrate the very texts that coined the term 'minimalism'. Yet these minimalists also deviated from the rest: the forms in their work might have been simple, their contours and materiality were obscured by the reflection of light in the *finish* of the materials used: gas, plastic, stainless steel and glossy paint. "The seductive surfaces and colors of the West Coast works, disqualified them from orthodox Minimalism; yet, like the Minimal work, these were statements reduced to an essence." [24]

At Irvine, Turrell started to work with light in his own way. He experimented with gas burners but was unable to control the fire effectively. The play of the flames was too visually dominant and too obviously bound to a source. Turrell was interested in the perception of light itself, apart from the heat and dynamic motion of the fire. He then came up with the idea of using projectors. Turrell often recounts, with obvious pleasure, how he tended to watch the beams of light coming from the slide projector in a darkened auditorium during art history classes, instead of looking at the works of art being projected onto the screen. It wasn't the pictorial tradition of the light that he was interested in: it was the light itself. A stock of ideas



James Turrell, Projection Drawings I-X (1967)

The period during which Turrell formulated his artistic vision and found the means to shape the light spanned roughly a decade, between his first exhibition at the Pasadena Art Museum in 1967 and his second exhibition at the Stedelijk Museum in Amsterdam in 1976. During this time, he built up a stock of ideas large enough to help him create his extensive oeuvre. Even his earliest experiments reveal the theoretical core found in his later work; nearly all of Turrell's later works have their own precursors, variants and prototypes.

AFRUM

'Afrum' (1966) was Turrell's first work involving projectors. [p. 36] The piece consists of two bright beams of intense white light projected across one another so that they intersect at a right angle, causing a floating 'cube' to appear. The work acquires volume through the insertion of specially-cut templates in front of the bulbs. These create the effect of the cube having a fixed shape, and even mass. It's astonishing to see the cube dissolve as one walks towards it, only to see it take shape again when one walks away.



This is no optical illusion, like when a painter uses a *trompe-l'oeil* to show the viewer something which isn't there. "When you see surfaces or borders, they are really there", Turrell has said. [²⁵] It's not his purpose to deceive the eye, but rather to force the eye to perceive consciously. Just as the cupola of light overhead changes shape as the observer changes position, the cube changes as one moves around the space. Up close one sees planes of light, while from a distance a fixed form is visible. One's own perception transforms light into volume.

In this, his first work, Turrell was already exploring the relationship between the perceiver and his or her perception. In his very first experiment with projected light, he searched for a way to isolate the light from its source so that it could be viewed as a pure current of energy. He succeeded in lending haptic qualities to the light here as well.

LIGHT PROJECTIONS

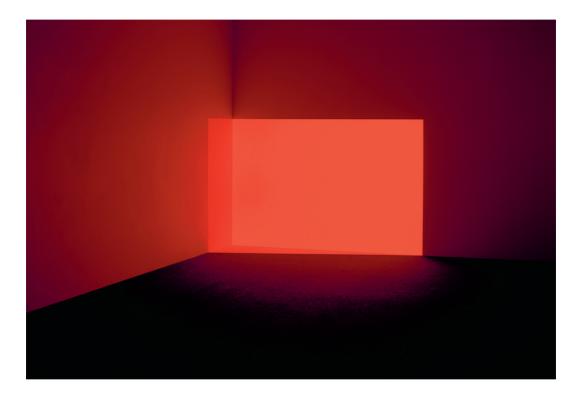
Turrell left U.C. Irvine without a degree in late 1966, as the urge to pursue his visual research independently was simply too overwhelming. In November of that year, Turrell rented an empty building, the Mendota Hotel in Ocean Park, for his experiments. He sealed the rooms he wasn't living in, making them fully daylight-proof. He applied smooth plaster to the surfaces of the floors, walls and ceilings and painted everything white. These immaculate spaces provided the optimal conditions in which to continue developing his projections.

Turrell used virtually the entire subsequent year to experiment with new ideas. After 'Afrum', he continued to explore angled, cross-corner projections. [p. 35] He tried out various sources of light and templates, utilising coloured light as well. This resulted in a series of variants, each with a different volume and angled position relative to the corner. The artist didn't actually implement each variant, however – some of them he only sketched. This series of cross-corner projections was followed by a series of single-wall projections where he simply projected a rectangle of light on a wall. This dispensed with volume, but allowed sections of the wall to seemingly dissolve into light, creating a kind of indefinable space where the rays struck it. Sometimes the light seemed to linger in front of the wall like some nebulous veil. It becomes difficult to localise the exact position of the wall onto which the light is projected. Here too, the projected light hovers somewhere between a fixed shape and empty space.

Turrell's light projections soon began to garner attention. Although he had only recently begun his career as an artist, thanks to the intercession of his teacher John Coplans, he was offered an exhibition at the Pasadena Art Museum. There, he showed three projections, among them a new version of 'Afrum'. Despite its modest nature, the exhibition was reviewed in major art magazines including *Artforum* and *Art International*. Even *Newsweek* wrote an article about Turrell. His reputation as an up-and-coming talent was assured. The Italian art collector Count Giuseppe Panza di Biumo (1923-2010) and Edy de Wilde visited Turrell in his studio. De Wilde immediately invited him to participate in an exhibition in Amsterdam, together with Robert Irwin and Doug Wheeler.

For most artists, such an auspicious start would mark the beginning of a skyrocketing international career. Yet Turrell quietly withdrew to his studio instead. He felt the moment wasn't right for an exhibition in a leading museum and turned down the offer, citing a desire to spend more time on further research.

For his next series of experiments, Turrell began to work with double walls. He placed a panel or partition in front of the wall of his studio, leaving only a narrow crack open at the edge. He then fitted the back of the panel with fluorescent tubes, whose light could enter the space through one or more of the small gaps. These works became known as the *Shallow Space Constructions*. In 'Ronin' (1968), the first piece in the series, light pours out into the space from behind the partition, creating the illusion of a new space opening up. In other iterations, for example the work 'Acro', the panel itself seems to bend. [p. 39] When the light enters along all four sides, the partition appears to float and, at times, to be transparent. In 'Rayzor' (1969), one of



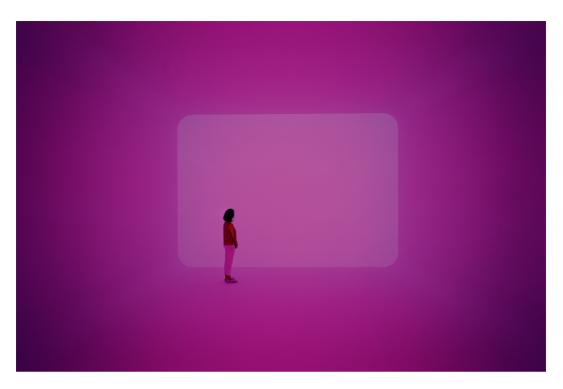
the last *Shallow Space Constructions*, Turrell placed a panel in front of a tall window, allowing both natural and electrically-generated light to enter the room. This last work proved to be an overture for a new development.

THE MENDOTA STOPPAGES

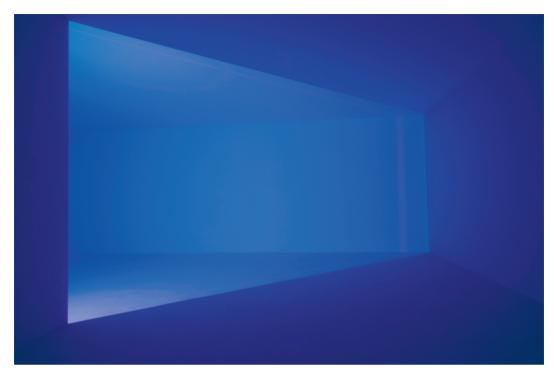
After having worked in the dark for some two years, Turrell now opened the windows once again. While he was really only after a bit of fresh air, in pulling down the partitions, he discovered that the incoming light possessed unexpected qualities. He started to investigate these light effects by making cut-outs in the walls and windows. To maintain control over the light of the sun, the moon and the city by night, he arranged the works in his new series into a specific order. By uncovering or covering an opening at regular intervals, he was able to repeat certain effects. The sunlight during the day created works that resembled his light projections. At night, the reflections of traffic lights, headlights and neon signs would fill the spaces in his studio; this work was of a kind that now appeared in Turrell's repertoire for the first time. The entire building was transformed into a single, all-encompassing installation.

The 'Mendota Stoppages', named after the traffic lights in front of Turrell's door, could only be shown by making the building accessible to the public – so that was the artist's next step. At scheduled times, usually at sunset or sunrise, he would guide his guests through the building for approximately an hour, in a kind of performance. Panza di Biumo remembers how Turrell would start these tours by asking his guests to sit down, be still and allow their eyes to adjust to the darkness. He would then uncover openings and slits through which the light would disperse and linger on the wall, assume volume, change colour or remain stable instead. Some light artworks were bright and clear, others created a vague mist that hung mid-air in the space.

Panza also remembers how "the colour clearly wasn't painted-on, so pure, with such an even tone." [26] Turrell never applies colour to the walls of his installations, only titanium white. "If the color is in the paint on the walls, [...]







James Turrell, Wedgework III (1969)

the color will tend to ride on the walls. But if the color on the walls is white, [...] then the light is allowed to enter the space riding on the light, and that color has the possibility of inhabiting the space and holding that volume rather than being on the wall." ^[27] The light remains suspended in space—in Turrell's poetic words, it 'inhabits' the space—like a form of consciousness that the viewer experiences bodily.

In creating the 'Mendota Stoppages', Turrell worked with outside light in direct relation to an inner space for the first time. The interior, the viewing space, is sensitive and susceptible to the outside light: *a sensing space*. Together with the light projections, the light spaces constitute the building blocks of Turrell's oeuvre.

ART & TECHNOLOGY

In late 1968, Turrell participated in the *Art & Technology* programme organised by the Los Angeles Museum of Art. This programme paired artists with renowned American companies, the idea being that the companies' know-how and facilities would enable the artists to create work they could otherwise never have realised. Some twenty companies took part in the programme, in which Walt Disney cooperated with Claes Oldenburg and Andy Warhol (1928-1987) was linked to Cowles Media Group. The results of these collaborations were shown in an exhibition at the museum in 1971. ^[28]

For Robert Irwin, the programme offered an opportunity to brainstorm with engineers for solutions to the technical challenges he faced in creating his abstract paintings. These paintings were in line with Californian minimalism: painted discs of aluminium and plexiglass that, through strategic lighting, seemed to dissolve into the exhibition space. Still, Irwin was more interested in the characteristics of perception itself; he thought about aiving up painting to concentrate on other media. ^[29] At Garrett Aerospace Corporation, he was given the opportunity to meet with scientists of the human sciences department. Here, as part of NASA's planned Apollo missions, researchers investigated the sensory perception of astronauts in space. His contact was Ed Wortz (1930-2004), a psychologist whose field of study included the perception of space, light and sound – including how these change under extreme circumstances such as weightlessness. Irwin invited Turrell to these meetings. The two artists had met the previous summer and Irwin had visited Turrell in his Mendota studio. From that point on, they often exchanged ideas.

Unlike other artists, Turrell and Irwin didn't intend to make new work: their primary concern was gaining new knowledge. After extensive deliberation, Wortz, Turrell and Irwin decided to focus their research, by means of experimentation, on what is known in psychology as 'sensory deprivation'. This is a situation in which there are no, or very few, external stimuli present to which one's perception can respond. They began putting their plans into action in January 1969, with Turrell documenting the results in a notebook. The idea was to build an installation combining a soundproof chamber with a room in which a Ganzfeld effect had been created. [p.41] A Ganzfeld effect is a visual field of homogenous light, devoid of any visible structure, in which the eyes have nothing to discern or use for orientation. This effect can be reproduced by taping halves of table tennis balls over one's eyes and shining white or coloured light on the outside. Wortz and his team developed larger versions of this experiment using plexialass half-alobes that could be placed over the subject's head. The result was a completely unstructured space that deprived the viewer of his or her ability to assess depth. The *Ganzfeld* effect had been widely known to psychologists for some time. The German psychologist Wolfgang Metzger (1899-1979) had researched this phenomenon as early as the 1930s. The psychologist Gibson based his theory on Metzger's research: light requires structure in order to make objects visible. And the Ganzfeld effect was also known to apply to the structure-free space between clouds where pilots could get lost.

The soundproof chamber absorbed all soundwaves while preventing outside sound from entering. Such a space can be described as a kind of auditory Ganzfeld effect: it offers the ear no 'grip' or point of focus for orientation. This room, too, gives the observer the impression of being in an infinite, unfathomable space. The soundless room and the Ganzfeld effect were connected with each other through interstices intended to make the viewer more receptive to the ensuing forceful experience of auditory and visual deprivation. The entire installation was developed for the purpose of directing the consciousness towards one's own perception. Lacking external auditory and visual stimuli, the nervous system starts to produce them by itself. As the artists put it: you can hear yourself hear and see yourself see. In his report of the Art & Technology project, published by the museum, Turrell described the purpose of their collaboration as follows: "Allowing people to perceive their perceptions – making them aware of their perceptions. We've decided to investigate this, and to make people conscious of their consciousness." [30]

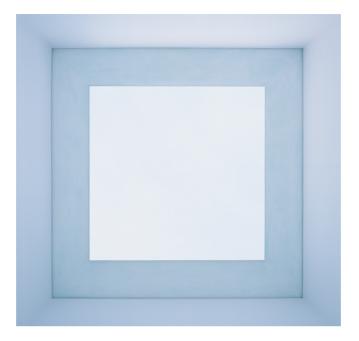
Although Turrell and Irwin worked towards a museum presentation of their installation, it was never realised. Still, for Turrell, his participation in the *Art & Technology* programme proved definitive for his work. For him, the programme wasn't about art itself, but about exploring human perception as the subject of art.

INSIDE AND OUTSIDE

The Art & Technology programme had allowed Turrell to deepen his theoretical knowledge. Once back in the Mendota Hotel, he continued his research into practical artistic means. Working with light poses its own specific problems: it can't be moulded like clay or chiselled like stone. In order to shape light, Turrell would need to develop his own set of instruments. After opening the windows of his studio, Turrell continued to study the relationship between inside light and outside light. He made holes in the roof and walls of the building. Of the works he produced as a result,



James Turrell, Aten Reign (2013)



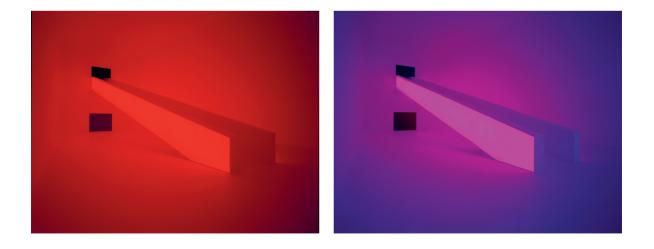
James Turrell, Skyspace #1 (1974)

Skyspace and *Skylight* represent the most important types. In the case of *Skylight*, the piece is not concerned with the threshold between inside and outside. Instead, the light enters through a partially obscured opening in the ceiling, floods into a space below and fills it. Turrell compares the result to a forest where the light enters through the canopy and is scattered on the ground, illuminating the space below the foliage in the process. In his *Skylights*, the incoming light is enhanced by the addition of contrasting fluorescent light.

While working on the *Skyspaces*, Turrell also began a series of works for which he connected two interior spaces, without external light: the *Space Division Constructions*. [P.47] Using a wall with a rectangular opening, he subdivided a space into two parts. This preserved the idea of a viewing space around the observer, and a sensing space to house the light. Other

variations on these constructions exist as well. In the best-known versions, which he developed in the mid-1970s, the sidewalls of the viewing space are illuminated by low-wattage incandescent bulbs. What they have in common with the *Skyspaces* is the rectangular opening resembling a coloured, flattened plane. It's only after one gets closer and one's eyes have adjusted to the darkness, that one can see how this surface recedes to become a space filled with even, homogenous light. It is a space whose depth cannot be judged, a space that holds on to the light like a hazy mass: a *Ganzfeld* effect. More recent iterations allow you to walk back and forth between the two spaces, rendering the viewing space and light space interchangeable.

During the period of the Mendota studio, Turrell produced two more important prototypes for artworks combining projected light with the ambient light of a space: the *Wedgeworks* and the *Veils. Wedgeworks* were born out of the *Shallow Space Constructions* when Turrell placed a slanted partition wall in the space. This resulted in a triangular wedge of light, creating the illusion of a wall. [P.42] The light in the *Veils*, on the other hand, falls diagonally from above like a veil or a curtain. They are in fact *Wedgeworks*, turned 45 degrees.

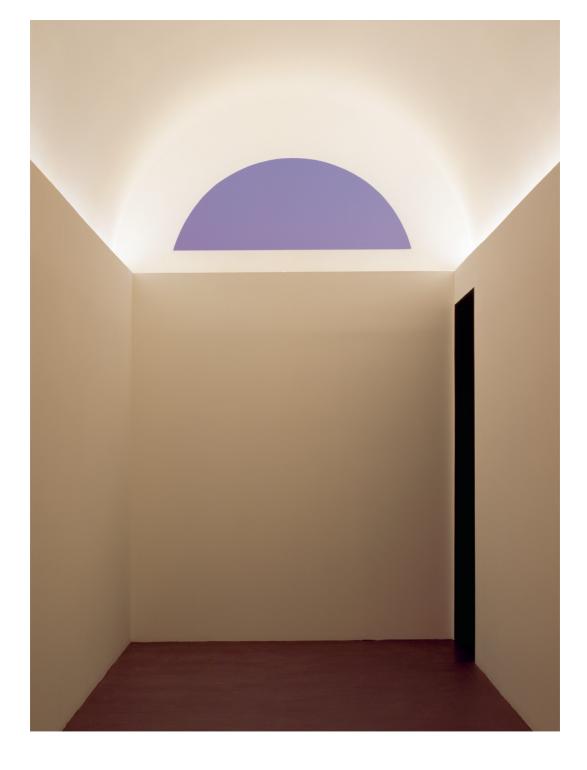


James Turrell, Bridget's Bardo (2009)

Turrell first went public with his work in the mid-1970s. He installed two pieces in Panza di Biumo's villa, as permanent fixtures in the stables where Panza housed a collection of light art: 'Lunette' and 'Skyspace #1'. Both works had direct predecessors in the Mendota hotel. 'Lunette', installed in 1974 and later in 2005, consists of a half-round window, high up at the end of a barrel-vaulted corridor. [P.49] The window can be opened at twilight. Turrell mounted neon lamps in the hallway; their soft fluorescent colours contrast with the outside light. 'Skyspace #1' is a small square room with a skylight, once again combined with fluorescent light. [P.46]

Panza had bought six works from Turrell as early as 1972, demonstrating his great faith in the artist. The purchases were in fact based solely on sketches and the collector's visit to the Mendota studio. De Wilde shared that faith as well. On the basis of their conversations and visits, he gave Turrell his first major exhibition in the Stedelijk Museum Amsterdam in 1976. It seems De Wilde, too, was willing to take a risk on an artist whose reputation was thus far confined to the underground scene.

Turrell exhibited various projections in Amsterdam: *Wedgeworks* and *Shallow Space Constructions*. The latter installation, four cabinets with daylight entering through layers of coloured paper, made a particularly big impression. The cabinets were Ganzfeld spaces, filled in turn with turquoise, red, purple and violet light. Although that light varied along with the outside light, *"a fathomless space, a space where light is suspended like some kind of mass"* remained visible. [31] The visitor experienced a different colour sensation in each room: the hue of each cabinet was influenced by the colour of the previous one. By walking through the rooms in reverse order, different colours could be observed. *"What happened with that series of pieces is that the color was essentially manufactured perceptually,"* was Turrell's explanation. [32]



James Turrell, Lunette (2005)

FORMATIVE YEARS

Turrell's formative years came to an end with the presentations in Varese and Amsterdam. Around the same time, the Mendota building was sold and he was forced to give up his studio there. Armed with the artistic vision and practical means he developed at Mendota, Turrell has built an oeuvre characterised by both a great deal of variation and a strong internal cohesion.

Turrell remained faithful to his basic ideas about light, space and perception at all times. He continued to display new and surprising variations on his projections and light spaces in an impressive series of exhibitions, both large and small. In most cases – as in Amsterdam – the artworks were made specifically for a particular exhibition. The same is true of the Kunstmuseum Wolfsburg piece, in which the visitor slowly descended along an illuminated staircase towards an enormous light-filled space: a *Ganzfeld* effect, combined with a *Space Division Construction* of equally enormous proportions. Or the Guggenheim museum, where Turrell filled the famous ovoid spiral staircase with slowly pulsating light that seemed to expand and contract. [P.43] Turrell also implements this pulsating, slow light in commissions for the lighting of major structures, such as the train station in Zug, Switzerland, where the advancing evening twilight is transformed into a slowly breathing, luminescent mass. [p. 51]

For these later works, Turrell uses the latest lighting techniques. He has always had an interest in technology. He has used lamps with tungsten electrodes, metal wire, halogen, gas and now—for the most part—he uses LED technology. What used to take the artist hours of trial and error, can today be achieved easily using a computer. His most recent works, such as the *Holograms* and the *Wide and Tall Glasses*, are only made possible by the latest light techniques. Design plays an increasing role in Turrell's work as well. Yet even these newer works are, in essence, advanced variations on earlier pieces. The series *Perpetual Cells* and *Dark Spaces*, for instance, are direct products of the experiments with sensory deprivation in the Art & Technology project. For Turrell, technology is never more than a means to an end: *"It doesn't tell you where to go."*









CHAPTER 5.

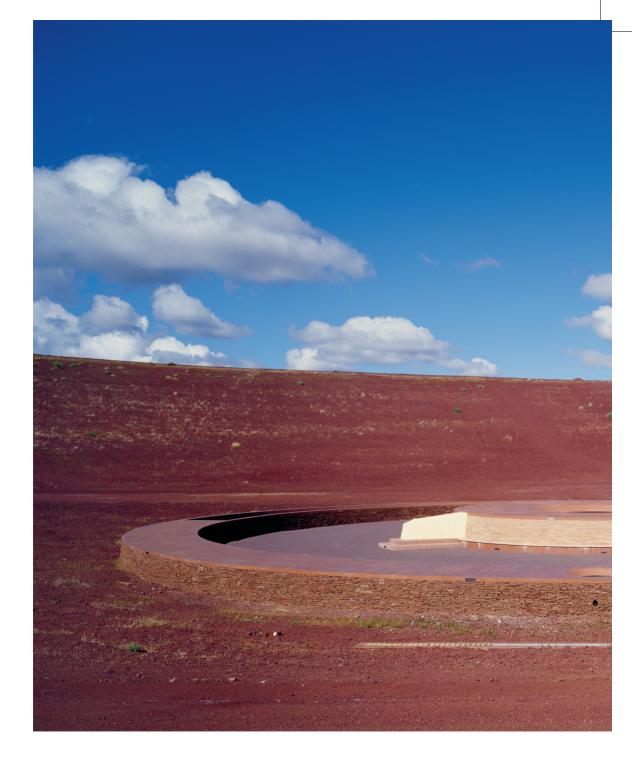
Roden Crater



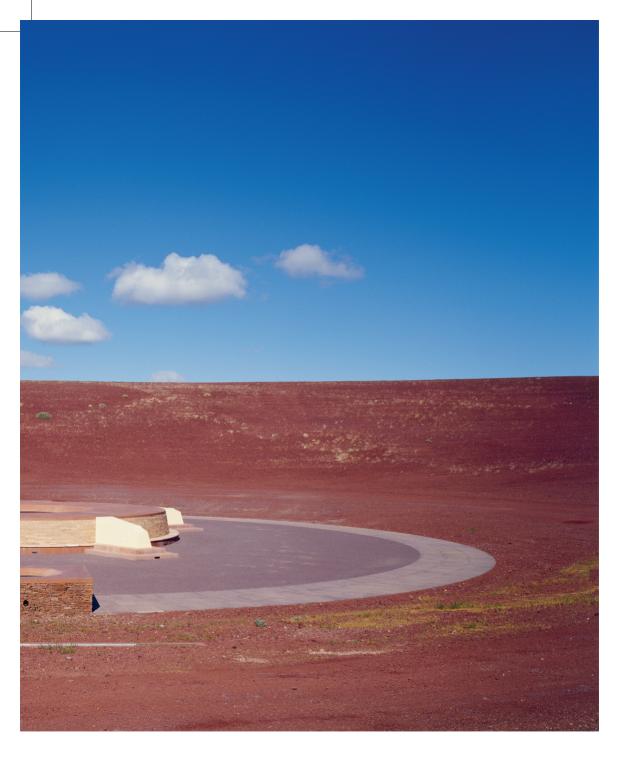
James Turrell, Roden Crater, Arizona

Turrell first presented the plans for what was to be his most ambitious and long-running art project long ago, at his exhibition in Amsterdam in 1967. When he was forced to give up his studio at the Mendota hotel, he wanted to relocate to somewhere you could see the sky, unhindered by urban light pollution. That location needed to meet certain other criteria as well: Turrell was looking for a place where the heavenly vault would be clearly visible in its entirety, and from which one could see the curve of the horizon. Typically, this curve is only visible from an aircraft at an altitude between 600 and 1000 feet. After a systematic 10-month search of the western United States, he found the perfect location: Roden Crater, an extinct volcano rising skyward out of the landscape in the Arizona desert. [p.53]

Initially, when presented earlier as scale models and topographical maps, these plans were rather modest. The work would "perform itself", Turrell wrote, by means of the motion of the sun, moon and stars. There would be two spaces, "a civa-like round chamber", and the crater itself, whose base would "touch the ceiling of the round chamber". [33] The chamber was a *Skyspace*. Climbing out of it, one would pass through the 'illusionary' plane of the opening to find oneself at the bottom of the crater. A reconstruction of the crater's edge would echo and intensify the experience of the sky arching overhead.



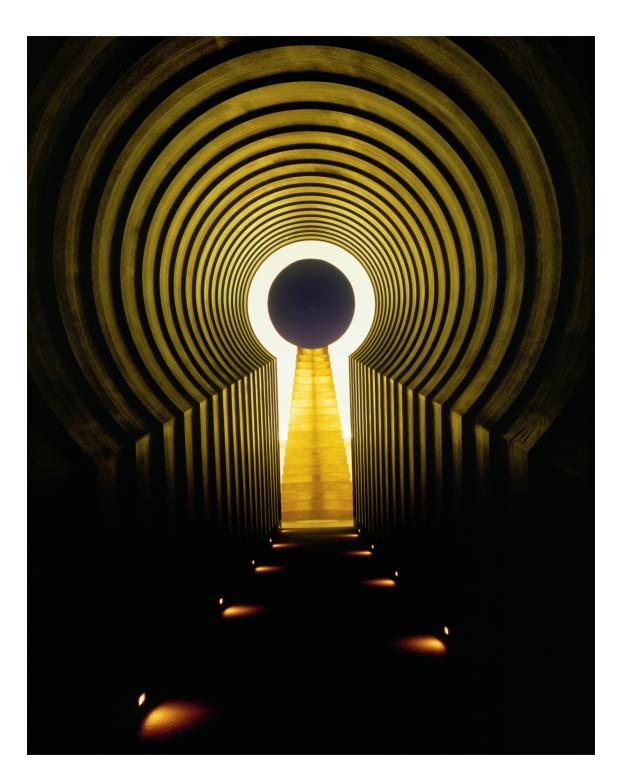
James Turrell, Roden Crater, East Portal (1974-)



Today, some forty years on, the project has expanded considerably. ^[34] The idea of an observatory for the naked eye has remained. But the planned subterranean space has been replaced by a tunnel connecting several chambers. The crater's edge has been reconstructed – an enormous undertaking in which 1.3 million cubic metres of earth were relocated. The original round chamber is still there as well: *Crater's Eye*. [P.^{61]} A short tunnel connects this chamber to a portal on the east side. By walking through the *Alpha Tunnel* in the direction of the portal, one can see a round opening. [P.⁵⁷] On closer inspection, this opening is revealed to be an ellipse situated above—rather than in front of—the viewer: a second *Skyspace*. [P.^{58–59}] The tunnel then leads back to what is known as the *Sun/Moon chamber*, where during winter solstice the light of the rising sun and moon are projected onto the west-facing side of a large, black stone. [P.^{63]}

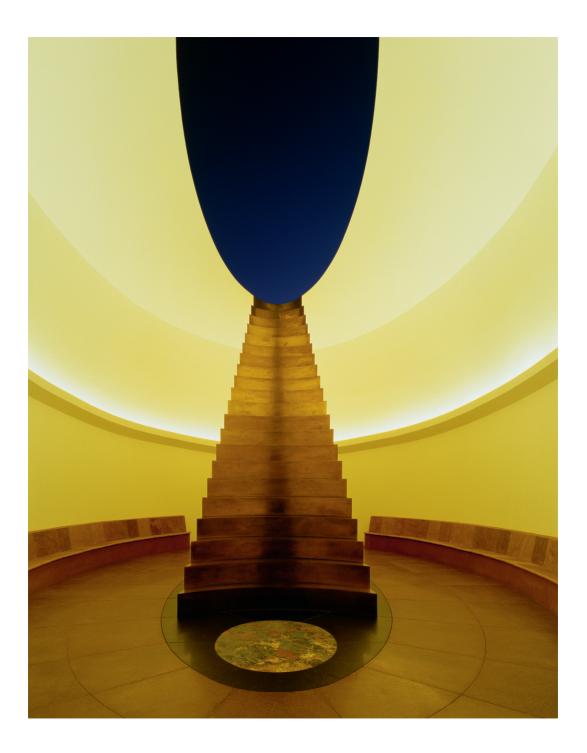
Following the planned future expansion of the project, these phenomena will be visible on the east-facing surface of the stone as well. More tunnels and chambers will be added, all filled with the light of celestial bodies. The colour, intensity and texture of this light will change according to the movements of the stars and planets; it will shift along with the seasons and weather conditions. Every concept that Turrell developed in his Mendota studio, working at a small scale, will be demonstrated here on a monumental scale: projections, *Ganzfeld* effects, *Wedgeworks, Veils* and *Skyspaces*.

Roden Crater is Turrell's lifework; it encompasses nearly his entire oeuvre, including the spiritual aspect of his work. Turrell has a predilection for environments where geological time is made visible in stone, and places where contact with the cosmos can be felt acutely. The Arizona desert known (due to its colourful volcanic rock formations) as the Painted Desert is certainly such a place. Being there, one feels planted directly on the earth's crust – as if one is breathing in harmony with the universe. Turrell has a similar affinity for places where the surroundings are charged with the history of ancient cultures. The artist's inclusion of a *"civa-like chamber"* in his initial plans for Roden Crater was no coincidence. A civa is a room used for religious rites by the Hopi, the indigenous people of the Arizona





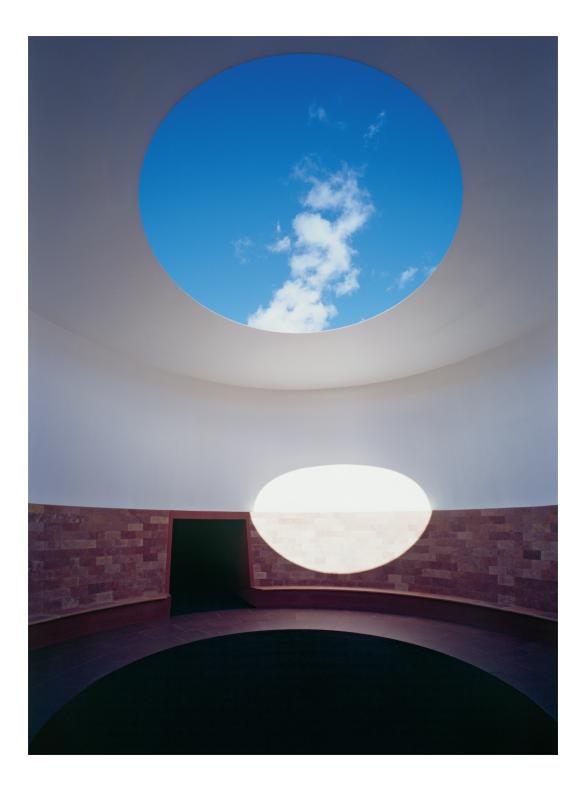
James Turrell, Roden Crater, Skyspace (1974-) [evening view and night view]



desert. This kind of chamber with an opening in the roof is quite similar to a *Skyspace*.

It is possible to trace connections between Roden Crater and the symbolic architecture of Buddhism as well. The visual cupola of Roden Crater has been compared to a stupa and to Borobudur, the Buddhist temple and sacred site Turrell had seen on his long-ago flights over Southeast Asia. Turrell doesn't shy away from these comparisons, although he does point out that while a symbolic meaning can add to the experience of an artwork, it is never the core principle. *"If you look at the stupa you'll find a symbolic representation of the cosmos – a mound form which is often solid. I empty the solid and you enter and instead of having symbolic contact with the cosmos, I'm interested in having actual contact. For instance, a work that has an open space at the top, a sky space, I want the sky to come down right at the top of the space that you are in, so that you feel like you are at the bottom of an ocean of air. Instead of this symbolic meeting of the sky, that sky is right there." [35]*

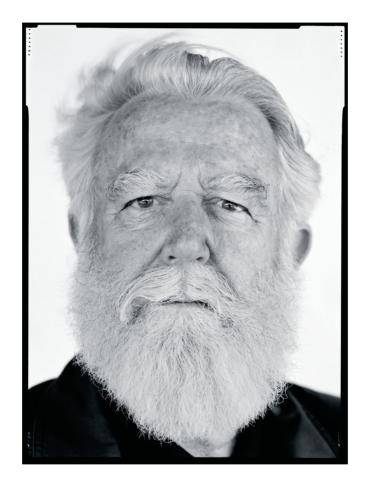
The same could be said about 'Skyspace #88' at Voorlinden. The work forces the viewer to become aware of his or her own perception, to look at his or her looking, in contemplative silence. The viewer perceives the underside of an ocean of light that changes in front of one's very eyes, and because of one's eyes. Situated in a location where one can still look at the light unhindered, here one can gaze at the sun, moon and stars. "The best magic of all is the magic that is real."



"You can feel things with your eyes, observation is much closer to thought than words."



James Turrell, Roden Crater, Sun/Moon Chamber (1974-)



Biography

James Turrell (1943) was born in Los Angeles. His mother was Quaker and he was raised according to that conviction. His father was an aircraft engineer and a teacher at Pasadena High School, where his son graduated in 1961. At the age of sixteen Turrell got his pilot license. Experiencing light and space as a pilot and the spiritual lessons about the inner light of the Quakers, are the fundaments of his work.

In 1965 Turrell got his Bachelor of Perceptual Psychology at Pomona Collega in Claremont (CA). From 1965 to 1966 he followed an arts program at the University of California in Irvine. He interrupted his study for a research into light projections and spaces in his Mendota Studio. In 1968 Turrell joint the Art & Technology program at the Los Angeles Museum of Art. He completed his artistic education in 1973 at Claremont Graduate School.

The work of Turrell is about the visibility of light. In order to make his spectator aware of this phenomenon, he builds temporary and permanent installations. These installations are spread out all over the world and can be seen in museums, private homes, educational institutions, places of worship, a swimming pool and even a hotel. Since 1974 Turrell has been working on the Roden Crater Project. An extinct volcano rising skyward out of the landscape in the Arizona desert, with a tunnel connecting several chambers in which you can look at the light of the sun, moon and stars.

Turrell's first large exhibition took place in the Stedelijk Museum in Amsterdam (1976). A long series of solo and group shows in leading museums and galleries followed, often made for that specific location. Spectacular were the exhibitions in Kunstmuseum Wolfsburg (2009) and The Solomon R. Guggenheim Museum, New York (2013). The Los Angeles County Museum of Art showed a large retrospective in 2014. "My work is your seeing t my seeing, a product of

more about han it is about lthough it is a my seeing."

SELECTED BIBLIOGRAPHY

Adcock, Craig. James Turrell: The Art of Light and Space. Berkeley: University of California Press, 1990.

Brown, Julia. Occluded Front: James Turrell. Los Angeles: Fellows of Contemporary Art and the Lapis Press, 1985.

Butterfield, Jan. The Art of Light and Space. New York: Abbeville Press, 1993.

Giménez, Carmen. Trotman, Nat. Zajonc, Arthur. James Turrell. New York: Guggenheim Museum, 2013.

Govan, Michael & Kim, Christine Y. James Turrell: A Retrospective. Los Angeles County Museum of Art, Los Angeles & DelMonico Books, Prestel, Munich, London, New York, 2013.

Haldemann, Matthias. James Turrell: Zug Zuoz. Ostfildern: Hatje Cantz, 2010.

Haskell, Barbara & Wortz, Melinda. James Turrell: Light and Space. New York: Whitney Museum of American Art, 1980.

Herbert, Lynn M. et al. James Turrell: Spirit and Light. Houston: Contemporary Arts Museum, 1998. Kirschner, Esther Barbara, Markus Brüderlin. James Turrell: The Wolfsburg Project. Ostfildern, Germany: Hatje Cantz, 2009.

Luderowski, Barbara. et al. James Turrell: Into the Light. Pittsburgh: Mattress Factory, 2002.

Millin, Laura J. James Turrell: Four Light Installations. Seattle: Center on Contemporary Art and the Real Comet Press, 1982.

Schliebe, Carmen. Stegmann, Markus. On a Clear Day. Baden-Baden: Staatliche Kunsthalle, 1994.

Pagé, Suzanne. Three Installations by James Turrell. Paris: Musée d'art moderne de la ville de Paris, 1983.

Panza, Giuseppe & Hankins, Evelyn C. The Panza Collection. Washington: Hirshhorn Museum & Sculpture Garden, Smithsonian Institution, 2008.

Tuchman, Maurice. A Report on the Art and Technology Program of the Los Angeles County Museum of Art, 1967–1971. Los Angeles: Los Angeles County Museum of Art, 1971.

Turrell, James. Ammann, Jean-Christophe. Adock, Craig. et al. Mapping Spaces: A Topological Survey of the Work by James Turrell. New York: Peter Blum Edition, 1987. Van Ginneken, Lily & Willems. Gerrit. James Turrel Kijkduin, Hemels Gewelf in Kijkduin, Den Haag Stroom Centrum voor Beeldende Kunst, 1996.

SELECTED EXHIBITION CATALOGUES:

James Turrell. Pasadena: Pasadena Art Museum, 1967.

James Turrell: Light Projections and Light Spaces. Amsterdam: Stedelijk Museum, 1976.

James Turrell: Two Spaces. Jerusalem: Israel Museum, 1982.

James Turrell: Long Green. Zurich: Turske & Turske, 1990.

James Turrell. Madrid: Fundación La Caixa, 1992.

James Turrell. Ibaraki: Contemporary Art Center, Art Tower Mito, 1995.

James Turrell. Bregenz: Kunsthaus, 1997.

James Turrell: Slow Dissolve. Hanover: Sprengel Museum, 2002.

James Turrell: The Light Inside. Järna: Kulturforum, 2012.

NOTES

 Quotes without bibliographical reference were recorded by the author during several conversations with the artist in The Hague (1995, 1996),
 Flagstaff (2002) and Wassenaar (2016).

[2] In conversation with the author on7 June 2016.

[3] Govan, 2013, p. 132.

[4] Baylor, Denis. Colour mechanisms of the Eye. In: Lamb and Bourriau, Colour, Art & Science, Cambridge 195, p. 103.

[5] Govan, 2013, p. 132.

[6] Brown, 1985, p. 102.

[7] Kirschner, 2009, p. 81. Compare this to what Turrell told Jan Butterfield forty years earlier: "I have no object, no image, no point of focus." In: Butterfield, 1993, p. 68.

[8] Stedelijk Museum Amsterdam [exh. cat], 1976.

[9] "I don't think my work is about the spiritual life, but it certainly touches on it." In: Gayford, Martin. James Turrell interview: 'I sell blue sky and coloured air'. The Spectator. 13 juni 2015.

[10] Govan, 2013, p. 40.

[11] King, Elaine. Into the light, a conversation with James Turrell. In: Sculpture, 2002, vol.21, no 9. "People tend to connect my work with light to a sense of spirituality', he said. This is incorrect. The fact that I'm a Quaker influences my way of life and the things that are important to me. My work doesn't deal with specific themes."

[12] Introduction on the website www.chestnuthillskyspace.org [September2016]

[13] Holborn, Mark. Air Mass, James
 Turrell. London: South Bank Centre,
 1993, p 15.

[14] Interview with James Turrell by Julia Brown. http://therodencrater. org/seeing/intrview/index.htm [September 2016]

[15] Bruce, Vicky. Green, Patrick.
Georgeson, Mark. Visual Perception:
Physiology, Psychology and Ecology.
New York: Taylor & Amp; Francis Ltd,
2003 [4], p. 301–314.

[16] Bruce et.al, 2003, p. 302.

[17] Slatman, Jenny. Inleiding in: Maurice Merleau-Ponty, De wereld waarnemen, Amsterdam: Boom, 2006, p 7-25.

[18] Willems, Gerrit. De zinnelijke weelde van het licht: Turrell en Minnaert [The sensual luxury of light: Turrel and Minnaert]. In: Van Ginneken, 1996, p. 61–65

[19] Adcock, 1990, p. 4.

[20] Stedelijk Museum Amsterdam [exh.cat], 1976.

[21] Interview with James Turrell by Michael Govan, 30 June 2011, http:// www.interviewmagazine.com/art/ james-turell# [September 2016]

[22] Butterfield, 1993.

[23] Godfrey, Tony. Conceptual Art. London: Phaidon, 1998.

[24] Butterfield, 1993, p. 14.

[25] Millin, Laura J. James Turrell: Four Light Installations. Seattle: Center on Contemporary Art and the Real Comet Press, 1982, p. 18.

[26] Brown, 1985, p. 65.

[27] Butterfield, 1993, p. 70.

[28] Tuchman, 1971.

[29] Weschler, Lawrence. Seeing is forgetting the name of the thing one sees. A life of contemporary artist Robert Irwin. Berkeley: University of California Press, 1982, p. 123–138. [30] Weschler, 1982, p. 127.

[31] Stedelijk Museum Amsterdam[exh.cat], 1976.

[32] Butterfield, 1993, p. 75.

[33] Stedelijk Museum Amsterdam [exh.cat], 1976.

[34] See www.rodencrater.com

[35] Govan, 2013, p. 192.

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