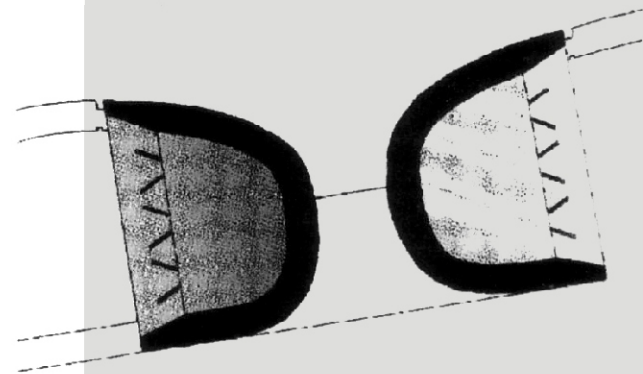
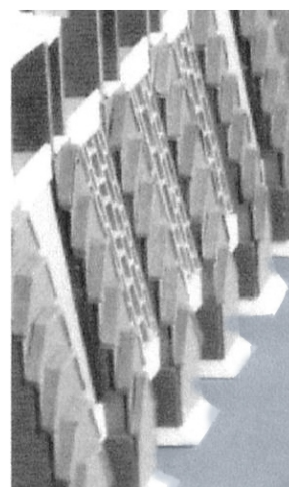


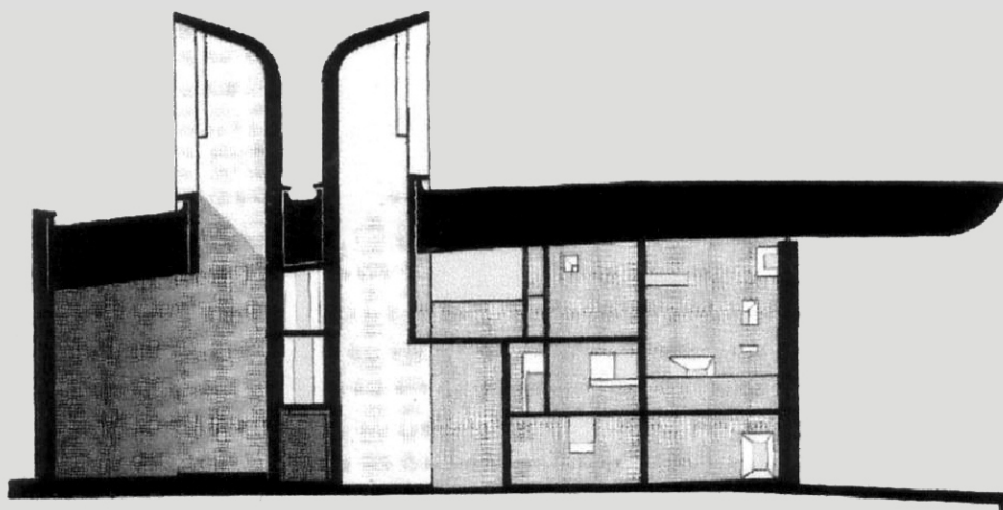
A study on the Phenomenon of Light

As it relates to the Christian Church

As I sat near the small lake and took a moment to contemplate the surroundings, I looked across a small meadow and witnessed the wild flowers. There were literally thousands of them all brightly illuminated, all perfectly able to grow in any direction they chose. Yet each and every one was growing the exact same way, leaning slightly south with their faces to the sun. Just as an infant stares as a light in an otherwise dark room, or how people can sit for hours and stare at campfires, so do the flowers stare at the sun, praising the thing that gives them life and makes it possible to praise at all. I began to ponder how truly amazing this light actually is. It comes to us from the heavens, with the strength to travel millions of miles, yet when it hits something as delicate as a leaf or flower, it is brought to a halt and shadow is created. Kahn stated that material casts a shadow but the shadow belongs to the light¹. Perhaps because even when the direct light has been halted, there still exists an encompassing glow which permeates every crevice of the Earth's surface.



1. *Notre Dame Haut Ronchamp, Le Corbusier - Section looking north*



2. *Notre Dame Du Haut Ronchamp, Le Corbusier - Section through chapel towers*

Notre Dame Du Haut Ronchamp, Le Corbusier

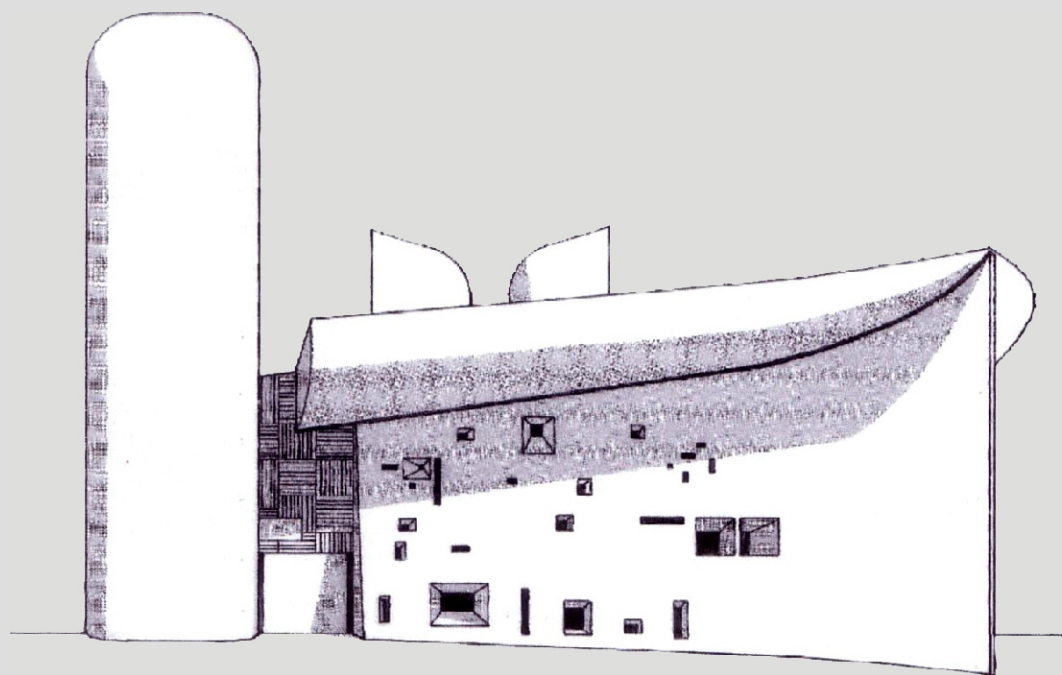
This chapel, more than most, may be referred to as a lens from which to observe the path of sun through out the day. Utmost detail has been given to the façade as a tool by which to sculpt the given light of day in effort to heighten our awareness of our existence as related to the daily life of the light.

¹ Louis Kahn, *Between Silence and Light*, Shamhala Publications, inc., 1979, John Lobell, p.22

In his book Poetics of Light, Henry Plummer describes my experience as radiation that passes invisibly through the atmosphere and is at last given a physical matrix to play upon, a medium by which to visibly reveal itself to the world and give the previously passive object, in our case the flowers, a whole new radiance of its own as it flames with a vibrant presence². The radiant light gives to the object an opportunity to say more about itself and gives it seemingly more life than it actually has. Even innate material, which is still physical but contains no life, undergoes a heightened state of existence, lifeless chunks turn into ravishing incandescent fabrics³. It is therefore only when light especially direct light⁴, comes upon an object that its full range of tonal contrast and color is revealed for our use and enjoyment. Material needs light to fully express itself. Christian Norberg Schultz states in the introduction to Plummer's book:

“Light and things belong together. When the sun strikes a thing, the light becomes aware of itself, and the thing gains its presence. Thus day and night, earth and sky come into being, and we comprehend the meaning of the first words, “Let there be light.”⁵

The sun seems to play the role of a mediator for no matter where one travels on the face of the Earth, one can always believe that the sun will be there also, maybe of a different quality, but present all the same. It is this difference of light qualities due to the natural phenomena of life on earth which helps to give one a sense of place, a regionalism with which to associate. Structure must differ from place to place in order to deal with light accordingly. As this happens each region begins to develop certain forms or methods of dealing with the sun in an architectural way. Light is therefore, perhaps unconsciously, the unifying element of the world, always the same, yet always different due to the temporal conditions of nature. Yet it is because of light, the giver of life, that nature even exists.



1. *Notre Dame Du Haut Ronchamp, Le Corbusier - South elevation*

Corbusier has been able to use the light of the sun in a most articulate way, expressing the daily life of the sun as its light, thereby glorifying the creator of it. Walls become dark as light streams from their openings with great intensity. While light brought from above the private chapels is soft and comforting, one might feel a certain sense of unrest due to the power of the light entering through specific points in the sanctuary.

² Henry Plummer, *Poetics of Light*, Architecture and Urbanism Publishing Co., LTD., Tokyo, Japan, 1987, 1987, p. 9

³ *Ibid*, p. 9

⁴ *Ibid*, Quote, Christian Norberg-Shulz, intro.

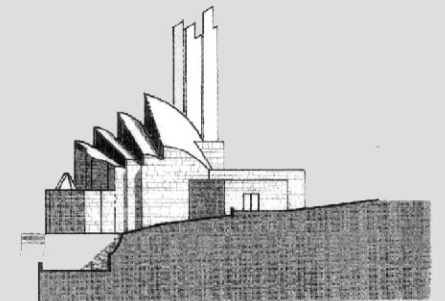
⁵ *Ibid*, p. 15

The moods and energy levels not only of man, but every living thing fluctuate with the light of day and the light of seasons. Such changes are a way of letting one know what is and what is not alive. They say a lot about our existence and that of every living thing. Such changes of light quality are of course far beyond our control. We all know how dreary a short, cloudy winter day can be, when seemingly no life exists. Yet on a long, clear summer day the world is bursting with life. Moods are joyful and spirits soar, perhaps unconsciously as life pays tribute to the sun. Such luminous cheer can obviously be stirred by an enormous range of light qualities and amounts, in the natural environment, but in the man made environment it consistently originates in those that have a substantial amount of natural light⁶. Such environments have the ability to make us more conscious of the living world in which we are a part of thereby bringing us into an elevated state of being.

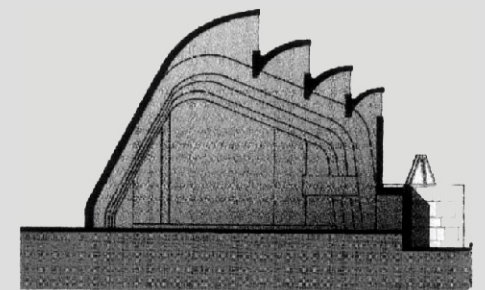
History has shown us through architecture that from very early in time man has desired to find and express the essence of his being. Such examples as Stonehenge, the Great Pyramids, The Parthenon, and others have left modern man puzzled about their construction but confident that the men who built them were highly intelligent and were attempting to express their existence and culture through such structures. We thus realize the importance of architecture as a means to help man understand his existence and what he believes to be true, Plummer states:

“Religious man’s profound nostalgia is to inhabit a ‘divine world’ is his desire that his house shall be like the house of God, as it was later represented in temples and sanctuaries. In short, this religious nostalgia expresses the desire to live in a pure and holy cosmos, as it was from the beginning, when it came fresh from the creator’s hands.”⁷

It is through his architecture then that we find that early man held certain religious convictions, many of which still hold true today. Religious man’s belief in God may be traced to the very light which we discussed earlier. The very existence of the sun and its energy, the way that it dominates our and everything’s life, and its ability to exist by its own power, connotes an intriguing message of a supreme being; a force greater than we can imagine with our finite minds⁸. It is because of our knowledge of the sun and the universe, and deep contemplation of our very existence within the world that man has an innate knowledge of God as a supreme being. Abbot Suger wrote in the twelfth century that a contemplation of luminous things “...will illuminate minds that they may travel through light to the True Light where Christ is the True Door,” of course referring to the door of heaven or God⁹. Religious man is then able to find existential value in his beliefs and trust in God. He has therefore sought to express his existential enlightenment through his architecture. Take for instance the great cathedrals. Due to the qualities of them such as size, material, light, etc., man sensed that he is only a very small part of a much larger thing, that he is only a creature and his existence and life are controlled by the omnipotent God, or as Abraham addressed the Lord, we are “but dust and ashes.”¹⁰ However the vast majority of modern man has chosen to reject the idea that a singular being determines the entire fate of the world. Perhaps this is due to the time separation we have encountered, i.e., the time when the scriptures were written compared to today. Perhaps it is a direct result of the self-centered, live for the moment society in which we live. Whatever the case, the non-believer will never understand what he is missing.



1. Riola Parochial Church, Alvar Aalto
West elevation



2. Riola Parochial Church, Alvar Aalto
Section west

Riola Parochial Church, Alvar Aalto

Perhaps this church is best described as an ocean of subdued light. A constant flow of soft northern light enters the structure throughout the enormous scalloped monitors of the ceiling. The northern light is reflected and decolorized by the white surface of the roof and scallops as it enters the church. The surface is a serene white mist which infiltrates every corner.

⁶ Mircea Eliade, *The Sacred and the Profane*, Harcourt Brace Jovanovich, New York, 1987, p. 65

⁷ Op. Cit. #2, p. 17

⁸ Ibid

⁹ Op. Cit. #7, p. 10

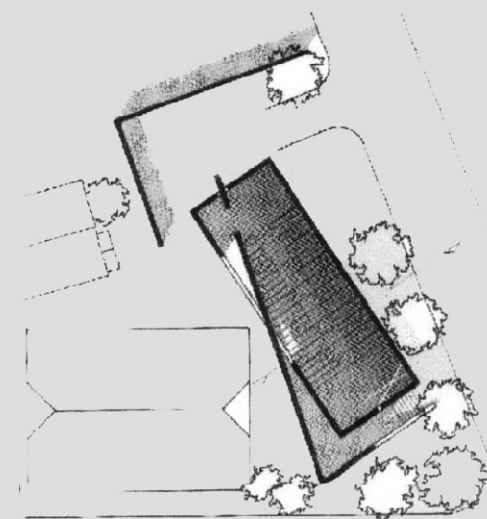
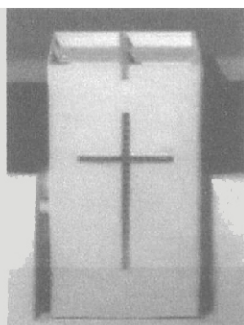
¹⁰ Ibid p. 13

Through his own desacralization the non-believing man finds it increasingly difficult to discover the existential dimensions of religious man and is therefore robbing himself of fully understanding and necessarily appreciating the meaning of life which is represented in sacred space.¹¹ Only when his mind is illuminated to the scriptures is a man able to comprehend its precepts. Likewise a non-believer may never be able to fully appreciate the deep spiritual meanings of church architecture, the spiritual use of light being the most prominent. In which was connected with the concept of the unconditional love of God, the “Divine Light.”¹² Also, in Christianity materialized light is a spiritual phenomenon almost entirely independent of the sun, for scripture tells us that God created “light” prior to creating the sun and stars.

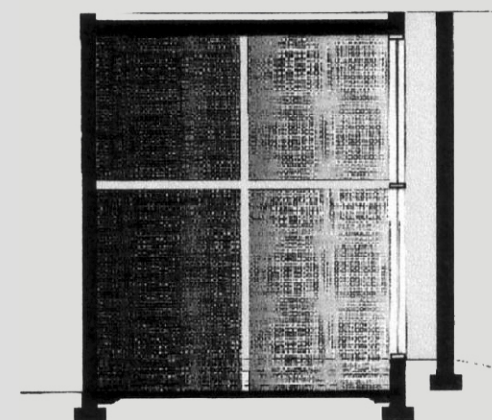
“And God said, ‘Let there be light,’ and there was light. God saw that the light was good, and He separated the light from the darkness. God called the light ‘day’ and the darkness ‘night.’ And there was evening, and there was morning - the first day.” Genesis 1:3-5

“And God said, ‘Let there be lights in the expanse of the sky to separate the day from the night, and let them serve as signs to mark seasons and days and years, and let there be lights in the expanse of the sky to give light on the earth.’ And it was so. God created two lights, the greater to govern the day and the lesser to govern the night.” Genesis 1:14-16

From Scripture we then know that the light which pervaded on earth prior to the sun was of a different or higher order. It was obviously continuous and the earth did not know of darkness. We would assume that it was very bright as scripture has told us that we would be blinded if we were to look into the face of God. When Moses came down from the mountain after communing with God, his face shone so brightly that he had to cover his head. We may also assume that the light was non-directional as it encompassed the whole earth. Another reference to a type of light as documented by the Christian church is the star which appeared at the birth of Christ, who is said to be the “Light of the World.” The star is documented as being a great light in the sky, the likes of which no one had ever witnessed before or has witnessed since. The star traveled ahead of the wise men and led them to the baby Jesus. This would imply that the star actually existed within our atmosphere and moved through the sky. It is also reported that the original Christmas was set at the Winter solstice, when a fading light returns to illuminate the world.¹³ Scripture also tells us that the earth witnessed its first eclipse when darkness fell upon the earth at the moment that Christ gave up His spirit. Thus symbolizing the physical death of Christ, the light of the World. One other reference to light found in the scriptures of Christianity is found in Revelation 21:23 describing the end of time when God will set up His kingdom in the New Jerusalem.



1. Church of the Light, Tadao Ando Site Plan



2. Church of the Light, Tadao Ando Section east

**Church of the Light,
Tadao Ando**

By bringing a limited amount of light in through very specific places on the side walls only, and by keeping the solid length of one wall unaltered, Ando has created a dramatic and powerful interplay of light and shadow. The limited amounts of light and the specificity of it enhance its effects and make it somehow more special than if it were found in abundance. One seems to lose himself in the effect and all attention is given to the illuminated cross.

¹¹ Ibid, p. 31

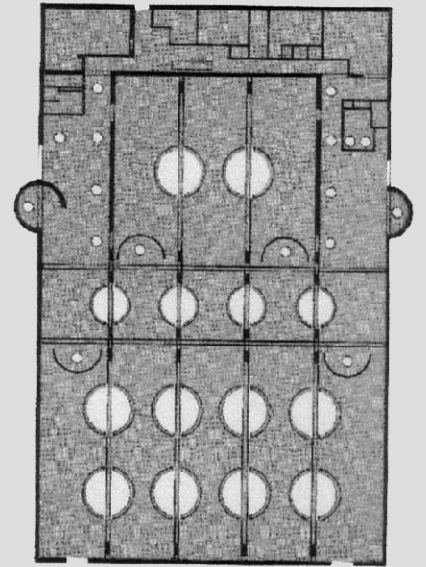
¹² Ibid, p.31

¹³ Ibid, p.10

The built environment then has the ability to bring us out of a mere corporal existence and give us a higher presence and awareness of our world and existence.¹⁴ Although the material world built by man is of a different palette than nature's, it possesses the same ability, if not a greater one, to engage light and partake of its radiant energy. Any time man forms material into a built object, and sets that object into the natural environment, the object has the ability and responsibility to modulate light in a specific way.¹⁵ Since material is the physical tool for constructing the built form, architecture has the ability to move one's spirit. Louis Kahn said that no space is a space architecturally, unless it has the natural light of the sun in it.¹⁶ Since material is the physical tool for constructing the built form, architecture then consists of the heightened interplay of light and material. Each piece of wood, stone, glass, metal, plaster, etc., Has the ability to manipulate light in an architectural way as the light passes through it.¹⁷ Of course there are some aspects of light which man cannot control. Speaking of Kimball museum, Kahn states:

"If a cloud passes over and the room becomes dark this only gives the room more association with the person in it. It tells us of the life outside the room. It tells us of the world in which we live."¹⁸

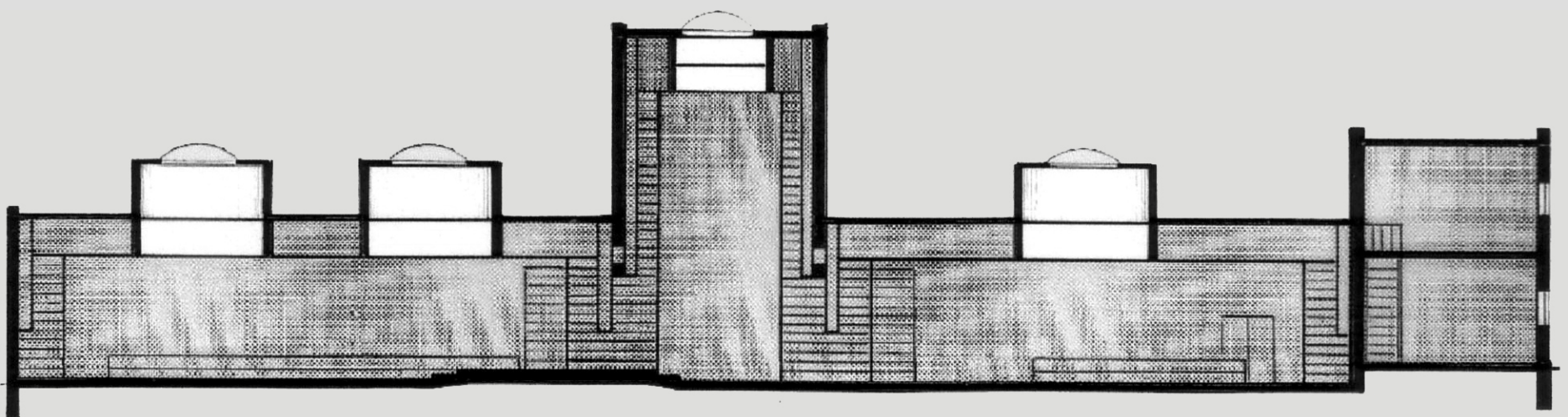
Architecture therefore, can never fully determine, nor should it; all the aspects that light will have on the space within. As we previously mentioned the condition of light is also determined by the acts of nature and function of time. Changes of the season, time of day and weather determine for us many conditions of light within our space. How then is religious man to construct spaces which move his spirit and pay tribute to his God? The answer seems to be found in a combination of light and architecture.



1. Roman Catholic Church Den Haag, Aldo Van Eyke - Reflected Ceiling Plan

**Roman Catholic Church Den Haag,
Aldo Van Eyke**

In this example the solid roof has been opened in certain specific spots allowing cylinders of light to pass through the solid fabric of the building. The low ceilings of sanctuaries remain dark while the cisterns of light wash the floor and seating areas. The four higher cylinders of the transept are of a smaller diameter than that of the eight lower ones, and still smaller are the openings above the chapels of private worship.



2. Roman Catholic Church Den Haag, Aldo Van Eyke - Section West

¹⁴ Ibid

¹⁵ Louis Kahn, *Light is the Theme*, Kimball Art Foundation, Fort Worth, Texas, 1975, p. 8

¹⁶ Op. Cit. #2, p. 11

¹⁷ Op. Cit. #15, p. 11

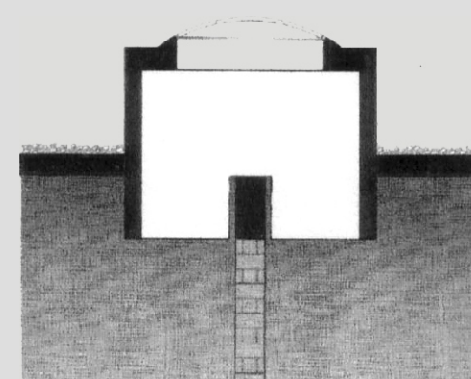
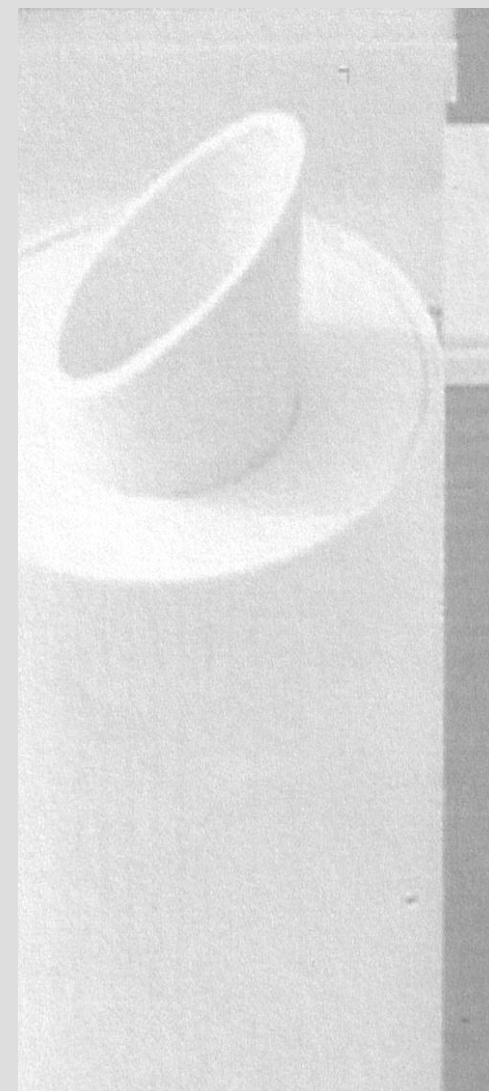
¹⁸ Op. Cit. #2, p. 17

Religious man's desire for such space has led to a legacy of what may be the most intensely alive and carefully created of man made light world with us today. Temples and mosques, churches and abbeys, synagogues and shrines all represent man's desire to dwell in the house of God.¹⁹ It is therefore, created in a higher order of consciousness than its typical environment. It becomes something more yet continues to participate in its surroundings. Perhaps it even increases the consciousness of its surroundings as well. In doing so every sacred place imposes a hierarchy on the environment which results in the detachment of a territory from the profane surrounding cosmos, and making it qualitatively different.²⁰ In doing so man is necessarily making a whole new creation for himself.

Mircea explains that what is to become 'our world' must first be created, and every creation has a paradigmatic model which is the creation of the universe by God.²¹ The very act of taking a shovel to an otherwise untamed site, and giving to it order through the sculpting of the soil, and the placement of structures and forms, is a representation of God creating the Heavens and the Earth. Just as God created this world for us to dwell upon, we create our world to dwell in, thereby consecrating the sacred space, a space consecrated to God.²² Such a place may also be a representation of the cosmos in which we live. The roof being the sky, the floor being the earth, and the four walls being the four primary directions of cosmic space.²³ We should, however, never consider these elements of enclosure to be so finite.

Our surroundings are limitless, and we know them only to be the beginning of a much larger thing. The façade which we present to the environment should not be considered the point at which the space ends, but as the Greeks recognized, such a boundary is that form which something begins its presencing.²⁴ We have then the opportunity to make the structure something more, something part of a bigger idea. For the sacred space the idea of course being the worship of God, by means of its consecration of place in the environment and its use of light for all the reasons we have discussed.

Norberg-Schultz went so far as to solely state that the sacred place is distinguished as such by the presence and quality of light.²⁵ It is necessarily the responsibility of the structure, by way of material to give a space the light which makes it sacred. In giving light to the space, it also had the ability to sculpt and mold the light as it passes through the structure in such a way that our spirits are lifted to praise. In his book, Between Silence and Light, Louis Kahn found that the primary role of structure was to determine not where light will be, but where light will not be.



1. Roman Catholic Church Den Haag,
Aldo Van Eyke
Detail through light well

The light within the cylinders intensifies and lessens with the passage of the day as each cylinder is split by a supporting beam which runs north and south. Thus only at high noon do both sides of the cylinder contain the same amount of direct light, at all other times, half of the cylinder will be in some or all shade, white pure skylight will fill the other, marking the path of the sun across the sky. .

¹⁹ Op. Cit. #2, p. 10

²⁰ Ibid, p. 26

²¹ Ibid, p. 31

²² Ibid, p. 32

²³ Ibid, p. 46

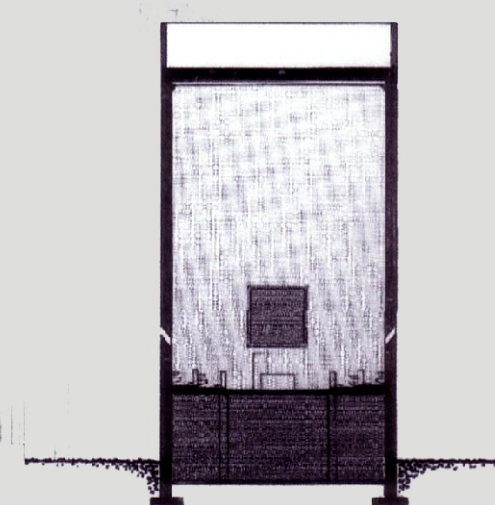
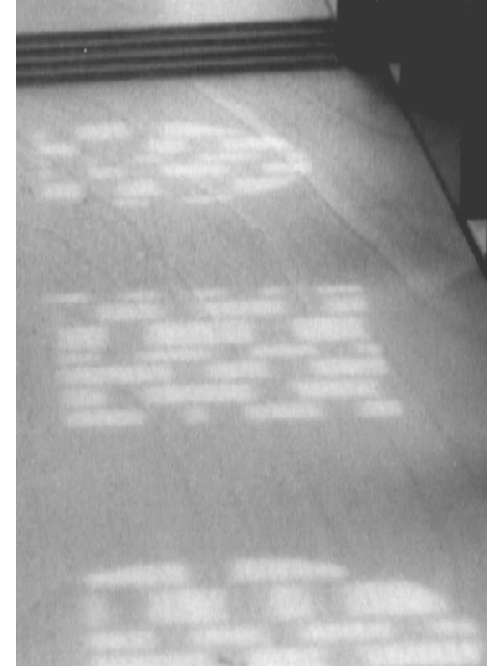
²⁴ Op. Cit. #6, p. 13

²⁵ Ibid, p. 22

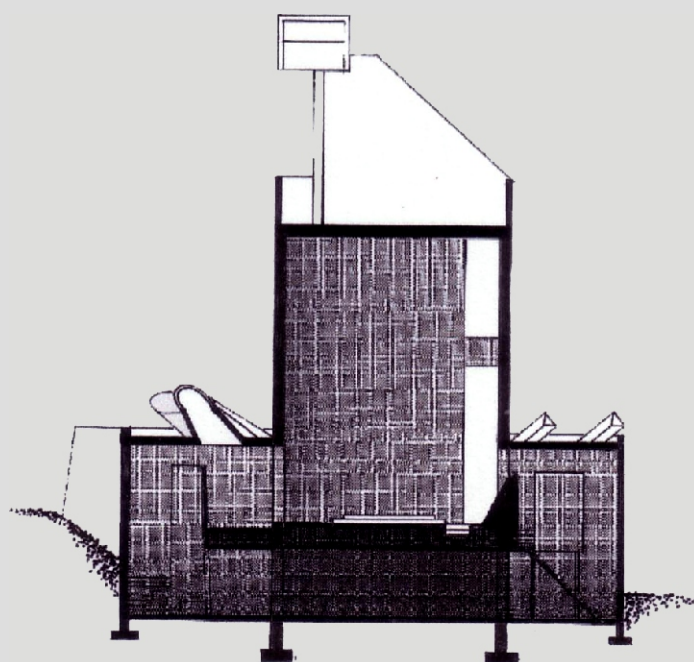
“But when I put a stroke of ink on the paper, I realized that the black was where the light was not, and then I could really make a drawing, because I could be discerning as to where the light was not, which was where I put the black.”²⁶

Perhaps this is a more accurate account of what actually happens when we build because, as we previously stated, light is the unifying constant of the world. Therefore we do not build a structure which lets light in, but which keeps light out. This then opens a new realm of light quality; much like the glow of light versus a shadow or light ray. But in keeping the light out, a tiny bit which is let in may have an awesome presence. Much like the Pantheon which is a completely solid volume, denying all light with the exception of a single opening at the very top, when on a clear day the light is solidified into a single beam piercing the structure. Such a dramatic interplay of light and material truly heightens our awareness and glorifies the presence of light in the world.

For the Christian the glorification of God may be manifest through the glorification of the light which He gave us for it is the visible representation of the invisible. Such worship of light is actually woven into the whole of human existence because our lives are so dominated by it. Likewise our architecture should be dominated by it as well. The light of the sun reminds us of the “Light of the World,” and the love of God for the world. If the Christian church is to be created in the image of Heaven, then the church building should be a poetical light world which brings our spirits into a heightened state of existence. It is important to remember that even through his architecture man cannot change the qualitative dimensions of light. He can change the quantity through structure and the color through glass, but he cannot change the quality. That is the natural phenomena which gives us the timelessness of every moment we live. Perhaps Plummer best describes the effects of the phenomena of light in architecture by stating that at times our architecture which is both tactile and visible, is some how transformed into something beyond our reach, something invisible which allows our innermost spirit to soar through the medium of light.²⁷



1. Chapel at the Monastery of La Tourette Eveux-sur-L'Arbresle, Le Corbusier - Section west



2. Chapel at the Monastery of La Tourette Eveux-sur-L'Arbresle, Le Corbusier- Section east

Chapel at the Monastery of La Tourette Eveux-sur-L'Arbresle, Le Corbusier

This church is an excellent example of the praise of God through the glorification of His creation, the sun, and the light as representation of Christ. By celebrating specific times of day, morning, noon, and sunset, as well as times of the year, spring and fall, one is brought to contemplate the life of Christ, the light, thereby forgetting his own worries and focusing his attention on the eternal.

²⁶ Op. Cit. #1, p. 22

²⁷ Op. Cit. #2, p. 196