Although we have generally reduced our thinking about vision to optics, it is worth keeping in mind the earliest thoughts on vision and perception – the doctrines of Democritus and later the Greek atomist, Epicurus, as described by Lucretius, put forward the notion that vision and recognition occur in the middle ground between self and object. Considering these ancient interpretations of perception has led me to the contemporary notion of light as ‘information’, most effectively manifested by glass. Glass, as the most mutable substrate, allows for both the transmission of light and the revelation of usually unacknowledged light phenomena.

We can understand that there are, in the simplest interpretation, two levels of light as ‘information’ that tell us about our world. There is the conscious observation that becomes the framework for our memory and then there is unacknowledged visual information that becomes the substance of our dreams. In this view of light, occupying our conscious and unconscious selves, glass can clarify the most subtle of phenomena, making visible the subconscious act of perception and cognition, and suggesting that beyond interpreting the world, we have access to our memories and dreams.

The general idea that the ephemeral can be central to heightened experience of a place paradoxically requires the fullest engagement in that place’s materiality. This is a process that demands precision across many fields of study, which is why collaboration is at the core of this process. The key to the successful project’s development is focused experimentation, animation and construction of physical models and mock-ups. Light is simply the most visible form of energy, but it naturally extends to the other forms of energy, such as thermal and sound energy. This control of energy is ultimately about the human experience and a constructed and functional environment is necessarily sensitive to the human condition. We aim to push beyond the typical concerns of light as it is perceived reflecting off the surface of architecture – dark or light, shiny or matt. Controlling the transparency, reflectivity and translucency of glass with optical and physical methods, such as applying films and coatings, we display light itself, layering views of the world, with their synthesised versions, as if revealing the act of perception itself.
Daylight and architecture are inherently connected. Throughout the history of architecture, daylight has played an invaluable role in the lighting of buildings. Daylight is essential—not only for vision, but also for the effects on people working in, living or experiencing the built environment. Seen from a biological point of view, daylight is the essential factor for the existence of all life. Animals are diurnal. Our circadian rhythm is governed by the alternating presence and absence of daylight. In our waking phase, light allows us to see, to read, to paint—in fact, to live a normal human life. But there is increasing evidence that this has other less obvious effects on our physical and mental health.

The effects of light through window openings have been a tool—sometimes a toy—to the painter, the photographer and the architect throughout history. Few elements in a building are as vitally important to its functional success as the window. Architecture must fulfill visual as well as biological needs with windows—in a way that gives us full control over how light and heat are admitted into a building and over the view we have out of that building. This branch of architecture has evolved into ‘daylighting design’. For it to evolve further, there must be a common understanding by everyone involved in the building process; a grammar, syntax and vocabulary, based on recognition and differences, for defining what high quality daylighting is and how the right balance in its effect can be achieved. Providing solutions for ensuring the best possible indoor comfort level in any building has been of the heart of our business since the company was founded in 1942, to provide solutions for ensuring the best possible indoor comfort level in any building. This edition of Daylight & Architecture takes a look at the topic of light from a variety of different viewpoints. Pablo Buenocore explains the role of daylight in human culture, from ancient mythology to the more scientific approach that has prevailed since the Renaissance, and to the effects that are being made today to capture, harness and control daylight in order to enhance the quality of human life. Liz Walsh discusses the ever-present importance of light in contemporary photography, and Peter Boyce looks deeper into the effects of light on human health and well-being. In the main article of Daylight & Architecture 4, Ole Bouman examines the work of James Carpenter, one of the main protagonists of contemporary daylight architecture. Carpenter, who was trained both as an architect and as a sculptor, has long been considered a mere ‘glass specialist’ by many, but this description does not do justice to his interest in light as a means of communication and human perception. In his most recent work, James Carpenter not only collaborates with recognised architectural offices such as SOM and Foster & Partners, he also expands his task from that of an artist to that of an architect in his own right, creating whole atmospheres that embrace daylight and artificial light as well as ventilation, temperature control and spatial relations—in other words, almost all the channels through which a building communicates both with its environment and the user.

We hope Daylight & Architecture 4 will be a most enlightening read.

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### NOW

The latest by James Turrell’s ‘Skyspaces’ in which light art meets astronomy has now been installed in Zuz in the Grosser Salzgriesen in Switzerland. In Stuttgart’s Mercedes-Benz Museum, more than 100 historic automobiles sparkle under the glare of high-fidelity— and the mid-shot facade of the UK Studio building gleams in the sunlight. Puts the so-called ‘light cube’ of the Unter den Linden State Library in Berlin and the East German restaurant of Tatjana Ancı in New York.

### DAYLIGHTING DETAILS

#### LIGHT AND HEALTH: THE IMPLICATIONS FOR LIGHTING

Put simply, light affects people in three ways: through the skin, through the eyes and through the circadian system which regulates our waking and sleeping patterns. Peter Boyce explains the influence of light on the human body and soul, and investigates the consequences to be drawn by the world of architecture.
The ‘skyspaces’ by the American light artist James Turrell are sky observatories, spaces of mostly circular or elliptical plan, in which the visitor feels very close to the sky: The solid and mostly bare concrete walls of the rooms entirely blind out the surrounding landscape and focus the view entirely on the round ceiling opening, through which, depending on the time of day and the weather, pale grey or steel-blue daylight, moonlight or starlight enters the room. After dark, fluorescent tubes installed behind the high backs of the benches set the room ablaze with an almost magical light. Then, not only the vaulted ceiling seems to change colour but also the firmament visible in the ceiling cut-out. For James Turrell, one of the fundamental appeals of his ‘skyspace’ series is this alternation between ‘young’ artificial light and the billion-year-old starlight. The sky observatories gained fame through Turrell’s gigantic land art project ‘Roden Crater’, an extinct volcano in Arizona’s desert. It can be visited by only 14 people a day, so the waiting list is correspondingly long. European art-lovers can experience the ‘skyspace’ thanks to a replica installed near the Castell Hotel in Zuoz/Engadine. The circular ‘Skyspace Piz Utter’ (altar mountain) was converted by UN Studio last summer. The name comes from the mountain near Zuoz that is precisely in the alignment of the entrance, clear and visible from the inside and defining the structure’s position in the landscape. The ‘skyspace’ was realised on the initiative of the Swiss trust fund Walter A. Bechtler Foundation, whose president, Roedi Bechtler, is the main shareholder of the Castell Hotel. The hotel’s art decoration, which presently comprises the rock pool by Tadashi Kawamata, the ‘Red Bar’ by Gabriele Hächler and Pipilotti Rist, as well as works by Peter Fischli/ David Weis, Roman Signer, Carsten Höller and other contemporary artists, now includes another highlight. The ‘skyspace’ is integrated into the ‘Art Public Plaiv’ art project, for which the Bechtler Foundation, in collaboration with the Zurich School of Art and Design, has already funded a dozen or so artworks in Zuoz and the neighbouring communities.

“So to have this sort of blended light from the stars and this new, 8½-minute-old light from the sun is like having a Beaujolais and then a finer, older mature wine as well.”

James Turrell

For the seventh time since 1995, the European Architectural Photography Prize will be awarded next year. The competition, which, since 2003 has been coordinated by the registered association ‘architekturbild e.V.’, enjoys a continuously increasing number of participants. In 2003, 663 photographers from 29 countries presented themselves for the judgement of the jury of photographers, architecture journalists and exhibition organisers. The contestants have to explore a subject specified by the organiser of the competition.

After ‘Work Places’ in 2005 (the photo below is by Andrea Botto from Rapallo/Italy, the third award winner), this year’s theme is ‘My Favourite Place’. The term ‘place’ should not be narrowly understood – it could be a house or just a certain room in a house, it could be a street, a public square or a private courtyard – or it could be an entire town. There are, though, some restrictions. The photographs submitted should not be more than three years old and must portray contemporary architecture (no more than fifty years old). The participants are expected to submit a series of maximum four photographs (as prints, maximum format: 40 x 40 cm).

The closing date for entries is 26 January 2007 and the entry fee is 50€. Besides the first prize (4,000 € each), two commendations (1,000 € each) will be awarded. Detailed information and call for entries documents in German and English can be found at www.architekturbild-ev.de.
**BEAMING LIGHT CUBE**

“Aman with a book goes towards the light. That’s why a library begins.”

This maxim by Louis Kahn serves as the basic idea for the Stuttgart practice hmg mez architekten when designing the new reading room of the National Library ‘unter den Linden’ in Berlin. The library, built by Ernst von Ihne between 1903 and 1914, is 107 metres wide and 170 metres long and with 13 storeys it is the largest historic building complex in central Berlin. In the course of restoration, which began 13 years ago, a new reading room is being constructed. Once completed, it will replace the famed hall, which was damaged during the Second World War and demolished in 1975. hmg mez architekten won the international competition for this new building in 2000.

The architects’ design takes its reference from the existing building axis, which leads from ‘Lindenhalle’ (the entrance hall) via the ‘Brunnenhof’, the great staircase and the vestibule to the new reading hall, forming the nexus of the complex. After alternating light and dark rooms, the visitor reaches the bright and spacious hall. Wooden bookshelves stretch across three storeys that house the open access collection. The translucent glass body has above this foundation, with parts of the reading and working spaces located on the gallery levels between the facade layers. The double-shell glass facade of the light cube consists of large-scale, thermally deformed glass and semi-transparent, PTFE-coated glass fibre fabric. A special feature is the deformation of the glass, which refracts daylight and spreads it evenly in the interior. The translucent envelope regulates the admission of light during the day, whilst at night the reading hall looks like a beaming light cube.

So far Tadashi Ando has mainly gained recognition for his impressive churches and museums. Now the Japanese Pritzker awardee has turned his attention to a purely secular building task and accepted the challenge of an unusual material experiment. Ando designed the Japanese restaurant Morimoto on New York’s Tenth Avenue, between 15th and 16th Street, for Stephen Starr, a Philadelphia restaurant owner. The facade of the two-floor restaurant with 160 seats consists of a huge arc clad with galvanised steel canopied with a ‘Ty Nant’ water bottle. In his 1995 ‘Yen Nari’ water bottle hanging from the restaurant ceiling, gently swaying to and fro in the traditional way, Ando once again incorporated the water motif that characterises many of his buildings. The bottles not only refract the light entering the space into myriads of single facets, but also shine from the inside. Cold and warm white LEDs have been placed between two layers of bottles in such a way that the light reflected from the surface of the bottle resembles dots of light in the rippled surface of a lake.

**SPIRIT IN A BOTTLE**

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**MERCEDES IN A GLOTTED DRESS**

DaimlerChrysler and Ben van Berkel’s architectural practice UN Stadtdesign have placed an arrow highlighter in the German architectural landscape—the new Mercedes Museum in Stuttgart. The intertwined building with its exquisitely turned detail turned the construction of a never before seen architectural landscape.

On the inside, facing the atrium, the new Mercedes Museum in Stuttgart. DaimlerChrysler and Ben van Berkel’s architectural practice UN Stadtdesign have placed an arrow highlighter in the German architectural landscape—the new Mercedes Museum in Stuttgart. The intertwined building with its exquisitely turned detail turned the construction of a never before seen architectural landscape.

**WASTE GLASS MOSAIC**

With its deep blue shimmering glass facade, the new centre for the Muslim community in Penzberg, Upper Bavaria, has been catching the eyes of passers-by since September 2005. At first sight, the cubic exterior and filigree steel minaret of the building, resembles another, and the panoramic view across the city and the surrounding region. Here the individual automobiles are presented in daylight, within arm’s reach of the public. No one glass pane in the facade resembles another, and the panels of the sheered metal facade are produced with computer-aided manufacturing. A closer look reveals how the facade seems to sparkles in sunlight. Here and there, a finely irregular dot pattern was pressed into the metal sheets, adding a touch of precision engineering to the otherwise rather dull surfaces and cutting down reflection glare on the facade.

New solutions for the composition and bonding of the glass pieces had to be developed to apply this method for the construction of the facade. The bottltes were broken, sieved and washed. In order to generate the desired light effect, the broken glass pieces were glued by hand onto toughened single-pane glass at a ratio of 80% blue, 20% white and a handful of red per square metre, until the fragments formed a non-transparent surface. With rough cast plate on the inside and heat absorbing glass on the outside, the components were built up in a trifolium insulation glass.

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We need daylight as a framework on which to adjust our natural biorhythm. We need only to glance outside to pick up the pointers we need for the well-being of both body and soul. We unconsciously gather a wealth of information from factors we see as commonplace, such as mood, the position of the sun, the weather situation and the time of year – all of which are essential for the regulation of our bodily functions. But each and every one of us is different, and our receptiveness to factors such as the brightness and tonality of a light atmosphere is individual on both a conscious and a subconscious level. People with a more rational disposition will tend to prefer bright, white light, while the more sentimentally minded err towards a more subdued, soft lighting effect with a slightly yellow tinge. This is complicated by personal experience gained in connection with the light or dark places which bring out a whole series of moods and associations even before we have made a conscious assessment of a space. Perception is consequently not simply a question of the lighting mood of a space but also of the baggage of individual experiences we carry round with us. These are the factors which cause us to pick up the mood of any space or location subjectively. But it is not only our own internal experiences that cause us to perceive light differently from our fellow humans. There are without doubt cultural differences to be found, originating from religious beliefs and their interpretation as to the significance of the sun, the light or the sun’s rays. Even in the Christian culture, the significance of daylight as a metaphor for God has undergone a continuous transformation over the centuries. Conversely, in daily lives the cultural significance of the sun has diminished rather than increased. When the sun was attached to light is not exclusive to the Old Testament. The mythology of many cultures equates the creation of light with the beginning of an ordered and living world, while in contrast the shadow and darkness are synonymous with death and chaos. This dualistic approach has served in many of the world’s religions to embody good and evil. Since pre-historic times, mankind has venerated light-filled artefacts, and the sun and the light. Translucent amber, for instance, was revered as a medium between mankind and the light. From the very concept of Genesis. But the special importance of the Post-Modernist era, architects in this part of the world have looked for ways of collecting the sparse Northern light using funnel or fan-shaped building structures and using it to maximum effect in building interiors. Like the various epochs that have marked out the history of Europe, the different architectural styles that characterise them have also evolved their own individual position in relation to daylight. At times, during the Romanesque period for example, the light mood was deliberately engineered to be mystic and dim, while in periods such as the Renaissance, a bright and rational atmosphere was preferred. Over the course of centuries, the light mood and its cultural significance have swung regularly back and forth like a pendulum between the rational and the emotional. However, since the Post-Modernist period this pattern has changed, with varying parallel styles now remaining in vogue concurrently. Consequently, we are lucky enough to live in an era in which the architecture of daylight is tailored to the practicalities of the project in hand rather than being subject to the dictates of fashion.

LIGHT AS A CULTURAL ASSET

From the Christian perspective, the creation of light stems from the very concept of Genesis. But the special importance attached to light is not exclusive to the Old Testament. The mythology of many cultures equates the creation of light with the beginning of an ordered and living world, while in contrast the shadow and darkness are synonymous with death and chaos. This dualistic approach has served in many of the world’s religions to embody good and evil. Since pre-historic times, mankind has venerated light-filled artefacts, and the sun and the light. Translucent amber, for instance, was revered as a symbolic carrier of light. The light symbols favoured by ancient civilisations were often treated as a medium between mankind and the light. Cult objects were often treated as a framework on which to adjust our natural biorhythm. We need only to glance outside to pick up the pointers we need for the well-being of both body and soul. We unconsciously gather a wealth of information from factors we see as commonplace, such as mood, the position of the sun, the weather situation and the time of year – all of which are essential for the regulation of our bodily functions. But each and every one of us is different, and our receptiveness to factors such as the brightness and tonality of a light atmosphere is individual on both a conscious and a subconscious level. People with a more rational disposition will tend to prefer bright, white light, while the more sentimentally minded err towards a more subdued, soft lighting effect with a slightly yellow tinge. This is complicated by personal experience gained in connection with the light or dark places which bring out a whole series of moods and associations even before we have made a conscious assessment of a space. Perception is consequently not simply a question of the lighting mood of a space but also of the baggage of individual experiences we carry round with us. These are the factors which cause us to pick up the mood of any space or location subjectively. But it is not only our own internal experiences that cause us to perceive light differently from our fellow humans. There are without doubt cultural differences to be found, originating from religious beliefs and their interpretation as to the significance of the sun, the light or the sun’s rays. Even in the Christian culture, the significance of daylight as a metaphor for God has undergone a continuous transformation over the centuries. Conversely, in daily lives the cultural significance of the sun has diminished rather than increased. When the sun was superseded by the clock and the calendar as a means of telling the date and time, there was a shift in the dependence of our daily rhythm on the rising and setting of the sun. The influence of daylight on our lives is not simply cultural but also geographical. In southerly regions, ingenious methods have been devised to provide shelter from the hot rays of the sun. Wide overhanging roofs and shady hallways are among the preferred methods for preserving a pleasantly cool atmosphere away from the oppressive heat of the midday sun. Shady, darkened spots frequently have pleasant associations. Conversely, in Scandinavian countries there is an obsession with “catching light”. Since the very beginnings of the Modernist era, architects in this part of the world have looked for ways of collecting the sparse Northern light using funnel or fan-shaped building structures and using it to maximum effect in building interiors.

MANKIND AND ARCHITECTURE

Mankind as the focal point of architecture: interior views of a corresponding relationship.

Above Isaac Newton was one of the first scientists to explain the phenomena of the heavens and light without relating them to religion. In his grand plans for a Cenotaph for Newton, the revolutionary French architect Etienne-Louis Boullée attributed a god-like character to the British physicist in 1784. Hundreds of tiny openings in the sphere, which was to have a diameter of more than 150 metres, make it into a depiction of the heavens with the moon and constellations.
in the eternal battle between light and dark. The sun as the ‘redeemer’ of light after the darkness of the night was now no longer the only source of light available for use.

Human observation of the sun and the cultivation of sun-related myths go back as far as the Bronze Age. One example that illustrates this is Stonehenge, whose stone gateways are positioned to allow the rays of the sun at certain elevations to fall at precisely defined points in the centre of the circle. Many findings testify to the use of sun chariots and a variety of other sun-related motifs. Hans Sedlmayer explains: “We see the large, flat golden disk itself, which may be interpreted as an illustration rather than as a symbol of the sun. It is decorated by fine circular and spiral-shaped ornamentation whose primary motif is large annular rings and rows of smaller circles and spirals. Circles and spirals are without doubt used as vehicles of solar symbolism. The reference to the light is provided by the material, the reference to the sun is made by the circular shape.” At Stonehenge, experts were also able to verify that the increasing radius of the stone circles is concurrent with increasing calendar precision – to the point at which the circle is aligned with the sun for the summer and winter solstices.

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Between myth and rationality: from antiquity to the Renaissance

Both the Greeks and the Romans attached a far less important role to light. It was the Greek civilisation that developed the geocentric view of the world, placing mankind on the earth in a world made up of light and shadow, moving into the realm of darkness in death. The Greeks set out not to negate nature as a force to be resisted, but to embrace it by accepting and researching its laws. But still the Greek temples must be seen as a type of bridge between mankind and the immortal world of the gods. Their interiors were no longer enclosed by walls that would prevent the ingress of light, but by columns that thematised the transition between inside and outside. As most of the temples were oriented towards the east, we may imagine how the gilded statues of the gods were lit up by the rays of the low lying sun penetrating the columns at dawn, seeming to awaken them, like the temple statues in Ancient Egypt, to new life.

Right up until the height of the Middle Ages, the abstract concept of light continued to assume the role of mediator between God and the world, and was even used as a symbol for God himself. We are familiar with the use of light as the symbol of Christ’s resurrection. His words “I am the light of the world” are still valid today in the Church. The materialisation of light became a spiritual phenomenon considered independently of the sun in Christianity. According to Genesis, on the first day of creation there was light – the sun and the stars were created only afterwards. The Romanesque cathedrals (1000-1250 A.D.) are the last buildings in Europe that were constructed not for people but for God himself. We are familiar with the use of light as the symbol of Christ’s resurrection. His words “I am the light of the world” are still valid today in the Church. The materialisation of light became a spiritual phenomenon considered independently of the sun in Christianity. According to Genesis, on the first day of creation there was light – the sun and the stars were created only afterwards.

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5. A compact, solid construction, like this at the Abbey of Montmajour near Arles, is typical of the Romanesque style of church architecture. Due to the kind of construction, there are only relatively small window openings through which light is barely able to penetrate. The church interior is usually only seen like this at twilight.

6. In many early civilisations, the sun was considered to be the highest deity. On the Aztec sun or calendar stone, the face of the sun god Tonatiuh can be seen at the centre. He is framed by four pictures that represent the four previous sums (worlds) in Aztec mythology.

13. During the Gothic period, churches became a gathering place for ever greater communion with the Gothic era. This concept is clearly demonstrated by the Andrea Palladio (top lit) centre and the choir stalls as the (neutrally lit) end. This arrangement, like this at the abbey of Montmajour near Arles, is typical of this age. Ribbed vaults and flying buttresses satisfied the demand for resolution of the enclosing wall. The sense of perpendicularity favoured by Gothic architecture was supported by pointing arches whose ribs formed a continuation of the rising columns, drawing them together and sending them upwards into infinity. The cathedral in Chartres is a good example of the use of ever larger translucent membranes in coloured glass. The Gothic window is an opening only as defined by the construction. The impression it creates inside the building is more that of a disembodied wall illuminated ethereally from behind. The opacity of the glass surfaces creates the impression that the walls, of which the glass area form a part, are glowing. The rose window in particular may be interpreted as an effigy of the sun, and the structural embodiment of the equation “light equals God and the sun equals the image of God”. To be touched by the light was to be touched, according to popular belief at the time, by the hand of God. The dematerialisation of light began at the end of the 17th century, with the first attempts to explain nature. In the same way that architecture was rendered rational and tangible by proportions and the rules of physics, an attempt was made to rationalise the concept of light. The perception of light changed during the Renaissance period between 1450 and 1660 from the religious to the representative and aesthetic, causing the symbolic concept of light to lose much of its function. The function of light was now simply one of illumination. Brightness and transparency became associated with progressive building; the mystic twilight of the Middle Ages was now synonymous with a barbaric and backward age. For the first time, large windows permitted transparency from both the inside and the outside of building. Light from above was welcomed as a new symbol of quality, architecture such as Beaufort and Michelangelo began, for the first time, to consider the use of roof lights. Churches were divided into areas of differently designed lighting effects: the nave as the (laterally lit) passage through the building, the cupola as the (top lit) centre and the choir stalls as the (neutrally lit) end. This concept is clearly demonstrated by the Andrea Palladio church II Redentore in Venice. Here, the significance of light is reduced to its functional role. It illuminates every angle of the nave precisely, reflecting an austere, demystified prayer room. The architectural lighting themes used in the Renaissance were often viewed as iconoclasts of the Modernist period. In fact, they represent rather a re-interpretation that was to be manifest predominantly in profane architecture.

EXTRASTELLIR LIGHT AND RATIONAL BRIGHTNESS: FROM THE BAROQUE TO THE ENLIGHTENMENT

Between 1650 and 1760, the pendulum denoting the perception of light swung back towards the sentimentalism that characterised the Baroque period. A more intense relationship with light was in evidence; the way we experienced the sun was perceived in a more sensual perspective. Once again, the search was on for a diffuse, unreal experience of light avoiding the formation of hard shadows. The most striking achievements of the light architects of the time lay in the creation of a ring of lights above which a cupola appeared to float, its curves illuminated so as to appear totally dematerialised. This effect is encountered with particular poignancy when the sun is low in the sky in the Chapel of the Holy Shroud in the Cathedral at Turin. The complete illumination which floods the zenith of the cupola is achieved by a bank of windows at the cupola tip that is out of view to the observer from the inside.

Propane baroque architecture, on the other hand, linked light with the concepts of reason, liberty and power. An example of this is Ludwig s von Holbein’s Hall of Mirrors at Versailles. The splendid mirrored wall along one side of the hall intensifies the incidence of light by additional mirrored surfaces on the opposite side, thus multiplying the efficient use of light and allowing the elaborately painted barrel vault to be admired in all its glory by visitors. From this time, the use of figurines for the marvels of architectural beauty was no longer the exclusive province of the churches.

During the Enlightenment, a fundamental shift took place in the perception of light. By the concept of the artificial order of the day was considered to be the highest divinity. on the aztec calendar stone the face of the sun was considered to be the highest deity. In Classicist buildings, the rational use of light to achieve bright and open spaces was a characteristic of Cartesian reason were dominating themes. The dawn of industrialisation saw the perception of light become final and irrevocably demystified. From here onwards, light also served the purpose of illuminating buildings as profane as greenhouses and factory halls. The newly generated ‘aperture for light’ was manifested in architectural terms in such projects as the Great Exhibition in 1851, in particular in Joseph Paxton’s famous Crystal Palace. Visitors admiring the colossal steel and glass construction realised that the rules conventionally used to judge architecture no longer applied. The significance of Crystal Palace lies not only in the solution it presented in answer to major problems of statics, but even in the innovative prefabrication methods and technical deliberations invented in the project, but in the new relationship that evolved between the technical and the purpose of representation embodied by the building. Meanwhile, light-filled rooms with glazed facades were accepted initially only in publicly used rooms. Housing construction, for example during the Biedermeier era (1815 – 1848), still favoured the same dim half-light. Living areas were dominated by dark, light-swallowing materials. Bourgeois architecture throughout the 19th century was characterised by a strict separation of the outside from the inside.

SUN, LIGHT, AIR AND SPACE: DAYLIGHT IN THE MODERNIST AGE

The advent of a new sense of practicality now saw daylight make its entrance into the home environment. Brightness illuminated every nook and cranny now became synonymous with ‘liberated living’. Plain glass, in undivided panes where possible, turned the home into an appendage of the outdoor world. The light concept reached its zenith with the complete dissolution of form, culminating finally in a house made purely of glass. Bruno Taut designed a Crystal House for the 1914 Werkbund Exhibition in Cologne. The walls and the newly formed dome roof were made of multiple glass panes. The impression of anyone inside was that of standing surrounded by pure light. Glass was used as a building material to depict joie de vivre and power. The overnight success of the new perception of light was aided by new sociological thinking and changing attitudes towards living hygiene. The Weissenhofs housing complex, constructed in Stuttgart in 1927, provided exemplary proof that the theoretical concept of liberated living was capable of being implemented in practice. The foundation stone for the Modernist age had been laid. New industrial processes and serial manufacture opened up the scope of young architects to develop new forms for contemporary architecture. “Sun, light, air and space” was the order of the day. Le Corbusier’s manifesto “Five points towards a new architecture” advocated detachment of the facade from the supporting construction, which from then on permitted free positioning of openings around the building facade. Horizontal window introductions were introduced, and with them the possibi lity to impart complete, even illumination of rooms. The first
The process of finding solutions to these problems frequently reveals that the most predominant feature is a 9 metre wide opening at the top of the dome, which symbolises the sun in its firmament. When the air is damp or misty, the sunlight is concentrated into a visible ray of light that makes it obvious how our most important star moves across the heavens.

Le Corbusier demonstrated that what is needed is not so much the pantheon was built between 118 and 125 A.D. as a place of congregation in Rome. Louis Kahn’s rejection of the concept of separation of facade and skeletal structure clearly sets his work apart from the transparency of the Modernist movement. Kahn’s issue was the emphasis of mass through structure, a theme taken up by many of his contemporaries, such as Paul Rudolph. Kahn’s work sought to create the mystique of a space and bring it to life by using the energy of natural light. He worked with gradations and transitions from the public to the private and from the outside to the inside in order to modulate daylight. He also used light to support those plan concepts that embodied his notion of spaces serving and spaces served.

The period from the Modernist to the Late Modernist age is characterised by the endeavours of architects to portray incident light situations with exemplary, and occasionally exaggerated, design solutions. Technical progress now opened up the possibility of implementing almost any architectural design concept calling for free placement of openings in the building facade. However, these new aspects were not without their technical means, to actually implement an all-glass building that complies with the fundamental rules of design, in these times even stronger ideological foundations are called for in order to justify the construction of a highly mechanismed glass facade.

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The period from the Modernist to the Late Modernist age is characterised by the endeavours of architects to portray incident light situations with exemplary, and occasionally exaggerated, design solutions. Technical progress now opened up the possibility of implementing almost any architectural design concept calling for free placement of openings in the building facade. However, these new aspects were not without their problems in terms of statics, energy and climate technology. The process of finding solutions to these problems frequently lagged behind the inventive creativity of the architects. The all-glass house was acknowledged not to be the most sensible of solutions for a wide variety of reasons. Ways of ideally metering the daylight consequently became one of the most hotly debated issues in the world of architecture during the 20th century.

From today’s perspective, the formative years of Kahn and Le Corbusier demonstrated that what is needed is not so much an intellectual approach as individual custom-tailored solutions to create optimum lighting atmospheres. The different ways of emphasising daylight according to specific architectural styles during past epochs have given way to a search for building-specific solutions to the problem of illumination using daylight. There is now a widespread realisation that the heterogeneous building requirements of our age cannot be met by a standardised ‘one-fits-all’ solution engendered by a single architectural approach. At the same time, problem situations arising in practice have resulted in a situation where similar daylight-related solutions have evolved to address related building assignments. This pragmatic approach is naturally subject to the vagaries of fashion. In recent years, for instance, a new interpretation has been lent to glass facades as the expression of corporate philosophy — in defiance of the resulting overheating problems. Although it is possible, by highly complex technical means, to actually implement an all-glass building that complies with the fundamental rules of design, in these times even stronger ideological foundations are called for in order to justify the construction of a highly mechanismed glass facade.

Today, we know that the daylight yield achieved in buildings through a glazed area comprising just 10% of the facade is fully adequate to illuminate even the deepest room.

In an oversaturated consumer market, daylight, as an issue of architectural importance, is becoming ever more exaggerated in a bid to grab attention. This tendency is driving architects constantly to push back the boundaries of the technically feasible. In most new developments, once planners are confronted with the currently applicable standards and comfort values, they quickly come to realise that purely conceptional architectural approaches are no longer sufficient as a basis for the achievement of flawlessly functioning light architecture. Constructional physics-related problems and the complexity of home technology, as well as continuous advances in the field of glass technology, call for the technical expertise of specialists. Consequently, architects are being increasingly forced into a position of having daylight planning performed by a team of specialists.

Pablo Buonocore graduated in architecture in 2000 from Zurich University of Applied Sciences. He then went on to work for several years in a number of architectural firms, including Antonio Sanchez Grislan, Aikianu, and Antonakakis Dimitris, visiting Professor M.I.T., Athens. Together with Michael A. Critchley, he wrote the book “Tagessicht in der Architektur” (Daylight in Architecture), which was published by Niggli in 2001. From 2001 to 2004, he managed his own architectural studio in Winterthur. Since 2005, he has worked as a building client representative and building trustee. He is also engaged in a post-graduate course in Business Management for Architects and Engineers (dMBA) at the Zurich University of Applied Sciences.
Like a breath in light

When the atmosphere of melancholy is stimulated in people by rising mist, then here it is so that thoughts, but also a mood, have learned to breathe, in so to say beyond-human freedom at the sight of this diabolic flooding sea of light. That is a special relationship which the human can have with the surroundings for then it is possible to actually rise to the feelings so that thought is like breathing in light. The human feels thought like breath, but like breath in light.

Rudolf Steiner
DAYLIGHTING
The natural gift of daylight put into practice in architecture.

LIGHT IS
THE REAL STUFF

By Ole Bouman.
Photography and project texts by James Carpenter Design Associates.

James Carpenter has achieved fame as a light artist and designer of filigree glass constructions. He has mastered the entire toolbox of light design with a degree of skill attained by only very few of his contemporaries: its refraction and concentration, its absorption and reflection, its colour and its rhythmics. Carpenter designs sensual total art works that constitute far more than simply a decorative add-on to the buildings of others. The pinnacle of his career to date could also be a turning point for Carpenter. Will he remain the author of spatial drama that he is today, or will he take the route of a professional service provider in the subject of light architecture?

7 World Trade Center, New York, NY 2002-2006
Architect: Skidmore, Owings & Merrill
Mock-up of Podium Screen Wall

The reconstruction of 7 World Trade Center, the first highrise to be rebuilt at the site of the former World Trade Center, led to some particular challenges. The electrical transformers at the base of the building require 50% unobstructed access to the outside air to be adequately ventilated. James Carpenter Design Associates proposed a double screen of two layers of triangular wire, experimenting with the angle of those wires and the possibilities of inserting light between the layers. During daylight hours, the outer layer of triangular wire reflects direct and ambient light from the building’s immediate surroundings. At night, it becomes a scrim through which the inner layer becomes visible. LEDs fixed to the back of the outer layer project light onto the inner layer of wire, which is set at alternating angles, causing the light to be reflected within the cavity and projected back out through the outer wire.
This is the story of a man who became one of the world's most respected architects of light. Starting his career as an installation artist fascinated by patterns of nature, he became a well-known designer of architectural experiences induced by light. He built up a career from someone who provided people with moments of heightened perception, to someone who gave them complete spatial environments to be inhabited over time.

From the angle of the artistic subject matter, one is struck by the continual concentration on perhaps the most important modality of human perception light. But what happens if success interferes with subject matter? Will it change his subject? Will it affect his perception? Will it open up complete new territories for experiment? Or will it narrow him down to the expectations of other people to do his trick over and over again?

Here is the story of a man at the crossroads. A man facing the paradox of enjoying the need to get sunlight directly to enter the main school building, even on winter days when the sun wouldn't get very high. However, on closer examination, the angle chosen didn't do much for more light to enter the school. What it did achieve, however, was the monumentalisation of the school by providing a straight axial view on it. The argument of more light was used as an alibi to aggravate the building on a noble motif. This case is ample evidence of how light, besides being a value to inspire you, can become an asset to persuade you, even if it is based on creative argument or just humbug. Light, to all cultures in all times, is associated with positive feelings and values. People will believe you much faster when you power of light by giving it a prominent place in the core of a design. Not just glorifying light that makes people feel better; it can also be achieved by truly generating, reflecting and acknowledging light as the core of a design. Not only the story of light and the countless references to it, but also light as an alibi to aggravate the building on a noble motif.

Writing my first article ever on a specific building, the Open Air School in the Amsterdam Kloostraat (1928), designed by Modernist master Johannes Duiker, I was almost deceived by his argument about the entrance building opposite the main school, which is situated at the back of the inner courtyard of a typical Berlagian building block. According to Duiker, he cut off one floor of the entrance building, specifically lowering the height of the surrounding perimeter block, because of the need to get sunlight directly to enter the main school building, even on winter days when the sun wouldn't get very high. However, on closer examination, the angle chosen didn't do much for more light to enter the school. What it did achieve, however, was the monumentalisation of the school by providing a straight axial view on it. The argument of more light was used as an alibi to aggravate the building on a noble motif.

Here we need to take the step from the mythical argument to the real value of light. It is not just glorifying light that makes people feel better; it can also be achieved by truly generating, reflecting and acknowledging light as the core of a design. Not only the story of light and the countless references to it, but also light as an alibi to aggravate the building on a noble motif.
functional rationality, stripped the building of its obscure interiority and opened the volume to the outside gaze by illuminating the inside with the free entering light. Neo-Platonic minds translated this scientifically oriented reasoning into a more spiritual dimension: transcending light from a physical reality in an immaterial spirit, an omnipresent light to the outside gaze by illuminating the inside. Moreover, although architects are fond of using light to animate and dramatise their designs, the critical reception of architecture often sticks to intellectual intentions or the overemphasis of form. Although light as a vantage point is essential to understand how architecture works, how it has an emotional effect on people and how it is embedded in a larger spatial context, most architects do manage light in every single work, perhaps also a profound lack of expertise in the phenomenology of light. Although architects do manage light in every single work, they think mostly of managing totally different issues. Light comes as a side-effect, a result, not as a partner to aim for the highest. In other words: the man I’m talking about is a specialist of light, you will not only encounter many people who will not understand you, but also many people who want to reduce you to that field they do not know. They can remain unaware of a certain field, by limiting you to only that field. For sure, he is a specialist. For him light is no longer the stuff that to do him justice, we would need to go into a very technical discourse to describe the work. There is hardly any mature debate about light in architecture as a cultural phenomenon, linking it to the key concepts of our time, without falling back in the quasi-religious wordings we know from the past. At this point, it becomes interesting to examine the palette of this man, the architect. What does he have at his disposal to invite light to his creation. What techniques does he use to maximise the effects of light, transform them, manipulate them. The problem is that to do him justice, we would need to go into a very technical discourse to describe the work. There is hardly any mature debate about light in architecture as a cultural phenomenon, linking it to the key concepts of our time, without falling back in the quasi-religious wordings we know from the past. James Carpenter Design Associates, working with SOM, developed a complete scheme for the atrium enclosure at the Time Warner building on Columbus Circle in New York. To match the scale of the volume and the urban street grid, JCDA conceived the largest cable-net wall ever built: the width of the wall matches the width of 59th Street, visually extending it into the building. The exterior cable-net wall presents a unified highly transparent plane of glass, while the interior inclined cable-net acoustically isolates Jazz at Lincoln Center from unwanted sound, while maintaining complete transparency to the street below, providing the audience with direct views of Central Park and 59th Street.
The man is James Carpenter. Since he rose to fame, there is a fair chance you may have enjoyed one or more of his works. Perhaps you have seen The Diaphanous Light Field (1994) on Columbus Avenue in New York, a glass work by way of reflection and refraction creates an illusion of depth along a very austere street facade. Or you may have visited the German Foreign Office in Berlin and been struck by the giant atrium materialising the client’s wish to represent itself with transparency. Or maybe you have been shopping in the Time Warner Building at Columbus Circle, enjoying the view of bustling New York from one of the floors behind the giant glass facade. These as well as many other major projects, mark a development towards full designership.

To understand creative dilemmas, it is important to distinguish between knowledge and aspiration. If it comes to judging James Carpenter’s ability and capacity to maximise the effects of light to the benefit of architectural beauty, he is an outstanding figure, unparalleled in the field. Where some architects are good in techniques of absorbing and filtering light, where some architects are good in reflection and refractions and where some architects specialise in radiation, emanation and emission of light to tell stories with a building, Carpenter...
ter does all of these things, sometimes even in one project. In the recent book James Carpen-
ter, Environmental Refractions by Sandy Marpillero, the oeuvre of Carpenter is made understandable by means of many diagrams which reveal the careful manipulation of light in many different ways, ranging from modest filtering to megalomaniacal transformations of light into complete new artificial modalities.

Going from one project to the other throughout his career, one can’t help but being impressed by the subtlety (and playfulness) of his light designs that transcend decoration into experience. His light is not just there to illuminate his objects, he creates imaginary objects, lines and surfaces, intersects and distorts them, and lets the viewer become the choreographer of a light ballet. His work is not about the play of chiar-obscur. This kind of sublime dialectics doesn’t interest him. He is more generous to light, maximizing it by reflection and amplification, by using translucent membranes and special coatings, twisting it by using dichroic glass or lenses, enhanc-
ing architecture to a simple time-based art that uses the cycle of the sun to start a dialogue between art and nature.

Here we touch upon the other dimension. If his knowledge of how to work with light and his skill to implement it are superior, the question remains of what he does with it. And again it seems that he might be at the crossroads of his career. What are his aspirations? Will he become the one who cleverly markets his special skills to sell light as the great neutralizer, the common ground that may sanitize our world in an age of fear, or will he keep intensifying the experiences of the people with unexpected animations of architectural spaces even to the degree of the uncanny? Will he be the man who frames our life in predictable spatial formats and scripted experiences in shopping malls and airport lounges, or will he continue to find ways of distorting our perception and make us aware of our environment? It is not difficult to start a discourse here on the ongoing abstraction of architecture in the age of globalization. James Carpenter’s work (and success) could easily be seen as a function of an ever growing need of clients to manifest themselves in a global competition of cities and creative industries. His spaces also represent a tendency to create strong icons which are all but controversial. His symbolic order is extremely powerful, and still makes everybody happy.
Within that discourse and tendency, the question is whether or not Carpenter has a clear plan of how to address this tendency with his unique intelligence. Here we enter the realm of psychology, which is beyond my critical reach. So let us focus on a more disciplinary issue: one that can be seen as a parameter of either creativity or stagnation. Let us focus on the question of whether his work, in his latest big scale projects and collaborations with big firms, has the power to challenge the architectural object and integrity by techniques of blurring and distortion as we know from his earlier work. Here we touch upon that issue again of finding oneself at the crossroads of one’s own creative history. I’m talking about that moment where success can hijack one mentally and force one to remain the same. Or worse, to fall back into the comfort and sterility of one’s specialisation. Thinking of James Carpenter’s work throughout the years, the first thing that comes to mind is the challenge it implies: to the object, to statistics, to space as the predominant category of architecture, to fixed meaning etched in stone, and so on. His light works, whether ephemeral or fragile, where ever inventive twists of reality, giving architecture back to the viewer, and bringing a great architectural history of light to its logical conclusion. As with so many other talents in culture reaching the point of general acknowledgement and the surrender of the world to one’s unique capacity, the time has now come to choose. Either Carpenter’s work will remain at the present height of perfection and elegance and will be enjoy a tremendous success of having the unique selling points at the right moment in time; or he will manage to remain the artist within himself, unadjusted, unsatisfied with the gloss of the object, the smoothness of the discourse and the bliss of the lifestyle that belongs to it. Whatever the next steps, it will be the dimension of light that will provide us with the theatre to witness the creative drama.


Structural Glass Prisms, a dichroic window installation, was designed to bring the outside in, illuminating the Christian Theological Seminary’s Sweeney Chapel’s large space. In keeping with the spare rigor of Edward Larrabee Barnes’ design, James Carpenter Design Associates’ simple design unifies structure and effect. The vertical 9.75m high glass blades are stabilised with horizontal panels of dichroic glass, creating an all-glass structure free from any steel that might obscure the view. JCDA conducted studies of the sun’s penetration to ensure the Structural Glass Prisms’ ability to project light into the baptistry niche on the opposite wall at around noon every day. Two reflected and two transmitted bands of color each project onto the chancel wall, combining to form patterns of remarkable complexity that constantly change in relationship to the sun’s position. Some imagery is projected onto the chapel wall and floor; when direct light from the sun to the dichroic glass is interrupted by the movement of clouds or birds passing across the sky, those shadows are transmitted into the space by the downward slanting bars of light. At the same time, the leaves of adjacent trees, moving in the wind, are visible in the downward slanting bars of blue light, thus creating a superimposition of landscape and sky.

7 World Trade Center was the third building to collapse on September 11, 2001, and is the first building to be rebuilt. It is comprised of 42 floors of office space set above eight floors of electrical transformers in large concrete vaults at street level. The use of layers of wire to bring light into the skin of the podium (see p. 20–21 and p. 32–33) led to JCDA and SOM’s unique ‘linear lapped’ glazing detail in which the vision glass overlaps and floats in front of the dichroic glass is interrupted by the movement of clouds or birds passing across the sky, those shadows are transmitted into the space by the upward slanting bars of light. At the same time, the leaves of adjacent trees, moving in the wind, are visible in the downward slanting bars of blue light, thus creating a superimposition of landscape and sky.
By Liz Wells.

No photography without light – this much is evident simply by dissecting the word photography on the etymological level. This article by Liz Wells analyses the role played by light as the working material of contemporary photographers. Light renders things visible, creates pictorial atmosphere and adds drama, provides information about the time of day and the season, and offers clues about the photographic location.

To talk of ‘light in photography’ is, of course, to repeat oneself; photography literally means writing with light – photograph. Cameras (method) and film stock or digital disc (medium) are also crucial, but without light there is no image. Even newer technologies (X-rays, holography, computer graphics...) have not superseded the photograph. In fact, it was not the use of light which puzzled early 19th century researchers; Plato had noted the principle of the Camera Obscura and, in Europe, lenses date from mediaeval days. Rather, it was fixing the image, making it permanent, which proved troublesome. In 1849, when Louise Daguerre in France and Henry Fox Talbot in Britain both announced their inventions and Fox Talbot claimed photography as ‘the pencil of nature’, what they had achieved was (relatively) permanent and portable images.

The idea caught on, and the rest is history.

This article considers some of the ways in which contemporary photographers make use of available light to achieve particular image effects. The artists whose projects are discussed, all work primarily for gallery exhibition and book publication (although some also take on commissions from time to time). Light gives shape to the detail of observational images and may also be used for dramatic effect. The relationship between that pictured and metaphoric affects, is a matter of individual style and also of the purpose or context for which the photograph or series is intended. Among the best known pioneer photographers were those who charted the geographic contours of the American West in the second half of the nineteenth century, often employed on government or commercial surveys. Historically there has been a strong interest in exploring the topographic; light is used to foreground detail in that which is being documented. Among the best known pioneer photographers were those who charted the geographic contours of the American West in the second half of the nineteenth century, often employed on government or commercial surveys. Since the 1970s, Mark Klett and associates (www.thirdview.org) have been revisiting sites, seeking original viewpoints and re-photographing ‘views’ in part in order to explore problems of accessibility, movement of light, effects of climate and weather, which influenced and limited the achievements of their predecessors. Their work testifies to renewal of interest in older procedures and processes. The process is painstaking. It can be a long wait until shadows replicate the ‘correct’ time of day.

The time factor: light changes over the course of days and seasons

Re-photography is central to the working method of English photographer, Jem Southam, who revisits sites which he has previously photographed, documenting the same place at different times of day and year or returning after a gap of many years. Through revisiting he becomes very familiar with the characteristics of particular locations and seasonal change. A series of detailed observations of change as the cliffs crum...
ble at Sidmouth on the south-east Devon coast involved regular visits over a period of 18 months (December 1995 to May 1997). Botanical and geological detail is revealed, as are effects of season, light and weather. He usually photographs soon after dawn, and avoids the sharp light of summer. He is not interested in the poetics of shadow play; his observations may have metaphorical implications, but they are not operatic. Rather, his pictures, shot in uniform light, allow us to examine environmental detail.

Below Uta Barth, Ohne Titel (no 7) aus der Serie ‘...and of time’, 2000.

In her frequently blurred photographs of streets and empty spaces, Uta Barth avoids anything that would identify the location or how the idea for the photograph originated. The almost ungraspable emptiness of her pictures encourages the observer to dwell awhile and look for fine nuances as in this case, namely the interplay of light and shadow on the sofa and the rear wall of the room.

He is by no means alone in this interest and methodical approach. For instance, Danish-Icelandic artist, Olafur Eliasson, best-known for kinetic light sculptures and ambitious light installations (see Daylight and Architecture, issue 1) also makes photographic series wherein, like Southam, he uses repetition to detail change or difference. Gallery installation blocks together separately framed images. One such series shows a series of fronts of buildings in Reykjavik (Iceland), developing from landscape format images on the left across to portrait format images to the right. Our attention is drawn not only to individual facets depicted, but also to geometric difference as the frame of the picture echoes the shape of each edifice. Evenness of light adds emphasis to formal similarities and differences. A set of landscape panoramas, also from Iceland, is unusual in integrating black and white and muted colour images; the sublety of change means minor distinctions come to seem highly significant. Both these photographs work very carefully with available light; but my point is that they do not draw attention to it.

By contrast, a number of photographers are interested in the dramatic effects of light. In Modernistic Journey (2002) Norwegian photographer, Ane Hjort Guttu, captured the effects of the movement of light on both the natural environment (the mountains or the shore) and on modern architecture. In the pinhole camera: meditations on light and colour. Many photographers are directly concerned with light itself. Uta Barth photographs exterior and interior scenarios, devoid of people. She is not concerned with subject-matter; rather she draws attention to the presence of light and its effects in any scenario, and also to processes of observation and seeing. It is as if she is exploring stages as backdrops on which a drama might play out, but is not doing so at the moment. Finnish artist Marja Pirilä is similarly interested in the effects of light and the experience of looking (see also p.36–39). She sits, pinhole camera on her knee, facing north across the lake, open to elemental light and colour. Each print is based on long exposure, softened by slight movement as she breathes; the series title Like a Breath in Light seems enigmatic, but, in fact, describes a process which is contemplative. Each is captioned simply with a date, and the series is installed as vertical blocks of images, seemingly ethereal as they are behind glass but unframed, supported by (almost invisible) fishing wire (tart from floor to ceiling). We view the shifting effects of light as a spatial installation; the effect is sculptural. Symbolic interpretation is very open. One response is to consider our own space and how we occupy, impinge upon, or pass through environments. Just being is important. A further series, Interior/Exterior, symbolises the extent to which the natural is incorporated into everyday consciousness. This series uses long exposure and the camera obscura effect of reflected external scenery into internal space; the projection becomes superimposed on the domestic. Her method was to cover the window with black plastic, cut a hole in it to fit a lens. The everyday room is transformed, as was Plato’s cave. She then photographed the inhabitant of the room in this intermingled space wherein the reflected exterior transformed the everyday interior. (Pirilä, 2002: n.p.) The effect is unpredictable; the final picture could not be pre-determined, and the imagery testifies to the unexpected or unconscious amalgams. As the artist remarks: ‘the photographer began to take form not only as the charting of the living environment of a human being, but also of the landscapes of the mind: reflections of thoughts, dreams, fears and reveries.’ (Pirilä, 2002: n.p)

By contrast, a number of photographers explore artificial light as a dramatic force. Brassaï’s 1930s street scenes from Paris by Night explored the intensity of effects of existing artificial light and shadows cast. Philip Lorca di Corcia placed trigger flashlights in public places, highlighting the facial expression and body language of those who happened to pass by. Hiroshi Sugimoto achieves his dark meditative seascapes through long exposures and even light, exploring the inter-relation of light, time and space. His Theatres series (begun in 1978) is particularly notable: working in the USA, he visited old movie palaces (including drive-ins), exposing the film for the length of the projected movie with the film projector providing the only lighting. The lengthy exposure erases all detail in the ensuing image so as to create a white luminance as a rectangle at the centre of a black frame (building, seats and surroundings have disappeared into the blackness). An abstract landscape! He has also experimented with the effects of candlelight, photographing candles silhouetted against black backgrounds or, in the case of his major exhibition at the Serpentine Gallery (London) in 2004, installing a candle so that the flicker of light animated the darkness of the room in which it has been placed.

The Light of Home: Local Affinity and Atmosphere.

For his series Imaginary Homecoming, Finnish photographer, Jorma Puranen, used black and white, in this case to reference nineteenth century photography. He re-photographed ethnographic portraits of Sami people (Laplanders) from the archives at the Musee de l’Homme, Paris, printed the images onto acrylic sheets, and carried them to the northern slopes of Norway and Sweden, physically installing them within their ‘home’ environment for re-photography. Again this was something of a heroic process: having put them in place, he had to wait for the daylight to reach the intensity necessary for photographing, by which time the snow would have softened; sometimes he had to wait all day until the sun went down, the snow froze over again, and it was possible to retrieve the images. He views the experience of waiting, contemplating and listening to the environment in the remote north as a part of the process of picture-making. He uses colour for other series, for instance, in Language is a Foreign

“The simplest forms have authority – like a blank white light, and how do you photograph that? You need a framework to make it visible. But this is not simply white light, it is the result of too much information. So too much is nothing, which makes sense to me.” Hiroshi Sugimoto
Country, likewise made in the Arctic. Here, the strong light produced extreme blues and whites, which he used as backdrop against which to stage pictures which say something of language and difference. He installed flags (white, red, black or blue) on which various words are inscribed, usually in Sami. Sharp colour contrasts lent extra emphasis to the foreignness or ‘otherness’ to which he is drawing attention.

Quality of light is a key element determining what can be achieved pictorially. This obviously varies in different parts of the world, in part due to local environmental circumstances (industrial smog, sea mists) and in part due to latitude, that is, closeness to the equatorial range of the sun. There is a striking contrast between the cool white light of Nordic or North Canadian areas, and the more amber tones of Mediterranean light. Warmer intensity not only lends colour but also drama to imagery. Mexican photographer, Gerardo Montiel, works with a combination of natural light, artificial light and colour filters to stage images which variously reference well-known paintings, intimating the storytelling functions once ascribed to fine art. Like Puranen’s work, the images are highly manipulated. But differences in quality of available light contribute significantly to the very different visual effects, affecting our response to the pictures.

**SUN, MOON AND STROBOSCOPES: EXPERIMENTS WITH LIGHT SOURCES**

Light need not be sunlight. Susan Derges constructs images through an amalgamation of transient light and specific artificial light sources, thereby creating more-or-less abstract landscapes. In an early series, *The Observer and the Observed*, her own eyes are reflected not so much on water as seemingly behind a surface of water, sometimes garlanded with what appear to be glass beads. In fact these are droplets created by a bank of flash lights positioned above. The sensitised paper responds to the swirl of water, foam, pebbles and sand, all of which leave their mark. The final picture in effect traces the ebb and flow of the tide. Likewise, in *The Strokes* (2002) moonlight causes the reflection of plants and trees, and the effect of movement of water, to register as image.

As can be seen from the above examples, daylight, moonlight, and artificial light can all be used to create particular effects that contribute to the rhetoric of the photographic image. From the photographer’s point of view, light is a part of the material with which they work. As audience, we may be more or less aware of ways in which we are affected by light in photography. It is, however, undoubtedly a major influence in our response to particular images. The *double entendre* of *illumination*, light and enlightenment, is surely no coincidence.

For further reading:

- ART18855 Model (18.7.04)

Humans are diurnal animals, heavily dependent on the sense of sight. Light is essential for humans to function efficiently. With light we can see, without it, we cannot. But that is not the only role of light. Over the last two decades it has become increasingly evident that exposure to light can have both positive and negative impacts on human health, impacts that appear soon after exposure or only after many years.

The established effects of light on human health can be conveniently arranged in three classes. The first class is that caused by light treated as optical radiation. In sufficient doses, exposure to light can cause damage to the eye and skin, through both thermal and photochemical mechanisms. In the short term, ultra-violet radiation can cause inflammation of the cornea (photokeratitis) and reddening of the skin (erythema). Prolonged exposure to ultra-violet radiation can lead to cataract in the lens of the eye as well as skin ageing and skin cancer. Visible radiation can produce retinal damage (photoretinitis). Visible and short-wavelength infrared radiation can cause thermal damage to the retina and burns to the skin. Prolonged exposure to infrared radiation can lead to cataract and burns. Guidance on the maximum allowable exposure is available, as is a system for evaluating light sources and their tissue damage potential. In terms of optical radiation, the most hazardous light source to which most people are exposed is the sun outdoors.

All these effects of light are negative but optical radiation can also have positive effects on health. Specifically, controlled exposure to light can be used as a treatment for hyperbilirubinemia, some skin disorders and some tumours. Exposure to sunlight is also associated with the generation of Vitamin D, a vitamin necessary for healthy bones and influential in many other aspects of health.

The second class is light operating through the visual system. Lighting conditions that cause visual discomfort are likely to lead to eyestrain and anyone who frequently experiences eyestrain is not enjoying the best of health. The lighting conditions that cause visual discomfort are well known and easily avoided in principle if not always in practice.

The third class is light operating through the circadian system. The sleep-wake cycle is one of the most obvious circadian rhythms so it is hardly surprising that exposure to bright light at the right time can be used to treat some sleep disorders involving the timing and duration of sleep. In addition, exposure to bright light is a useful means of stabilising the rest-activity cycle of people with Alzheimer’s disease and of relieving the depression associated with seasonal affective disorder. Unfortunately, exposure to bright light at night is also associated with the more rapid development of breast cancer.

To summarise, light is like fire, a good servant but a poor master. Exposure to light is essential for the visual system to operate, desirable for entraining the circadian system and valuable for the treatment of some medical conditions, but too much of the wrong wavelengths for too long, at the wrong time, and damage or injury may occur.

LIMITATIONS OF CURRENT UNDERSTANDING

The impacts of light as optical radiation and when operating through the visual system are both well understood. The same cannot be said for light operating through the circadian system. Partly this is because the topic of light and the human circadian system has been studied for a relatively short time and partly because what has been found is complex. Specifically, light entering the eye is absorbed by photoreceptors in the retina resulting in a signal passing from the retina to the suprachiasmatic nuclei (scn) and then by way of the paraventricular nucleus (pvN) and the superior cervical ganglion to the pineal gland (Figure 1). In the dark, the pineal gland synthesises the hormone, melatonin, which is circulated through the body by the bloodstream as a marker of time. Anatomical studies have shown that the scn, which are believed to be the central clock of the body, are connected to many other parts of the brain that regulate the production of a wide range of hormones and hence are likely to influence many different physiological functions. Some support for this view is given by studies that have shown that light received at the retina influences core body temperature, heart rate, the production of the hormone, cortisol, and the feeling of alertness. Given this diversity of effects, it seems likely that we have hardly begun to scratch the surface of the non-visual effects of light entering the eye.

By Peter R. Boyce.

Exposure to light can have both positive and negative effects on human health. The existence of these effects implies that the lighting of buildings is not just for vision any more. Rather, consideration also needs to be given as to how lighting might be used to support the health of the occupants. What form this support should take will depend on the availability of daylight and the access people have to it.

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Unfortunately, what constitutes the upper part of the visual field is effective? If the former is true then there is some minimal retinal irradiance required for efficient circadian stimulation. The use of dose implies reciprocity, in that retinal irradiance can be traded off against time. The problem here is that at some point reciprocity breaks down. Where that might be for the human circadian system is not known.

Finally, it is necessary to consider the importance of the timing of light exposure. That timing can matter is evident in studies of the circadian system of birds. For instance, a red light given early in the night tends to delay the circadian cycle but bright light given late in the night tends to advance the phase of the circadian cycle. This phase shifting effect has been used as a means for rapid adjustment to and from night shift work and for overcoming jet lag. However, the significance of the timing of light exposure for many other outcomes remains to be determined.

Implications and Applications

There is much still to be learnt about the non-visual effects of light. Nonetheless, it is already possible to identify two general implications for lighting practice. The first is that the lighting of buildings should no longer be considered solely in terms of the effect of vision. The non-visual effects of light discussed above are real and need to be taken into account in the design of lighting. The second is that the spectral content of daylight is well suited to stimulate both the visual and the circadian system.

Another characteristic of the circadian system that differentiates it from the visual system is time constant. The visual system is an image processing system that operates on a time scale of parts of a second. The circadian system is not an image processing system but is more like a simple photocell with a very long time constant of parts of an hour. This implies that light exposure is integrated over time thereby making dose the meaningful measure of circadian stimulation. The use of dose implies reciprocity, in that retinal irradiance can be traded off against time. The problem here is that at some point reciprocity breaks down. Where that might be for the human circadian system is not known.

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Given that it is desired to take the effects of light on health into account, the first step should be to consider the latitude of the site. In low latitudes, the amount of daylight available is almost always enough to ensure that a short exposure outside doors will entrain the circadian system and provide the necessary vitamin D. In such latitudes, protection from tissue damage is the main concern so limiting the exposure to daylight is what matters.

In high latitudes, where there may be very little daylight available for several months, the possibility of providing a clear light-dark cycle using electric lighting should be considered. This is possible because many light sources can be effective in stimulating the human circadian system, although not always as efficiently as daylight. The circadian system does not care what the source of the radiation received at the retina is only what that radiation is, so there is a wide range of light sources to choose from, including some that will provide the ultraviolet radiation required to generate vitamin D.

For intermediate latitudes, where the amount of daylight available requires considerable time spent outdoors for exposure to be effective and societal constraints make this difficult to achieve, the provision of extensive daylighting in a building has a role to play in supporting the health of the occupants, particularly those who have a fragile circadian system. This can obviously be done by careful design but where the site does not allow for extensive daylighting it should always be possible to include a special space, a sunspace, where the objective is to bar the occupants in daylight provided, of course, that this can be done without causing visual or thermal discomfort.

The range of buildings in which the provision of extensive daylighting or sunspaces might be justified will depend on the answer to another question, namely whether the effects of light exposure on health are limited to the ill, or is light valuable for everyone, even the healthy? There is no doubt that light can be used as a treatment for a number of clinical conditions but the effects of light exposure on the healthy is less clear. What is known is that exposure to bright light at night can induce a greater sense of alertness in the healthy and that apparently healthy people report greater vitality, alertness and improved mood following exposure to higher light levels. It is only if the non-visual effects of light can be shown to apply to the healthy that light and health will become a consideration in all building types rather than those designed specifically for the ill.
VARIATIONS IN WHITE
Mogens Dahl Institute in Copenhagen
A new centre for classical and contemporary music has been created on Islands Brygge, a former dockworkers’ district in Copenhagen. At the beginning of 2006, the Mogens Dahl Institute for Music, Choir and Conducting moved into a converted car workshop. Its light-filled, spacious and yet intimate rooms are the result of a strenuous process of archaeological recovery and conservation supervised by architects Frank Maali and Gemma Lalanda.

Like many other cities in Europe, Copenhagen is currently re-discovering its waterfront. Islands Brygge, a former dockworkers’ district in the east part of the city centre, in particular has developed into a focal point of new Danish architecture. This has followed a social transformation that has taken place in this part of the city. In the residential buildings from the late 19th century, the workers who once lived there have been succeeded by the young, the creative and finally the affluent, while feverish construction activity has given rise to a slightly chaotic character. The change from studio, and a former barracks now houses by the young, the creative and finally the affluent, while feverish construction activity has given rise to a slightly chaotic character. The change from...


The former carriage shed is an elongated ‘bridge,’ said Frank Maali, the architect responsible for the conversion. The large hall is a multi-functional room. Singing lessons take place here as well as rehearsals and chamber music concerts. As a result, the room has to be re-furnished with a glass wall set back behind the front of the building, visitors arrive in the foyer – a space that passes through rather than somewhere to spend time – with cobblestones (new but matching the colour of the ground surface in the yard) and an unplastered brick rear wall. On the left, there is an open clock room and then comes the ‘little’ hall, around 100 m² in size and complete with bar, that is used for small musical performances, music theatre and receptions.

On the right-hand side of the foyer, there is the 130 m² music hall with gallery. The latter serves as a ‘second tier’ for choir performances and also as an audience gallery when concerts are given. “It was always our plan to make the best possible use of the high room and the two very heavy steel beams, which are reminders of the workshop era, were left in place and serve as buttresses for this elongated ‘bridge’,” said Frank Maali, the architect responsible for the conversion.

The hall was used as a car painting shop, housed a car workshop for many decades. Today, two simple but striking black strips of lettering characterise the two buildings’ facades, which face the street and are covered in broken white plaster: ‘Vips’ and ‘Mogens Dahl Koncertsal’. Vips manufactures soap dispensers, toilet brushes and, above all, waste-paper baskets that have become design classics in Denmark. New wooden floorboards have been treated with a translucent white paint. The brick walls have been plastered but the structure of the brickwork is still detectable. The wooden roof beam and the heavy steel girders of the gallery have been painted white. Even the new, three centimetre thick wooden floorboards have been treated with a translucent white paint. Only the black, slim steel frames of the windows and glass doors through which the hall opens onto the yard contrast with the monochrome interior.

At first glance, you might think that the conversion of the old stables has changed it very little, as if this constituted its special intimate closeness was important for Mogens Dahl. “Normally, the audience in concert halls is a long way away from the musicians. But here people can see all the details, smell the wooden instruments, hear the breathing of the musicians and the turning of pages of the score. Similarly, the musicians feel every change in the mood of the listeners. This kind of direct feedback is enormously important.”

With the exception of the foyer and the oversized staircase with its high steel sides, the rooms of the Institute are almost completely white. The brick walls have been plastered but the structure of the brickwork is still detectable. The wooden roof beam and the heavy steel girders of the gallery have been painted white. Even the new, three centimetre thick wooden floorboards have been treated with a translucent white paint. Only the black, slim steel frames of the windows and glass doors through which the hall opens onto the yard contrast with the monochrome interior.

For a long time, I worked for universities, conservatories and opera houses – old ‘heavy’ institutions in which it is frequently difficult to change the way things are done and initiate new decisions. After all those years, I felt I was ready to dare the step into freedom and become self-employed.”

Dahl came up with his ideas for what should constitute the new institute even before the process of conversion started, some of these ideas being developed through many conversations with visitors and colleagues during the one and a half years of planning phase, the building had to be completely cleared. Only gradually did the parts worth retaining come to light. Mogens Dahl compares this process of uncovering with ‘modern archaeology’: the impressive roof beam was left as it was and the necessary additional heat insulation applied. No decision on the acoustic measures necessary was made by the client and his architects until the conversion process itself. They were assisted by the experienced acoustics planner, Jan Voetmann. After a series of exhaustive tests, he decided on the installation of perforated acoustic panels on the rear wall of the large hall. They were necessary because of the extensive hard surface materials such as steel, wood and glass and are intended to reduce the reverberation time in the room to an optimum.

Before the conversion, Frank Maali and
Gemma Lalanda were clearer about the light effect they wanted. In place of dim daylight coming in through a few vertical windows, they decided on allowing generous amounts of light to enter the room from above but without any glare. To this end, four new skylight turrets, from both sides of which light enters the interior, were mounted on the roof. The direct south light is diffused by large alabaster glass windows whereas the indirect north light reflected from the neighbouring firewall enters through smaller windows with clear glass. At midday especially, when the sun is at its highest, the large hall is filled with a soft but accentuated light. The sharp rhythm of the pilasters, wooden beams and acoustic panels on the rear wall of the room is then superimposed by a rising and falling vibrato of fractured light and penumbras, following the position of the window openings.

The old porter’s lodge next to the street is now dual-purpose. On the ground floor, there is the Institute’s administration office and the first floor can be used as a guest apartment, a meeting room or a restroom for the musicians. Originally, the light in the lodge was very dim after coming in through the windows facing the street. Now, more than half a dozen new skylights have been added. On the north side, large centre-pivot windows have been fitted and, in the south, small windows with dark semi-circular arched frames that were specially developed for old buildings that are listed as historical monuments. With the exception of the stay peg that holds the window in the open position, they are based on a historical model. Frank Maali never tires of stressing the importance of daylight for his design: “Daylight is enormously important and now that the building is finished, it’s clear that we were on the right track in terms of design when we decided to install skylights or high side-lighting in the dark rooms. The building could never function as a music school if we hadn’t done all this.”
Happy Intimacy with the Dahls

A new elegant venue for jazz in Copenhagen is more than promising

By Henrik Wolsgaard-Iversen

A comment from the couple during intermission about playing here for the first time: “The place you play in makes a world of a difference. Playing in small, funky clubs or concert halls or churches, these locales all send back their message to us. This place has great acoustics and the feel of the room makes it easy for us to find inspiration,” says Carsten Dahl, who sends a questioning look to Christina. She agrees and adds, “It’s mellow and the nervousness vanishes after a little while, maybe because you can see the audience as well as they can see you.”

Jazz and Architecture is a love affair that ran through most of the 20th century, and it is still hot. Though perhaps not entirely reciprocal, Le Corbusier went on an expedition to find Louis Armstrong up in Harlem in the thirties. The Bauhaus people ‘dug’ the early jazz, artists and architects have been fascinated with Coleman Hawkins, Sonny Rollins, Duke Ellington, Thelonious Monk, and Screaming trumpets, jazz has been associated with the skylines of New York. In Denmark, famous lamp inventor and architect Poul Henningsen was an ardent jazz fan, and it is still hot. Though perhaps not entirely reciprocal. The Dahls make their entrance and begin to play their own ‘Signs’, a modal and meditative composition with the theme ‘read the signs you receive and listen, unafraid’. Christina’s mature and searching tenor sax tone fills the room, followed and filled with her husband’s attentive piano. The room listeners and the two musicians find the acoustics and the feeling of the place before launching into more jazz-like standards and their own compositions as the morning becomes noon. One number is “Softly as in the Morning Sun”， delivered with stride and intimacy and a touch of humour.
Christina and Carsten Dahl performing in the Mogens Dahl Institute.
Photo: Gorm Valentijn
Leytron, a wine-growing village in the Swiss canton of Valais. Between grapevines and rocky walls, a slate-clad cube rises into the sky. The inspired boxes by Nunatak Architectures reveals its function as a residential building only at second glance. It is not just the form that testifies the will to create something exceptional, with remarkable precision the building also reacts to the requirements of the young clients and the location’s climatic conditions.

The village of Leytron, which is located on the north bank of the Rhône between Sion and Martigny, is not the kind of place typically mentioned in guidebooks. There are numerous villages in the area that have conserved their village landscape in a more picturesque and tourist-friendly way. But Leytron provides an exemplary study of how different uses and social ambitions have superseded each other in a village of winegrowers. The old barns in the centre of the village still remind passers-by of the time when the inhabitants were fully dependent on viticulture to make a living. Many of the contemporary houses on the outskirts of Leytron, however, now bear little or no relation to the landscape and traditions around them. They belong to the few who don’t practice viticulture anymore, but still settle in the place of their ancestors; perhaps due to a bond with their native soil or simply because their parents have bequeathed them a building plot.

A few years back the Zuffereys purchased a house in Leytron and decided to build a family home for their children in the shade and protection from the wind. The carport and the entrance wall shines in a supernatural whiteness, as if the singularity of the design needed emphasis. For Janick Zufferey, the client and her self an architectural draftsman in the practice Nunatak Architectures, the presentation of the design came as a sort of positive shock. For weeks during the planning phase, she was denied admittance to her principal’s office. “He wanted to surprise me and the concept. Everyone in the office knew the plans, and I could only conclude from the reactions of my colleagues that he was up to something exceptional.” At the design presentation, Roland Vassaux started by showing his client the plans for the first time: a ground floor with kitchen, living and dining room, guest toilet and storeroom, a spacious level with three rooms and two small bathrooms as well as an open attic with study and TV room in short, rectangular plans with no design extravagance. Only then did Vassaux retrieve a perspective drawing from his drawer. The surprise was complete.

With planning and construction costs of some 500,000 Swiss Francs the 185 m² building was comparatively reasonable. The main reason for the relatively low price was the timber construction that allowed extensive pre-fabrication. Only the foundations and floor slabs are made of reinforced concrete; the inclined box is a structure of glulam-laminated fir. The interior walls (also in the bathrooms) were clad with oriented strand boards partially sealed with water proof paint; the floors and ceilings of the upper storeys are made of fir boards. To keep costs down, the finished floor was cast on site, covering the piping and the shingled floor and ceiling joists of the upper storeys are made of fir boards. To keep costs down, the finished floor was cast on site, covering the piping and the shingled floor and ceiling joists of the upper storeys are made of fir boards.

When the residents lower the grey slate tones of the house externally becomes a magic hood that makes it less striking in its surrounding, yet without completely concealing its presence. Their home, says Janick Zufferey, was a pioneering work. Comparable, modern architecture did not exist locally, nor did a land-use plan that could protect the area from uncontrolled architectural developments. Their application for planning permission was approved without objection, thanks mainly to the former community president of Leytron, who Janick Zufferey decorates as a great lover of architecture. At first, the Zufferey house stood on its own, but neighbours have since moved in. A rustic-style blockhouse has been built next door, with sunflower-yellow plastered facade shining between the grapevines. In the meantime, the community has passed an urban plan that prohibits all further new buildings in the surrounding vineyards. So the Zufferey family will always be able to enjoy the unspoilt view of L’Ardévaz.
1. The view from the road and through the vines makes the design concept of the house clear: scaled down and strongly abstracted but clearly visible, the Zufferey house reflects the form and structure of the mountains behind.

2. In the west part of the first floor, directly above the carport, is the parents’ bedroom. Two skylights allow the afternoon and evening sunshine to penetrate deep into the room.

3. The inclined position of the building also has functional reasons. Under the upward tilted west end, there is a covered carport as well as a house entrance that is thus protected against the weather.

4. The access passage on the north side runs through all the floors of the house in the form of a ‘promenade architecturale’. Windows of different heights and sizes allow all the occupants, short or tall, a view of L’Ardévaz, the local mountain of Leytron.
The residential area around “G” in Tokyo’s Meguro district is characterised by detached though densely packed single-family houses, which is very typical for the suburbs of large Japanese cities. Due to the risk of earthquakes in the region, the residential house had to observe a minimum clearance of five metres on all sides to the neighbouring buildings. This spacing also roughly defines the exterior space as the plots are small and garden areas are few and far between. The restricted plot area of about 0.07 m² is taken up with a living area of around 0.55 m² distributed over three storeys.

The building is not noted for its clear though unusual form, or by generous interior spaces and the absence of almost any kind of decoration, but for its exceptional structure. The house has been built in conventional Japanese timber construction, but this wooden structure has been put on top of a single-storey reinforced concrete base. On the ground floor the concrete is visible internally as well as externally, revealing the two different construction principles. A 77 cm horizontal joint marks the change from wood to concrete by visually separating both constructions.

The house’s neighbours bear the typical regalia of classic residential buildings in Japan (tiled roofs, eaves, oriel and balconies). The seamless transition from exterior walls to roof surfaces gives the building the appearance of a single-story reinforced concrete house. With a few exceptions, dormer windows with timber frames have been installed in all window openings. One interesting feature is the slight protrusion of the frames, the only elements marginally projecting beyond the otherwise completely plain façade; the purpose is to ensure waterproofing on the vertical and horizontal exterior surfaces.

Generous, partially two-storied voids interlace the different levels and allow sundry visual relations internally. The skilful arrangement of usable floor space provides a great amount of open areas in order to stage-manage the ground floor, especially with the irregular window openings and the incident light. With only a few exceptions, dormer windows with timber frames have been installed in all window openings. One interesting feature is the slight protrusion of the frames, the only elements marginally projecting beyond the otherwise completely plain façade; the purpose is to ensure waterproofing on the vertical and horizontal exterior surfaces.

Fair-faced concrete and timber are the predominant materials. The colour concept is reduced to different shades of white, which pointedly underlines the light effects in the interior. The only interior decorative elements that have been applied by Jun Aoki are the silk and lace curtains in the bedroom (a material otherwise used for kimonos) as well as flock fibre wallpaper and wall cladding in the kitchen and dining area on the ground floor.
1. The ground floor can be shielded from the views of passers-by with a sliding gate. The interior is then only visible through the timber-frame windows, which protrude slightly from the facade.

2. A small roof terrace is accessible from the sleeping gallery on the upper floor. To the right the generous, two-storied void above the stair is visible.

3. Above the dining area on the ground floor, the transition from reinforced concrete to timber construction becomes visible. A 77 cm horizontal joint accentuates the change in style.

4. "G" is on the right in a densely developed residential area. Unlike the architects of the neighbouring buildings, Jun Aoki has rejected the regalia of classic single-family houses, such as tiled roofs, oriels and balconies.
At VELUX we are obsessed with making windows that are of the highest technical specifications possible. You can see it in every seal, every bead and every lip on our windows. What is invisible to the naked eye is the passion, commitment, and enthusiasm of the people who bring our products to life.

Another way in which we express our passion is through our sponsorship of the VELUX 5 Oceans, round the world yacht race. After all, we’ve been taking on the elements and winning for over sixty years.

Glen Murcutt is one of the best and most opinionated architects in the world. The Pritzker prize-winner of 2002 is known for his humanist architecture, which draws on the wealth of materials and shapes of modern times but still has an unerring feeling for the special aspects of the Australian climate and light. At the opening of an exhibition in Zagreb, Glenn Murcutt answered questions by D&A. Zagreb, two in the afternoon on a warm Tuesday in April. The House of the Croatian Artist, built in 1938 to plans by Ivan Meštrović, is a monumental but still finely proportioned neo-classicist rotunda. Its impressive, almost ceremonial rooms do not, at first glance, have much to do with Glenn Murcutt’s architecture. But still, it is hard to imagine a more suitable place for exhibiting his works than the gallery on the top floor of the rotunda: daylight falls through a dome made of hundreds of small glass bricks and fills the room with a magical glow. The exhibition about the Walsh House in New South Wales – Murcutt’s most recent masterpiece – is due to open in six hours. Before it does, the Pritzker prize-winner will give a stirring lecture lasting more than two hours just a few blocks away to packed audiences in the seats of a Zagreb cinema. His responses are precise and formulated almost like the printed word. They are evidence that he has many years of experience talking to the general public, but they are never rehearsed. Rather, the enthusiasm Glen Murcutt has for his work can still be felt today: an enthusiasm that has already infected thousands of visitors to his lectures and hundreds of his students all over the world.
GLMN when I travelled down the Dal- 
malian coast in 1963, it had a very 
powerful influence on my thinking be- 
cause of the integrity of the ar-
chitectural concept that can be seen here. 

GLMN: What impression did it 
make on you?

FM: In Zagreb, the capital of 
Croatia, you visit the visitor cen-
tre of the Ancient Roman coastal 
fortress. It is a site that has been 
unearthed and reconstructed, and it af-
signals a past that has been lost but is 
now being rediscovered. The site is a 
dramatic reminder of the power and 
grandeur of the Roman Empire, and it is 
also a testament to the ingenuity and 
talent of the Roman engineers who 
constructed the fortress. The site is 
both a historical and an architec-
tural marvel, and it is a reminder of 
the ingenuity and creativity of 
the ancient world.
cope with climate in a similar way as you might do in parts of Europe or North Africa.

D&A Generally, how do you assess daylighting in your buildings? Do you build models?

GM No. I have a natural feeling that allows me to anticipate what the lighting situation will be like.

D&A And a lot of experience that helps you in doing so, I presume?

GM Sure. If you have not gathered some sort of experience when you have arrived at the age of 70, you are in trouble.

D&A Does a site you work on have to impress or inspire you in a special way to accept a commission?

GM No. The most important thing in accepting work is a good client. Good clients are just gold. So I have structured a way – initially, not consciously, but it is conscious now – which means that if you asked me to build a house for you in Australia, you would have to wait for me for three to four years before I could do it. I have a sequence of projects ahead – maybe 4 projects – so if you wanted me to do a project for you, you would have to get into a line. And that sets clients not very quickly, because the very best ones will wait. And you have no difficulty at all, because they are so relieved and so grateful when you start that they are dreams. And most of my clients have ended up as my friends.

D&A So you develop quite a close relationship to your clients?

GM It's a big relationship, with discussion after discussion the whole way through, and from the time I say "yes" to the time I start actually working on a project three or four years later, we meet several times, we go to the site several times and we discuss the brief several times. What is interesting is, if you compare the brief got from them at the beginning to what the brief is like in the end, the modifications are amazing. In the beginning, there are many more "wants" than there are necessities. Then, over the three years of waiting, sometimes the children have gone from sixteen to nineteen, and where they originally wanted to be a children's room, there is now to be a (smaller) guest room, because the children have left to study at university. So by waiting, they have actually saved some money. Things like this have happened to me quite a lot of times. So, working with a waiting list actually works very well – and clients wait!

I will tell you a short story about my client relationship first met Kenneth Frampton when I was teaching at the Graduate School of Fine Arts of the University of Pennsylvania. He was invited to interview me on stage, in front of an audience of between 400–500 people. The interview went very well, as Kenneth usually asks very good questions. Then, about five years ago, eight years later, he introduced me at Columbia University. He told the audience about when and where we first met, and then continued: "There were one or two answers in that interview when I did not quite believe Glenn was giving me the full truth. So", he said, "I investigated further." His question was the issue of selection: How do I select clients? Do I select them, do they select me, or do you select one another? He said: "We had spoken about this waiting list, and I frankly did not believe there was a waiting list." And – you know Kent is an Englishman – he added: "We English consider Australians to be rough at the edges, tough, thoughtful, creative – yes, all of these things – but just a bit uncivilised as well. But when I made connections to people in Australia, I found out that he actually told the truth. He does have a waiting list! So, when I found out about this, I had to revise my opinion about Australia considerably. Because any society that has their people prepared to wait for three years for an architect is the most civilised nation in the world!"
Chichu Art Museum

Tadao Ando builds for
Walter De Maria, James Turrell and Claude Monet

Authors: Mark Major, Jonathan Speirs, Anthony Tischhauser

ISBN – 3-7643-6860-8

Light is the foundation of our visual perception, accountable for 80 per cent of all sensory input processed by our brains. Architecture is an art that communicates with people in a mainly visual way. It is therefore logically consistent that the profession of the lighting designer emerges in the process of increasing specialisation of architecture over the past 20 years. Amongst the most renowned representatives of this genre are British Jonathan Speirs and Mark Major. Together, they are responsible for such famous projects as the Burj Al Arab in Dubai, the Gateshead Millennium Bridge and the new opera house in Copenhagen. In their book “Made of Light”, Speirs, Major and the architecture critic Anthony Tischhauser attempt to analyse the medium they work with and its basic qualities. The chapter headings such as Source, Surface, Colour, Movement, Boundary and Magic immediately suggest that pure lighting engineering plays a minor part in this volume. The three authors start by giving a short account of the history of architectural lighting, they go on to dig into architectural territory. It seems that this work is somewhat problematic. Here, for instance, cannot the interplay of light and form be put into words without slipping into platitudes or densing too deeply into the details of optical physics? The authors are obviously aware of this difficulty and therefore illustrated their book with numerous inspiring, though not always visually appealing, illustrations. Nonetheless, the book is still rather text-heavy, which does not exactly enhance the quality. The authors, the articles are seldom inspiring or even instructive. Nor are the many quotes from architects and theoreticians on the “light” theme that pre-cede each chapter of any real help; regrettably they have not been properly integrated into the text.

“Made of Light” is therefore not a book for straight reading – it is more of an illustrated book for flickering through and putting back on the shelf. The book’s value lies in its ill- lustrations and the occasional (and almost too seldom) excursions into fields remote from architecture. Inter- peppered in the chapters are quotations of representatives of different occupational groups on the “light” theme: quotes from miners, pilots, a visually impaired artist, an actor and a dentist. These comments and a few light-weight artistic statements from photography or installation art, for example, enrich “Made of Light” and make it more palatable.

You're engagement has consequences

Editors: Olaf Elissen

ISBN – 3-03778-075-4

The Danish-Icelandic light and installation artist Olaf Elissen can hardly complain about poor media response. In the bibliography of this latest book, it appears that no fewer than 24 books have been published, both by or about Elissen since the turn of the millennium alone, and the number is increasing almost every month. The artist started the 25th publication with a brief account of the motivation behind his work: “My interest in architecture, space, time and art... comes from a fundamenta interest in human beings... It initially had a very simple role: to find sites and places for installations, to give a view on what could be called works of art. Always an interest in architecture, space, time and art... comes from a fundamental interest in human beings... It initially had a very simple role: to find sites and places for installations...” The book, published in 2005, contains 208 pages, and features not only colour plates of the museum architecture and the exhibited art works, but also sketches by Tadao Ando, model photos and black and white pictures taken during the construction work. The illustrations dispense completely with captions or explanatory ground plans and sections. Readers may search in vain for detailed information about functional or room layouts. The focus of interest lies firmly with the mood of the location, the atmosphere evoked by the spaces and the art itself. Containing “just” nine art works, the Chichu Art Museum is a highly selective but impressive collection.
Françoise Hélen Jourda recommends

The Architecture of Ralph Erskine
Authors: Ralph Erskine, Peter Collymore
John Wiley & Sons
ISBN 85490845

This book allows the reader to re-discover the Paris of the years between “seven walks” through architectural student buildings of the 20th century. Not among them, however, are any of the buildings currently located in the famous books – the ‘Tour Eiffel’, the ‘Vosges Villa’ and the ‘Maison de la Défense’. Indeed we see instead imaginary constructions with which the architect exemplifies the characteristics of 20th century architecture and interior design photographs. According to his work, many of his fellow contemporaries became close to the world of Elamai, Pierre Charles, René Rétif and other renowned French interior designers. The main emphasis of Bophie’s work (and of this book) is instead on Robert Mallet-Stevens’ Villa for the Noailles Family in Hyères, as well as the private home in Paris designed by Jean-Michel Frank for the same client.

In his essay, the Spanish architect Iñaki Ábalos takes his readers for a “seven walks’ tour of the world’s major student buildings of the 20th century. Not among them, however, are any of the buildings currently located in the famous books – the ‘Tour Eiffel’, the ‘Vosges Villa’ and the ‘Maison de la Défense’. Indeed we see instead imaginary constructions with which the architect exemplifies the characteristics of 20th century architecture and interior design photographs. According to his work, many of his fellow contemporaries became close to the world of Elamai, Pierre Charles, René Rétif and other renowned French interior designers. The main emphasis of Bophie’s work (and of this book) is instead on Robert Mallet-Stevens’ Villa for the Noailles Family in Hyères, as well as the private home in Paris designed by Jean-Michel Frank for the same client.

The catalogue “Sense of the City” was produced for the exhibition of the same name that took place in the Municipal Centre for Architecture in Thessaloniki. The book questions the dominance of the modernist belief in public buildings and their masses, and instead gives priority to a more complex analysis of the buildings, which are illustrated with large colour plates and precisely documented with plans, sections and diagrams. Special emphasis is placed on the issues of location, scale and entertainment quality of the buildings; religious contents, and therefore coherent occupation, are considered less important. The book offers hardly any recourse to possible historicist architectures. Nevertheless it might be as difficult at the present time to understand this book as its prefaces the “socio-cultural” survey of world wide ecclesiastical architecture.

The book which, in this word “great” has a double meaning. With her large format (35 x 35 cm) work, Margerite Florayan and Seven-har Anderson have realised an idea that the great Danish landscape architect T.H. Olcius put into words 50 years ago: the documentation of the greatest European landscape gardens, with their historic original plans, in an accessible manner. With many sketches and drawings, the reader can follow the history of European horticulture from the Renaissance Eutin Slott-Verden to Monet horticultural French parks of the baroque era and English landscape gardens up to the present day. This opulent book provides at least as much information on the development of architecture and landscape architecture through the ages as on gardens themselves.

The Good Life
A Guided Visit to the Homes of Modernity
Author: Ilkka Abolos
Editor: Gustavo Gill

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SENSE OF THE CITY
1. Architectural Photography
2. The Image in Architecture
3. Contemporary Practice and Theory
4. The historian's contribution
5. The use of photography in architectural history
6. Photography and the city
7. The history of photography.

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