James Turrell: A Retrospective

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CHAPTER ONE

THE CAVE WALL

My work is about how we construct reality. The real illusion is that we aren’t aware of how we give reality to things. We have awarded them concreteness or reality and are unaware of how we’ve done that.

James Turrell
IN 1966 JAMES TURRELL leased the former Mendota Hotel at the corner of Main and Hill Streets in the Ocean Park section of Santa Monica, and built a studio from the outside he sealed off the two main spaces from all external light by painting the window-panes and began to work with projecting light onto the walls. This Mendota period (1966 to 1974) birthed a number of Turrell's approaches to light that relate to his consideration of the studio's walls as akin to the walls of Plato's Cave, in which prisoners believe the shadows they see on the cave wall are real because they cannot turn around and understand that what they perceive as reality is actually an illusion.1

Using a Lotta slide projector, modified by replacing the standard light mechanisms with a tungsten light and later a more powerful quartz-halogen source, Turrell developed a series of works he called the Projection Pieces and categorized them into two types: Corner Projections and Single Wall Projections. The first of these works was Afrum (a Cross Corner Projection that Turrell later retitled Afrum, Photo), which he presented at his first solo exhibition at the Pasadena Art Museum in 1967. Turrell described Afrum as "a rectangle projected across a corner in such a way that from a distance there appeared to be a cube floating off the floor, yet in some manner attached to the corner of the space.2" He explained, "From a distance this shape had solidity, but appeared to be literally composed of light. Still at a distance, but moving to the side, one could further substantiate this impression because the cube seemed to reveal itself in perspective. Advancing toward the image, the image would eventually disperse to the point where you saw not the object in space, but the actual light on the wall."3 Achieving what Turrell calls the "thingness" of light, the projections appear as independent three-dimensional objects with varying relationships to the spaces they occupy, whether hovering like Afrum, leaning against the wall, sitting on the floor, or seemingly shooting through the ceiling.

Turrell created thirty-six individual iterations of the projections, which are illustrated completely in the Projection Piece Drawings (1970–71) as well as partially in two portfolios of aquatint prints. First Light (1969–70) and Still Light (1990–95) examined the effects of the projections, with the latter emphasizing "the misty atmospheric effect of the projection" by
While the Projection Pieces employed a static, controlled light source from a projector in a dark space, the Mendota studio also provided a scaled environment within which Turrell could create a type of camera obscura. Turrell had seen John Cage’s silent compositions performed at Pomona College in the early 1960s, and he was inspired by how art heightened one’s perception of what otherwise might be considered banal or empty space. In 1969 Turrell created a series of works entitled Mendota Tapestries by cutting holes in the studio’s walls and opening up the skylights. These architectural apertures allowed sunlight to enter during the day and street car lights to enter at night. The light, shadows, color, and movement created by the cuts “resulted in an interior space that was generated by its relation to light in the space outside of it.”

In essence, the studio was Turrell’s first “sensing space,” or a “space that responds to a space outside with a logic or consciousness formed by its look into that space.”

“The big thing,” recalled Turrell, “was that the interior space was created by the light and not by the physical contours of the room. The physical limits of the room remained the same and just the addition of different looks onto the outside world or onto areas of different sources of light completely changed the space. The space was no longer enmeshed by architecture, but was totally structured by the light.”

In 1974 Turrell lost his lease at the Mendota and left Oceans Park along with other artists, such as Richard Diebenkorn, Charles Garabedian, and Sam Francis. He could no longer afford the increasing rents and moved elsewhere, to his airplane hangar in Tijeras and then to Sedona and later Flagstaff, Arizona. The Mendota years “had been a very important period” remarked Turrell. “A storefront artist’s existence is as rare to an artist-in-the-garret or artist-in-the-loft as a Californian can come… I don’t think it’ll ever exist again. Not in Southern California… what a great place.”

CHRISTINE Y. KIM
CHAPTER TWO

CREATING A CAVITY

The Cartesian space of three dimensions is, as all mathematical spatial concepts, a model which has evolved from the range of experiential reality as Descartes knew it. But if you are flying a plane his concept holds true for very short distances only. If you fly [between widely separated points], you will realize that the curved space of Riemann, in which the triangle can have more than 180 degrees, comes closer to reality. But even in this case you tend to think, wrongly, that the mathematical model covers reality. We superimpose the model on reality, and believe that the model actually is reality. The space we experience subjectively through our observation is more bizarre. It is a space that comes close to dreams.

James Turrell
By angling the non-adjacent edge of the partition wall and
positioning the fluorescent fixture at an angle to the end of
the wall, the image of the light that shone from one side of the
partition created a transparent screen which stretched from
the edge of the partition to the point where the image lay
along the side wall.

JAMES TURRELL
CHAPTER FOUR

BLIND SIGHT

Blind Sight refers to a condition, brought on by trauma or dysfunction, which inhibits people with sight from actually seeing. I am interested in the seeing that occurs within. In the lucid dream there is a greater sense of color and lucidity than with the eyes open. I am interested in a place where the imaginative seeing and the seeing of the external world meet, where it is difficult to distinguish the seeing from within from the seeing from without. The image is of no interest other than it triggers the seeing from within. This seeing occurs near the edge of the cone area of the retina and it moves towards the rod area, which generates seeing over which you have complete control.

James Tarrell
The Longer You Stay in these pieces, the more difference between having your eyes open and having them closed diminishes. You see circular shapes when your eyes are open or shut. After a while, the effect that takes place in the space affects the color sense that you have when you first close your eyes. These pieces are not seen in the kind of color vision you have when you first close your eyes and see a balanced drape of color for a moment or so. In a very pure space, it is hard to close your eyes in these situations.

James Turrell

Turrell began to incorporate perceptual phenomena that occur in outer darkness into his work in the series known as the Dark Spaces. First conceived in the early 1970s, the works are directly related to Turrell's work as part of LACMA's Art and Technology series. Collaborating with Robert Irwin and artist Ed Wurtz in 1968-69, Turrell had conducted experiments with dark anechoic chambers in order to investigate the effects of sensory deprivation. His earlier studies in the psychology of perception also informed these works.

Turrell had noticed that our perception varies in contrast situations as well. At dusk a red flower will appear darker and bluer, while a blue one will appear brighter and redder, because what light is present, our eye relies on the cones of the retina (photopic vision), in darkness, more on the rods (scotopic vision). When the dark between cones and rods occurs, human vision is compromised, leaving us virtually color blind. And in total darkness, the body's other senses become triggered and awareness is heightened. In the absence of light, an artwork becomes "about your seeing," Turrell noted. "It is responsive to the viewer."

Phenomenologist Ernest Bohme wrote of Turrell's Dark Spaces. "Light is not the only precondition of visibility. Darkness is another... light and darkness are innumerable. Light is a precondition for seeing at all, whereas darkness (interacting with light) is a precondition for seeing something." This concept is also at work in Al Reischl's Black Paintings (1954-67), which are particularly significant to Turrell. After viewing the large, square, black canvases for an extended period, the viewer is able to perceive geometries of gods, often with a subtle pattern of reddish squares lined with bluish and greenish tones along the vertical and horizontal bars. Turrell, who saw Reischl speak at the Pasadena Art Museum in the mid-1960s, admired how the artist "brought color out of darkness," and how the Black Paintings rely on each viewer's physical act of seeing them.

Turrell's Dark Spaces reflect his fascination with total darkness, which he likens to "a picture plane pulled over your head like a T-shirt." Stressing the absence of light rather than its material presence, the works typically consist of an unit corridor that leads to a completely sealed and darkened room of undeterminable dimension. The viewer sits in complete blackness for at least seven to fifteen minutes. The eyes adjust slowly, and a faint glow starts to appear. Because the light (from a very low-wattage incandescent bulb) is so faint that the room never becomes truly visible, the mind struggles to determine what the eye is seeing. In Turrell's words, "It becomes difficult to differentiate between seeing from the inside and seeing from the outside."

Critic Kenneth Baker described his experience of touring the Dark Space Pleiades (1976), which was first installed at the Mattress Factory in Pittsburgh, in a 1985 article for Art in America:

"Taking a seat, you are enveloped in darkness and silence, relieved only by the faintest hint of milky light hovering indistinctly in front of you. Gradually, you have an idea of what little light you can see. Since it is too dim to "place" spatially, and since you can get no sense of the shape of the space around you, themodus of light begins to play strangely upon your optic nerves. It starts to pulse, to move toward you and lose its definition as something distinct from the activity of your own sensory apprehension. Gradually, fueled by the total silence of the soundproof space, it dissolves your normal sense of your body as a boundary deciding what you see from what remains unseen to you."

For Turrell, the Dark Spaces are "my favorite space... just like it is when you are in meditation except that you are doing it with your eyes open and you're taking the conscious awake state... close to a theta or an alpha state."

Christine Y. Kim

CHAPTER FIVE

LIGHT OCCUPIES SPACE

These pieces do involve boundaries, demarcations between volumes that are occupied by ambient light, and by spaces that are directly lit....And it's about how your vision can penetrate those boundaries in the same way that near lighting will limit the penetration of vision into a space....It's just like having a porch light on, and you can't see into the night very far, but you can see near things very well. You turn the porch light off and your vision will penetrate into the night.

James Turrell
the notion that art must be complex." As accurately describing the deliberate suppression of content and expression shared by many of the artists identified as Minimalist, Rose also emphasized the freedom implicit in the act of renunciation. Closing with an excerpt from a 1919 essay by Malevich, Rose quoted the Suprematist’s musing: "I have broken the blue boundary of color limits, come out into the white, beyond me stands—pilots swim in this infinity. I have established the semaphores of Suprematism. I have beaten the lining of the colored sky, torn it away and in the sack that formed itself, I have put color and knotted it. Swim! The free white sea, infinity, lies before you." As an experienced pilot, Turrell identified with the exhilaration voiced by Malevich, and he read other writings by the artist with care. As the new year began, he achieved his own liberating breakthrough: after experimenting with flat-flame gas burners to capture illumination within his work, he created Afrum. Turrell had found a way to work with light itself.

I started the Projection Pieces in 1966, as a way to work this medium of light.... This is not that easy because you can’t form it like clay, or carve it like wood or stone. Almost like sound you have to have something that helps you form it, or work it, so I used the projector first. I looked at the wall of the space as though it were the picture plane, a kind of perfect Plato’s Cave retina.

And at that moment, “It was time to stop becoming an artist and start being one.” Turrell left school and established his Main and Hill Studio (so named for the intersection of streets) in the former Mendota Hotel in the Ocean Park section of Santa Monica. Over the following year he established important friendships with other artists and the dealer Nicholas Wilder in Los Angeles, he revisited New York, and he became directly engaged in avant-garde art. The most lasting legacy of this year was the extended series of light projections that he produced at the Main and Hill Studio and documented carefully. These fell into two distinct subsets: Cross Corner Projections, like Afrum, and Single Wall Projections, which remained essentially planar. In October 1967 Coplans invited Turrell to present selections from this body of work at the Pasadena Art Museum.  

TURRELL’S EXHIBITION OPENED as the Los Angeles art scene was undergoing changes on several fronts. Earlier that year Domestron had succeeded Hopps as the director of the Pasadena Art Museum, and his first curatorial appointment was Coplan. At the same time, Afrum had once again relocated its offices, this time from Los Angeles to New York,confirming the publication’s primacy as the leading critical platform where the advocates of Modernism and those who heralded new departures, such as Minimalism and Conceptual Art, could engage in debate. Coplans took advantage of both venues: as Turrell’s exhibition went on view in Pasadena, Coplans’s catalogue essay appeared in the pages of Afrum.  

Although newly appointed as curator, Coplans had planned the timing of Turrell’s exhibition very deliberately. The 1967 summer issue of Afrum had featured Michael Fried’s “Art and Objecthood” besides Robert Morris’s “Notes on Sculpture, Part 5: Notes on Nonsequitors.” Personally engaged in the Modernist-Postmodernist discourse, Coplans chose to restage this confrontation at Pasadena, presenting Turrell just after a major travelling survey of Jules Olitski’s paintings curated by Fried. In contrast to Fried’s expansive catalogue essay on painterly chromaticism, Coplans’s succinct introduction framed Turrell’s work in calculatedly neutral terms, first emphasizing the artist’s youth and West Coast origins. He concluded: “Turrell’s images are projected from a slightly modified, but standard, high-intensity projector positioned on the gallery ceiling.... His monochromatic images consist of simple geometric configurations, for example a square or a rectangle. In some instances, the overall geometric shape is modified by the removal of a smaller, either similar or dissimilar geometric shape from one corner.”

Coplans insisted on the currency of Turrell’s work. “His art corresponds to the notion discussed by the sculptor Robert Morris: ‘...The better new work takes relationships out of the work and makes them the function of space, light, and the viewer’s field of vision.’" In his conclusion, however, Coplans also acknowledged Turrell’s departure from Morris’s example: “Turrell’s means...are purely pictorial. In other words, he uses luminosity not as a sculptor uses material to create three-dimensional forms, but illusionistically, that is, in a similar manner to a painter who uses paint on canvas.”

The exhibition was limited to three works: Afrum, created with the same white tungsten light Turrell employed in his initial 1966 projection; and Tollyn and Partner-Poll, both Single Wall Projections from 1967, created with a slightly cooler xenon light. Installed on the first floor of the museum, each work was
With these visual and aural tools, they monitored the effects of total sensory deprivation and responses
to controlled input; they also practiced meditation, biofeedback training, and alpha conditioning with
a number of volunteer subjects, recording both physical and psychophysiological responses. Turrell's notes
reflected his concerns with how this project should be classified. "We are dealing with the limits of an expe-
rience—not for the limits within the limits of painting. We have chosen that experience out of the realm of
experience to be defined as 'art', because having this label it is given special attention. Perhaps this is all
'art' means... The object of art may be to seek an elimination of the necessity for it."[62]

Turrell added a further aside: "Quote from Blake: 'If the doors of perception were cleansed, every thing would
appear to man as it is, infinite.'" The reference is to William Blake's mystical The Marriage of Heaven and
Hell, and the next line reads: "For men has closed himself up, till he sees all things thro' narrow chinks of his
cavern." The Platonic implications of Blake's "as it is, infinite" immediately appealed to Turrell, and as his
subsequent writings attest, he became increasingly engaged with uniting the "in here" and "out there," the
immediate and the transcendent.[63]

In the early stages of their collaboration, Turrell, Irwin, and Wurtz considered building a two-tiered struc-
ture that allowed visitors to pace one at a time from an aseptic chamber into a gasfield environment, and
Turrell's subsequent Dark Spaces and Gasfields can be traced back to this proposal. As their research moved
forward, however, the possibility of successfully creating such a structure as part of an exhibition came into
question and the project's objectives became less clear. At the same time LACMA's schedule shifted, and the
exhibition was broken into two venues. In late May 1969, Tischman proposed that a major segment of the
show be staged as part of Expo '70 in Osaka, Japan, which would postpone the Los Angeles presentation by
another year. This change of focus, as well as other pressures, overcame Turrell's and Irwin's collaboration.
On July 20, 1969, Neil Armstrong and Buzz Aldrin set foot on the moon; a few weeks later Turrell walked
away from the Art and Technology program.

There is a telling coda to this project; however. At Tischman's invitation, Turrell had traveled to Japan
to investigate the possibility of presenting his work independently at Expo '70. Once he discovered that
the available spaces were unworkable, he turned his attention to more traditional arts, and undertook an
apprenticeship with Tatsuki Kukeda, a woodworking craftsman recognized as one of Japan's national trea-
sures. After his return, Turrell added a final postscript to his Art and Technology notes, voicing not only his
frustration with Western habits of thought, but also an appreciation of Zen culture and belief:

When we want to go into the universe, we can't look at a rock, like the Japanese. We have to actually go to
the moon. We're so literal... We have devices, sensors, alpha conditioning machines. The machines are just
manifested thought. Technology isn't anything outside us... We just go about it very clumsily and very waste-
fully. Because we have to actually make all these devices, we have to go to the moon, we can't see the cosmos
in a rock, and we can't meditate without having this thing strapped on us."[64]
CHAPTER SIX

SKY LIGHT

I am involved in the architecture of space. To some degree, to control light I have to have a way to form it, so I use form almost like the stretcher bar of a canvas.... When I prepare walls I make them so perfect that you actually don’t pay attention to them. This is true of the architecture of form I use: I am interested in the form of the space and the form of territory, of how we consciously inhabit space.

James Turrell
YOU WILL NOTICE during the change from day to night an intensity of color that you will find nowhere else. If you go outside you will see a different colored sky. You enter the sky. The sky is all about you, all around you.

The color can be intensely sublime and beyond what we would normally see. The amount of light in space allows us to see what is not usually seen—what is behind the darkness and softness that is our world, because it has no surface. The blackness is all a complete black body, absorbing and reflecting. 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.

JAMES TURRELL

As few viewers have visited the unfinished Rodden Crater or the recently completed pyramid, Apo de Luz in the desert, James Turrell’s Skyspaces have become as much the most widely recognized site-specific works by the artist. To date, there are seventy-five of them in private and public institutions around the world. A Skyspace is a simple enclosed chamber with benches along its walls and an opening in the ceiling that lets the viewer see the interplay of sky, light, and atmosphere. A visitor who remains in the space for an hour or more will experience the sky in an array of colors that shift in concert with programmed lighting embedded above the seats along the interior walls. Turrell explains: "These pieces deal with the junction of the interior space and the space outside by bringing the space of the sky down to the plane of the ceiling. They create a space that is completely open to the sky and yet seemingly enclosed. Such works are often described as ethereal, spiritual spaces conducive to meditation and contemplation. In fact, Turrell has likened Skyspaces to Quaker meetinghouses, "where you go inside to get the light."" Like many Turrell typologies, the Skyspaces grew out of the artist’s "reincarnation" works created at his studio in the former Mendota Hotel. He began with the Structural Cuts series, removing whole sections of the hotel’s bearing walls to open up the space to the sky. As an artist historian Craig Adcock notes, "This radical fenestration developed out of the small Sky Window [1969] that had been used as one of the stops in the Mendota Stoppages...The window exactly met the ceiling and side walls and when pulled down all the way, created a sharp-edged aperture that...hinged into the sky." In essence, Turrell had framed the sky. The cutout was high enough on the wall to offset an unobstructed view, it allowed the light through over the course of the day and night to intersect with the light of the viewer’s space inside. Turrell thus had begun to explore the notion of controlling the color of the sky, which disturbed with his interest in what he calls "perceptual perception": "It is only because we give the sky its color that I’m able to change the colors of the sky through the context of vision." When the Mendota Stoppages aimed to control the way light from outside entered the building—in order to form shadows and light occurrences—the Structural Cuts were shaped to give the light the appearance of having depth or dimensionality. The light and the wall appeared to be on the same plane. The color and quality of the light outside, which varies throughout the day and throughout the year, depended greatly on the quality of the light within the interior space.

Cortes Gioseppo Panna di Bimba first experienced this effect at the Mendota studio in 1972. He went on to commission a number of works, including a Structural Cut (Lavente, 1974) that Turrell described in his notes on the architecture of the interior space: "The light is the light that comes down through the clerestory and lights the space. Skylights have been designed primarily for private and residential spaces. Two public Skylights were installed temporarily in France in 1990s, however. Houser (1983) at the Musee d’art moderne de la ville de Paris and At Atavin (1989) at the Musee d’art contemporain in Nimes. While the Structural Cuts have openings in vertical walls, Skylights and Skyspaces have apertures in the ceiling, above the horizon line. The forms of the Skylights and Skyspaces are more closely related to those found in the Rectangular Pieces and Shallow Spaces than to those of the Structural Cuts.

After the completion of Skyspace I in 1974 at Villa Piana, Turrell began in 1978 and worked on his second Skyspace meetinghouse, the Museum of Modern Art’s P.S. 1 in Long Island City, Queens. Writer Sebastian Guarnerus noted the building’s "luminous rectangular windows and...geometric channels...trading...light..." The building required cutting a hole through thick industrial roofing and removing heavy steel girders, and budgetary issues delayed the project. It would take eight years to finish. In the meantime, Turrell began second Meeting (1985) at the Museum of Contemporary Art (MOCAD) in Los Angeles, then the Temporary Contemporary, in a small building that was part of a gas station adjacent to the museum. Frustrated by MOCA’s refusal to receive the work as a gift a year later, he sold it and rehoused it as a permanent installation, Skyspace on the grounds of Manly and Cliff Einstein’s home in West Los Angeles. Turrell received the same twenty-year delay for the twenty-foot dimensions, the interior lined with benches, and a piece, framed-glass, linear tungsten lamps on the inner rim of the opening.

With Second Meeting, though, Turrell recognized the need for autonomous architecture for the Skyspace because his ability to cut into existing buildings became increasingly limited—and limiting. He admits, "I think..."
to the steppe of Asia to those of the ancient Americas—connects land and sky. Turrell took advantage of the underground water aquifers of the cenote to literally link the underworld to the sky in reference to Maya cosmology that describes the origins of the universe as only the sea and the sky.

Water, an element of sky, has been explored by many of Turrell's outdoor constructions—several site-specific works involving pools, ponds, and sculptures made of water. His site-specific work at El Lago de Juchitán, for example, featured a 14,000-gallon pond where water and light interact in a beautiful way, creating a serene and tranquil atmosphere. The water body allowed the light to dance and reflect, creating a sense of mystery and wonder. The pond was a focal point for visitors, who could sit and reflect on the beauty of the natural world.

Turrell's work with water and light is a testament to his ability to create immersive experiences that engage the viewer on multiple levels. He uses light to create a sense of place and time, drawing the viewer into a world that exists only in his mind. His use of light and space is not just a visual experience, but a sensory one, allowing the viewer to feel the energy and spirit of the work.

Turrell's work is not just about space and light, but about the human experience. He creates works that are a reflection of the human condition, drawing us into a world that is both familiar and foreign. His work is a testament to the power of art to bring people together and create a sense of wonder and awe. Turrell's work is a reminder that art can transform our perception of the world, and that we are all connected in a way that is both profound and beautiful.
CHAPTER EIGHT

ENTERING THE NEW LANDSCAPE

I am interested in this new landscape without horizon. If you go into the Ganzfeld pieces it is a little bit like the landscape that you can find when flying around through cloud or fog. You can also find it in 'whiteout conditions' when you go skiing and get into snowfall, it can happen that you are not really sure anymore which way is up or down. This occurs in diving, too. We are moving into the territory of horizonless space that you can also experience in outer space without gravity.

James Turrell
The first work in Turrell's own Galafeld series is City of Athens, which he created for his 1976 solo exhibition at the Stedelijk Museum in Amsterdam. It consisted of two massive wedge-shaped chambers, one 21 feet wide, 20 feet high, and 21 feet deep, and the other 16 feet wide, 16 feet high, and 16 feet deep, each constructed of glass and filled with a different colored light. The two chambers were connected by a narrow passageway that allowed visitors to move from one to the other, creating an immersive experience of color and light.

Turrell's work often explores the relationship between light and space, and in this case, the interplay of colors and light created a sense of movement and transformation. Visitors were able to experience the colors and light in a way that was both physical and emotional, as they moved through the space and interacted with the environment.

The use of light and color in Turrell's work is also a key aspect of his broader body of work, which includes sculptures, paintings, and installations. His pieces are often site-specific, meaning that they are created to respond to the unique characteristics of a particular location. This approach allows Turrell to create works that are both unique and site-specific, and that engage with the environment in a meaningful way.

Around the same time that Turrell's practice expanded into the new landscape of the galafeld, he embarked on a literal move away from Los Angeles. Turrell left southern California for Armenia and started work in 1977 on his first major outdoor project, which he completed in 1980. This project was the first in a series of large-scale installations that would become Turrell's signature style, and it marked the beginning of his long career as a leading figure in the field of environmental art.
I’ve always wanted to make a light that looks like the light you see in your dream. Because the way that light infuses the dream, the way the atmosphere is colored, the way light rains off people with auras and things like that. We don’t normally see light like that. But we all know it. So this is not unfamiliar territory—or not unfamiliar light. I like to have this kind of light that reminds us of this other place we know.

James Turrell
WITH THESE CELLS I am going back to my sources and beginnings in art. In terms of spirituality, there are definite references in my work to the time we look at light and very few discussions of things spiritual are able to avoid discussions of light. However, I feel that spirituality is no way reduces sensuality, the real hardness of spirituality has to do with heart sensuality itself, and with sharing positive pleasures. I face no object as such because I don’t want to have light lighting things. I want to make a thing of light. Therefore, there is an object because perception of light is the objective—perception is the object. I also like the faces, no one point, no one place, no one thing, no one place to look, so that literally you begin plumbing the space with vision, and in a reduced light sense, you are able to have feeling move out of the eyes. Our eyes are normally closed either with the protective eyelid or the tight pupil. I believe that there is a time when the eyes, being the most exposed part of the being, have feeling move out of them so that there is a visual Collins and this happens only in native reduced light levels. It may seem that there is a lot of light in some of my works. But in fact, there is very little. It’s just that I control the rest of the situation.

JAMES TURRELL

While viewers often describe a sense of "infinite" light in the unstructured stimulus field of a Gamutd by James Turrell, the artist clarifies that what is actually experienced is a "different kind of landscape, a new landscape of indeterminable space." The difference between infinite light and indeterminable space is that although vision collapses and depth perception is compromised in both scenarios, a viewer senses a volume in a Gamutd. "You feel this depth beyond it," Turrell says. This type of seeing mimics that of closed eyes and enables a kind of vision Turrell calls "behind-the-eyes seeing." "You're looking into this gamutd space," Turrell explains. "Then I have this phased light that's projected in there...That's actually where you can see the organization of vision." The architectural Gamutd that Turrell began to construct in 1970 employs entire rooms as chambers for reflecting light, but his study of the gamutd effect and the construction of smaller spaces for an individual viewer date back to the experiments Turrell conducted in 1969 with Ed Wurtz and Robert Irwin as part of the Los Angeles County Museum of Art's and Technology program (AFT).

Looking for a way to create a situation in which indeterminable space could be perceived, Turrell began with the arching dome of a planetarium. Art and Technology provided the resources, technical equipment, tools, and collaborators. Wurtz, who had a PhD in experimental psychology and headed the JPL's Corporation's life-sciences division in Tuscon, worked as a subcontractor for NASA on systems for manned interplanetary flights. He had extensive knowledge of science, while Irwin, who brought Turrell into the LACMA program, had specialized skills in art and aesthetics. Turrell, a groundbreaking artist who had studied philosophy and astronomy at Pomona College, had a deep understanding of both. In 1969 they prepared an enclosed structure that consisted of a gamutd field (a total, homogeneous visual field) with an anechoic chamber (a total aural field). The team wanted to work with states of consciousness, vision, and sound; they spent nine months that first depicted the senses and then restimated them. As art historian Craig Adcock notes, they were "interested in designing a work that would enhance the observer's willingness to listen to the sounds of hearing and the focus on the internal aspects of visual processing, such as retinally induced color fields. In these circumstances of literally introspective seeing and hearing, the perceivers, as Turrell expressed it, 'could back into a subtle form of meditation.' Therefore, the proposal for Art and Technology outlined a structure with three spaces. A viewer would be seated in a reclining chair and enter an anechoic chamber measuring approximately twelve feet in height, width, and depth. A hydraulic lift would then move him or her to an upper chamber with no light or sound stimulus for five to ten minutes. After that time passed, the reorienting stimuli would, as Turrell's notes for the experiments indicate, "increase gradually to the point which seems to be between hallucination and reality." The viewer would then ascend to an upper, domed, cylindrical chamber constructed of a semimembrance Plexiglas for the gamutd experience. After this deprivation—notonlythebetweentheconditions—light a program with changing colors and temperature, flavors, and sensations would then reactivate the viewer's senses before he or she descended and exited the work via a tunnel leading out of the museum, gradually emerging to the outdoors. Although the research toward realizing this complex piece led to a heightened understanding of and interest in alpha conditioning and autonomic states, the end result for Turrell was the construction of smaller hemispheres: illuminated domes just three feet in diameter, under which a single viewer would sit and experience a field of even light comparable to a fog or a mist with an indeterminable depth; beyond. Reflecting on this work that stemmed from AFT, Turrell explains how he "made a situation where you confront and experience your own seeing...this is more like [the] source to me," in its connection to the most primal state of human perception.

The Irwin-Turrell-Wurtz collaboration ended well before the Art and Technology program was concluded at LACMA in 1971. Turrell, though, continued to build chambers within which individual viewers could experience phenomena such as the gamutd effect. As the Perceptual Cells, each work is a forestaking, enclosed structure that provides an immersive experience for one visitor at a time.