

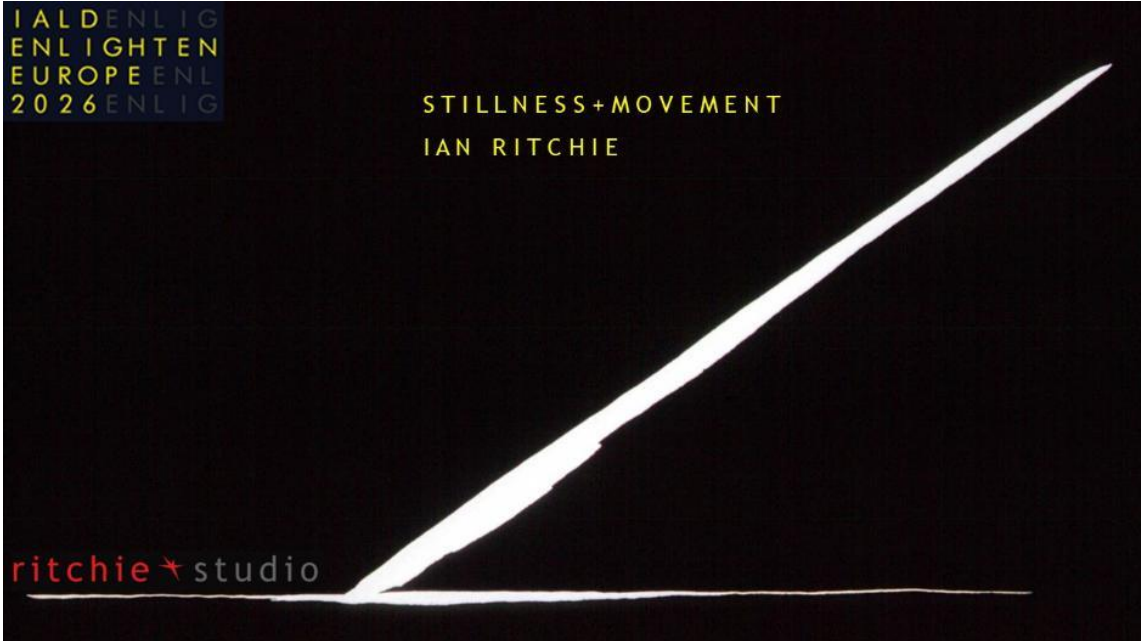
**IALD ENLIGHTEN EUROPE 2026 PARIS**

**LIGHT**

**STILLNESS + MOVEMENT**

**18 JUNE 2026**

**IAN RITCHIE**



Light is *the material* of architecture through which we can best design, and best appreciate the nature of space, surface, colours and objects. Light has a cultural quality.

Louis Kahn

*"I sense light as the giver of all presences, and material as spent light. What is made by light casts a shadow, and that shadow belongs to light. I sense a Threshold: light to Silence, Silence to light, an ambiance of inspiration, in which the desire to be, to express, crosses with the possible."*

Richard Feynman, *QED: The Strange Theory of Light and Matter*

*"We must accept some very bizarre behavior: the amplification and suppression of probabilities, light reflecting from all parts of a mirror, light travelling in paths other than a straight line, photons going faster or slower than the conventional speed of light, electrons going backwards in time, photons suddenly disintegrating into a positron-electron pair, and so on."*

## seeing

I look but do I see?

seeing something is a mental process - to perceive and understand

seeing requires knowledge

I look but do I see? Seeing something is a mental process - to perceive and understand **seeing requires knowledge**. I can look at a stream, I am hungry, but I cannot eat because I do not recognise the edible plants growing in it.

## seeing

our eyes function as biological binocular cameras  
taking in light and converting it into electrical signals

perception is not just through the eyes

our brains did not evolve to experience the world  
but to communicate with each other

Our eyes function as biological binocular cameras taking in light and converting it into electrical signals. **Perception is not just through the eyes our brains did not evolve to experience the world but to communicate with each other.**

curiosity / collaboratios / cooperation / communication / creativity

When I look up at the façades of buildings at night - all one sees today are the plethora of light fittings - which are rarely beautiful. It is equally important to understand how sunlight will be reflected from the building's façade, and how it will look at night. It is after all the wall that helps creates the urban room of the street and square.



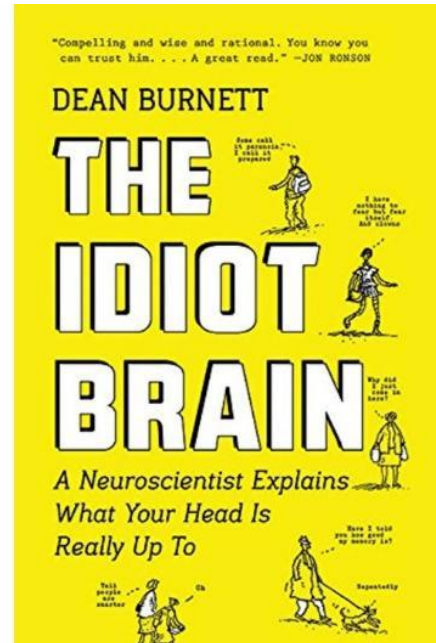
© Delores Victoria Ruiz Garrido

I used a slide on disinformation in lectures for more than three decades. How can an architect designing on a computer screen feel the architecture being created? The screen distances us from the reality of our sensory world not only to dissolve the boundary between information and disinformation. We have to distinguish between fact and fiction but also between communication and discourse.

## homo oculus

- 90% of information\* to the brain is visual - light
- 40% of all brain nerve fibres are linked to the retina
- 10 million bits per second transmitted from the retina
- it is more than the brain can process
- our brain processes visual data 60,000 times faster than words
- is data management in our brains preconditioned?

\* Eric Jensen Brain-Based Learning



book cover: Guardian Faber Publishing

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The brain is a great deceiver... and magicians know this?

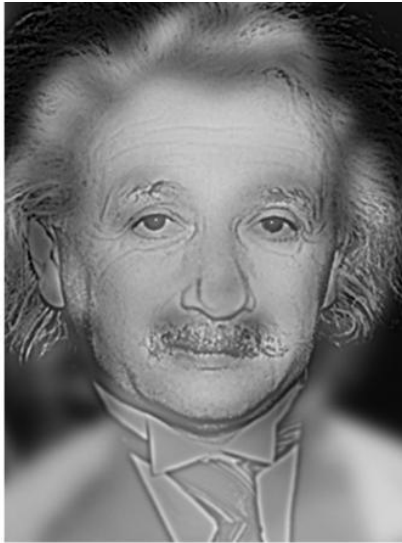
Do they misdirect us?  
Divert our attention,  
blind us temporarily?  
Do they fill in the gaps?  
Fill in the margins between  
the frames of a film?  
Our eyes see, but not the film.  
We see wheels go backwards  
because we snap the world.  
We imagine, we fill in.  
And then there is memory.  
Under which cup is the ball?

## What card did I pick?



stillness

perception



near: we see high and low frequencies

high frequency information tends to be a more valid indicator of important object details and boundaries.

high frequency = short wavelengths (high energy) blue - UV  
low frequency = longer wavelengths (low energy) red - IR



afar: we see low frequencies

Dr. Philippe Schyns (University of Glasgow) and Dr. Aude Oliva (Massachusetts Institute of Technology - MIT) have created hybrid images that illustrate these two perceptual phenomena.

## perception

high frequency information tends to be a more valid indicator of important object details and boundaries.

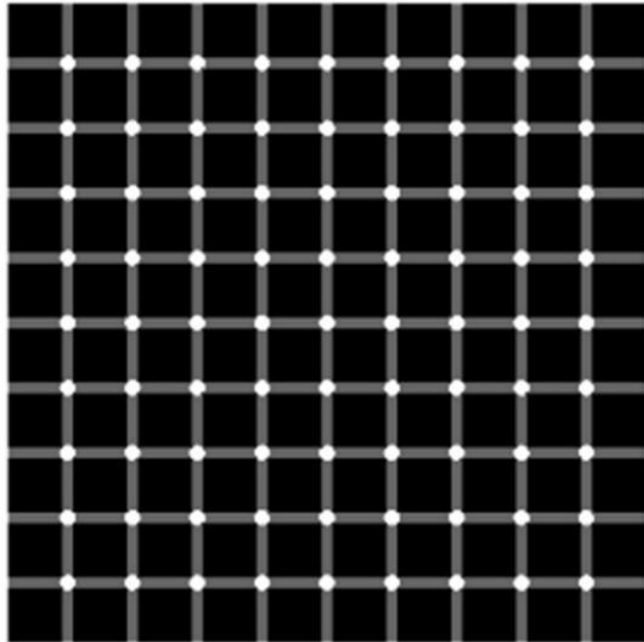
high frequency = short wavelengths (high energy) blue - UV - we see high and low when near

low frequency = longer wavelengths (low energy) red - IR - we see from afar

## stillness and movement

try to hold your eyes still

Schrauf, M Lingelbach, B Wist, E.R> (1997) The Scintillating grid illusion.  
Vision Research 37, 1033-1038

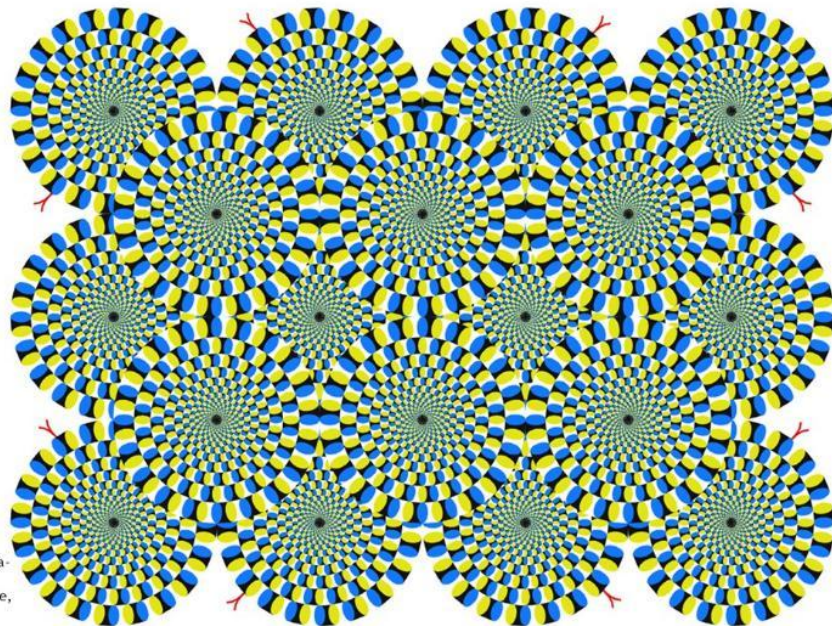


## stillness and movement illusions

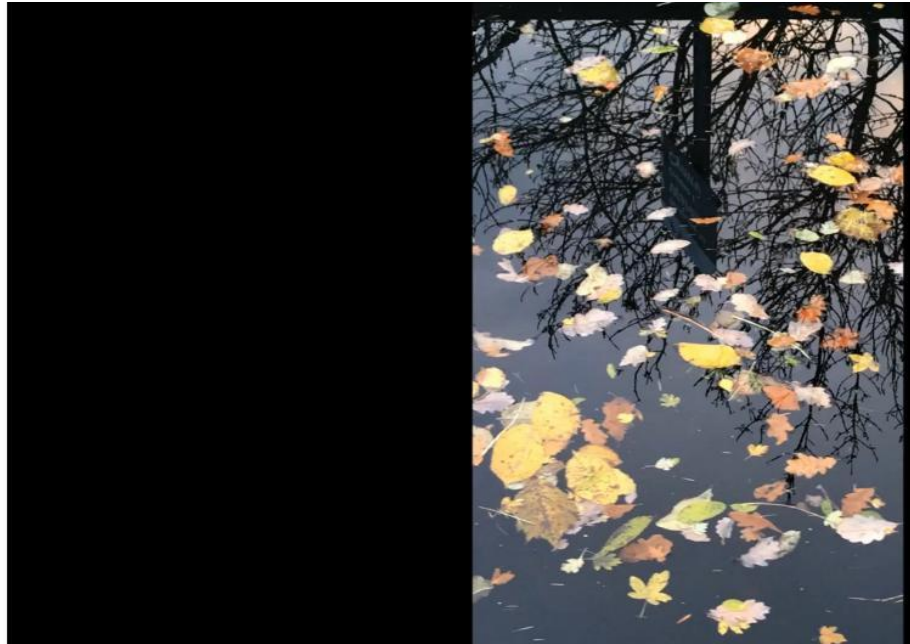
### movement

The Rotating Snakes Illusion is a straightforward consequence of nonlinearity in arrays of standard motion detectors

Image: © 2020 Michael Bach and Lea Atala - Gerard Eye Center, Medical Center - University of Freiburg, Faculty of Medicine, University of Freiburg, Germany



The Rotating Snakes Illusion is a straightforward consequence of nonlinearity in arrays of standard motion detectors



Film © ritchie\*studio

## Non-linear behaviour in nature - source of beauty

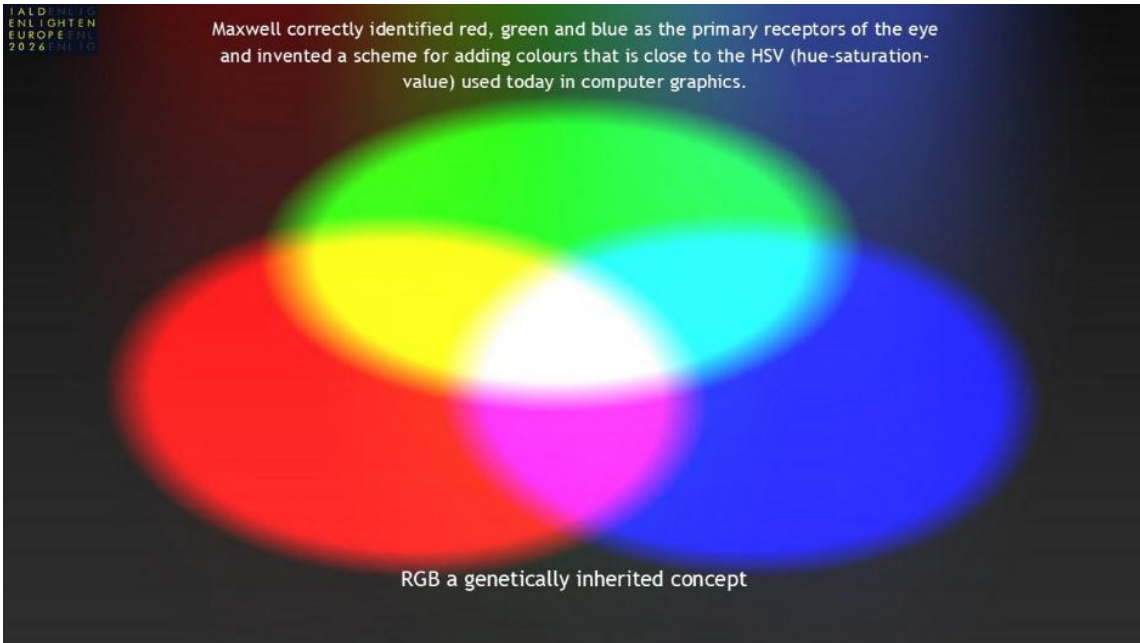
James Clerk Maxwell, b.1831 Edinburgh “Scotland’s Einstein”

*“One scientific epoch ended and another began with James Clerk Maxwell”.*  
Einstein

The publication of his equations in 1861 marked unified a theory for magnetism, electricity, light, and associated radiation and predicted that light moved in waves.

James Clerk Maxwell, b.1831 Edinburgh “Scotland’s Einstein” ***“One scientific epoch ended and another began with James Clerk Maxwell”.*** Einstein.

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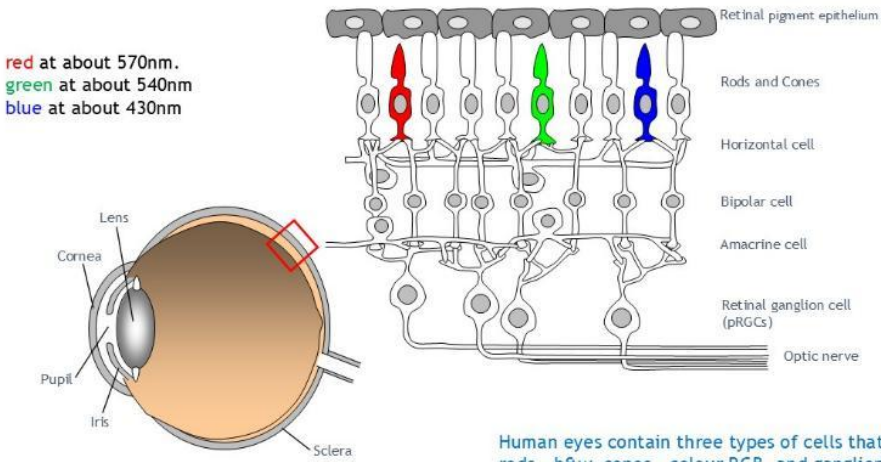


Maxwell correctly identified red, green and blue as the primary receptors of the eye and invented a scheme for adding colours that is close to the HSV (hue-saturation-value) used today in computer graphics. RGB a genetically inherited concept. Our environment does change us - nature does change our nurture. This happens through epigenetic changes which act as biochemical switches that turn genes of and on - without altering your genes.



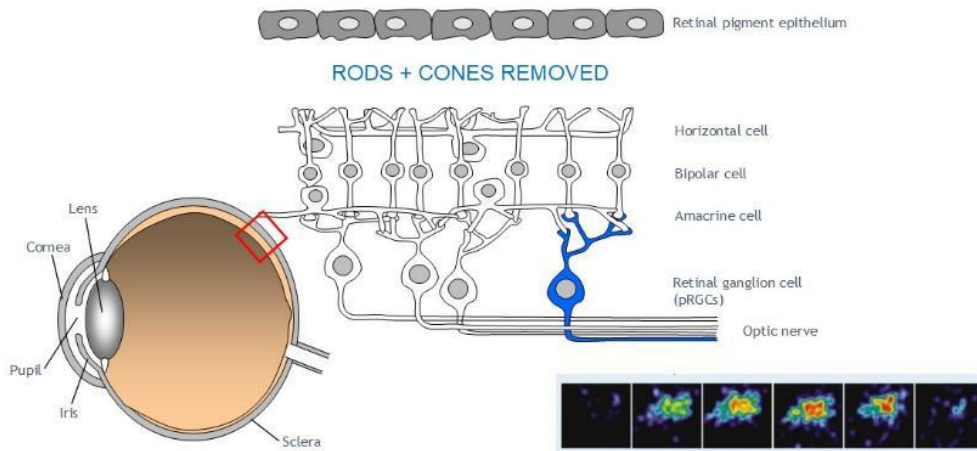
eye and retina photoreceptors:  
the human eye can typically detect wavelengths from about 380 to 740 nm.

Sekaran, S., Foster, R.G., Lucas, R.J. & Hankins, A.W. (2003) Calcium imaging reveals a network of intrinsically light sensitive inner retinal neurones. *Current Biology*, 13, 1290-1298.



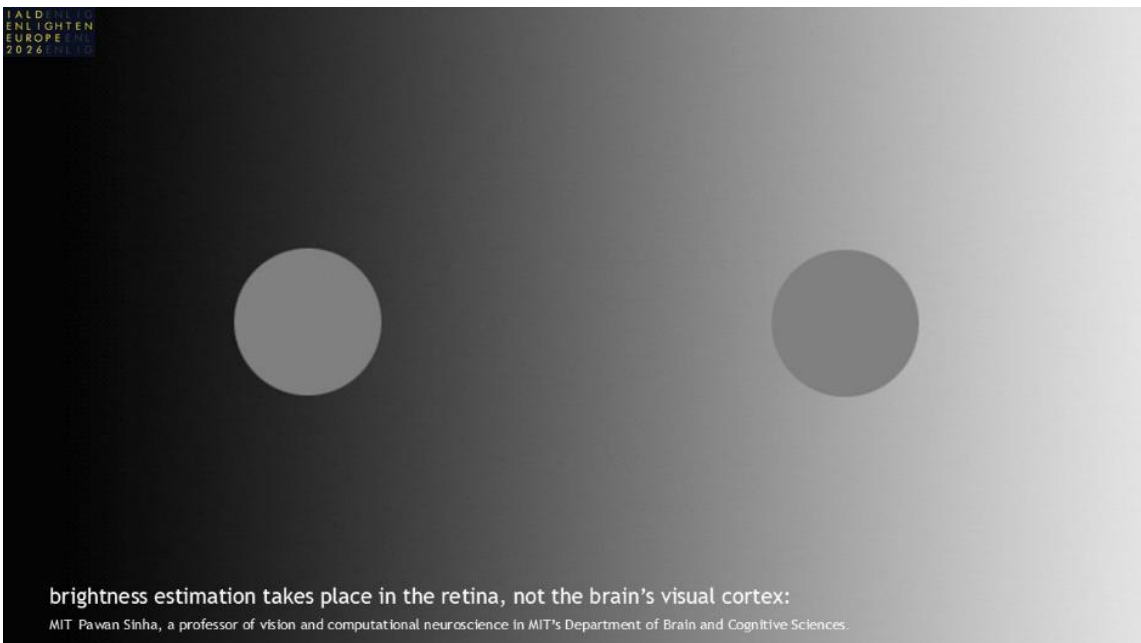
Human eyes contain three types of cells that react to light: rods - b&w, cones - colour RGB, and ganglion - contrast.

rods (B&W) and cones (RGB)



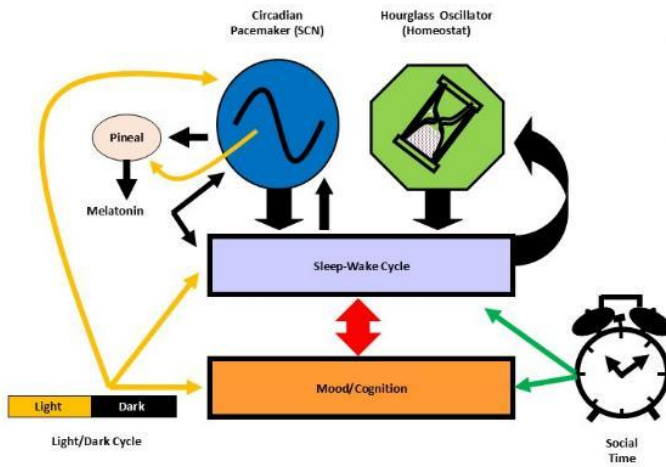
photosensitive Retinal Ganglion Cells encode absolute ambient light intensity (irradiance)

photosensitive Retinal Ganglion Cells encode absolute ambient light intensity (irradiance - the measurement of radiant power).



brightness estimation takes place in the retina.

Reflected photons off b & w paper can be registered by optical blind persons.



Light is critical in regulating circadian/sleep, arousal systems, mood and cognition

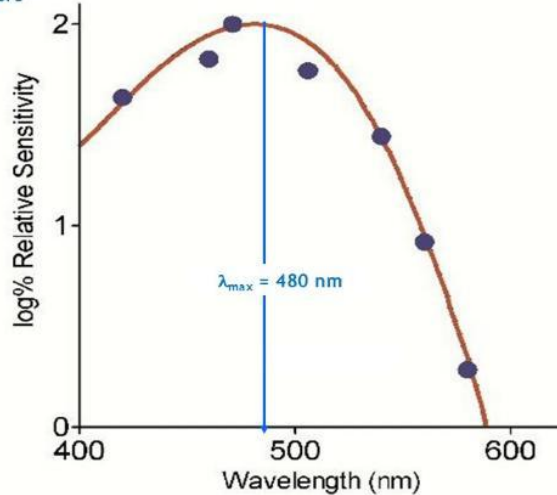
need relatively bright light.

Melanopsin pRGCs maximally sensitive at 480nm play a critical role at multiple levels

BUT - not just the melanopsin pRGCs - rods and cones contribute

drivers and modulators of sleep/wake

## drivers and modulators of sleep/wake cycle



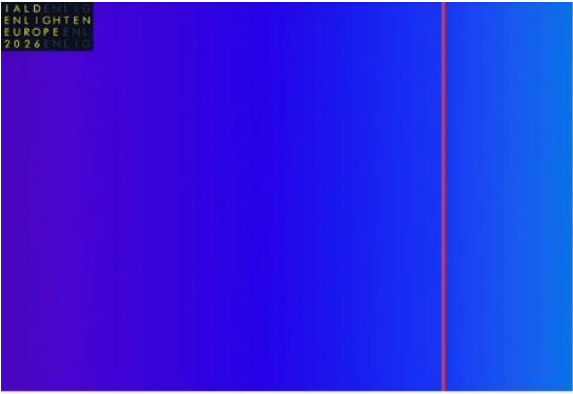
Lucas, R. J., Douglas, R. H. and Foster, R. G. (2001). Characterisation of an ocular photopigment capable of driving pupillary constriction in mice. *Nat. Neurosci.* 4, 621-626.

Hattar, S., Lucas, R.J., Mrosovsky, N., Thompson, S., Douglas, R.H., Hankins, M.W., Lem, J., Biel, M., Hofmann, F., Foster, R.G. & Yau, K.W. Melanopsin and rod-cone photoreceptive systems account for all major accessory visual functions in mice. *Nature*, 424 76-81 (2003)

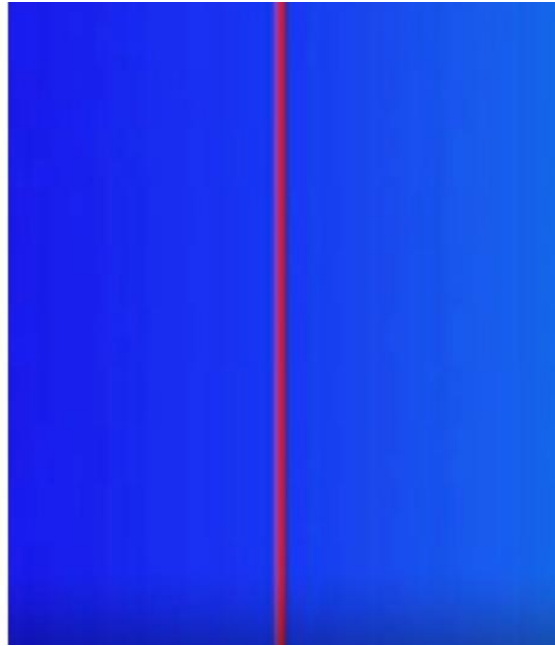
Opsins are light-sensitive G-protein-coupled receptors found in the photoreceptor cells of the retina.

## retina photoreceptors 480nm - the trigger of human circadian rhythm

I A L D  
E N L I G H T E N  
E U R O P E  
2 0 2 6



specialised ganglion receptors also regulate our circadian rhythms. 480nm triggers our daily circadian rhythm



480nm wavelength - hue



David Hockney experiencing Ian Ritchie's 480nm architecture room at the Royal Academy of Arts London 2007

© Royal Academy + Ian Ritchie

480nm RA Architecture Room designed and curated by Ian Ritchie RA in 2007.

**Dioptics**, one of the most delightful of sciences

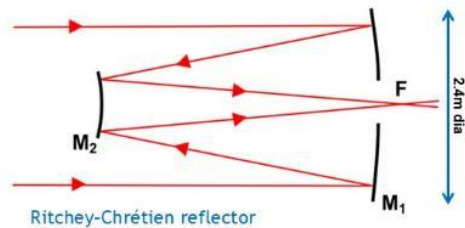
It has allowed us to explore **the past** through macroscopic telescopes

And through photonic microscopes to explore **the future** and to explore our brains.

**Dioptics**, one of the most delightful of sciences. It has allowed us to explore **the past** through macroscopic telescopes. And through photonic microscopes to explore **the future** and to explore our brains.

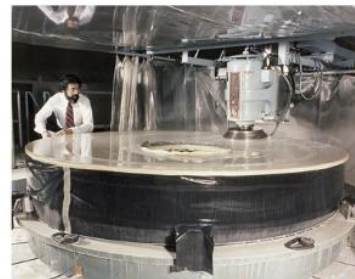


Hubble Telescope 1990 orbiting Earth  
Ritchey-Chrétien reflector 2.4m dia.  
wavelengths near IR, visible spectrum and UV  
Image: NASA Marshall Space Flight Center Collection (NIX MSFC-7995584), Public Domain  
<https://commons.wikimedia.org/w/index.php?curid=1900102>



Ritchey-Chrétien reflector

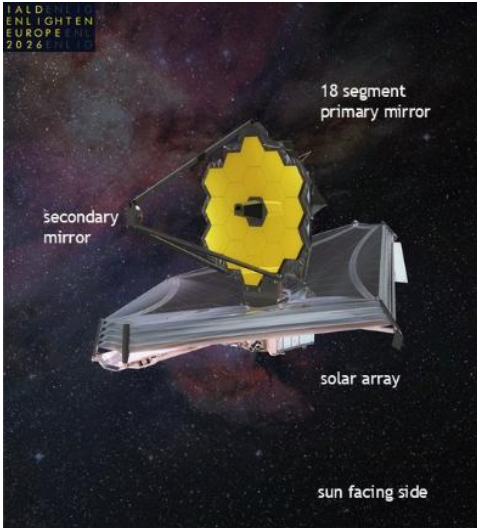
macro seeing



mirror polishing - primary mirror too flat

Hubble Telescope 1990 Images: NASA

Hubble and the *'washer'* - a billion dollars to fix the mirror alignment.



The James Webb Space Telescope orbiting the sun at 1.5million miles with its 6.5m segmented mirror wavelengths infrared light 600nm to 30,000nm mid-IR (MIRI)  
 Images: © NASA / NASA/Chris Gunn



macro seeing

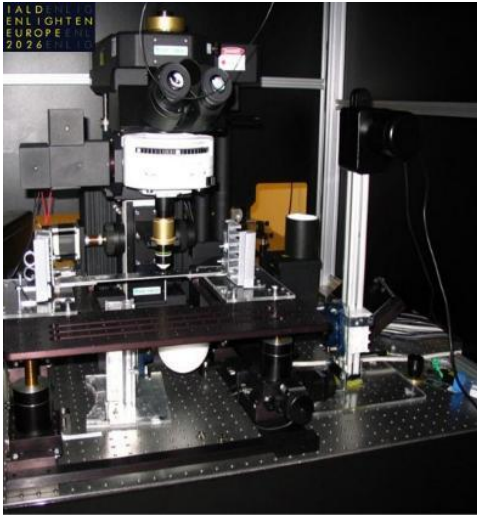
JW Space Telescope is shown with one of its two "wings" folded It can see back c13.8 billion years - nano-secs after the Big Bang

The James Webb Space Telescope 2021

## The James Webb Telescope

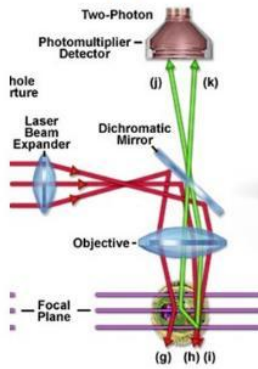


## Carina Nebula - 7,600 light years from Earth



two-photon microscope c.2015

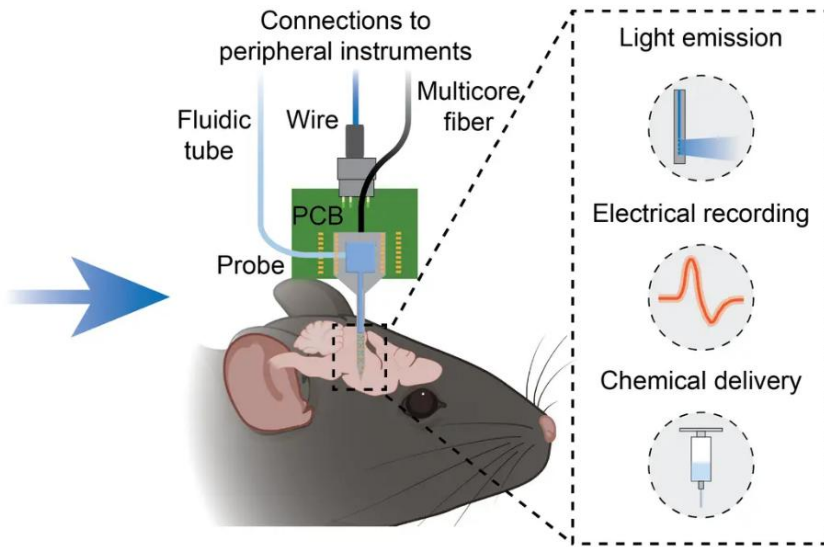
### micro seeing



Bruker Ultima 2Pplus 2025

## two-photon microscope

Today, wafer-scale multifunctional nanophotonic neural probes have been developed.



CC BY

Original Publication Lab on a Chip 24 (9), pp. 2397 - 2417 (2024) *Chen, F. D.; Sharma, A.; Roszko, D. A.; Xue, T.; Mu, X.; Luo, X.; Chua, H.; Lo, P. G.-Q.; Sacher, W. D.; Poon, J. K. S.*

Conceptual illustration of the multifunctional nanophotonic neural probe with its shank implanted in the mouse brain. Hundreds to more than a thousand probes can fit on a single 200 mm wafer. Multiple devices can be integrated on the probe shank, including electrodes, optical emitters, and a 3D-printed microfluidic channel. Peripheral

instruments are essential for enabling the probe to perform multichannel optogenetic stimulation, electrophysiological recording, and chemical delivery and sampling. Silicon photonics technology makes possible highly versatile implantable neural probes that can transform neuroscience experiments.



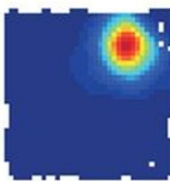
how do we know where we are?



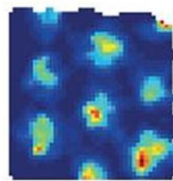
Nobel Laureates - John O'Keefe, May-Britt Moser, Edvard Moser

discovery

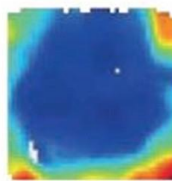
Place cell



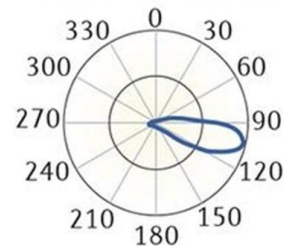
Grid cell



Border cell



Head-direction cell

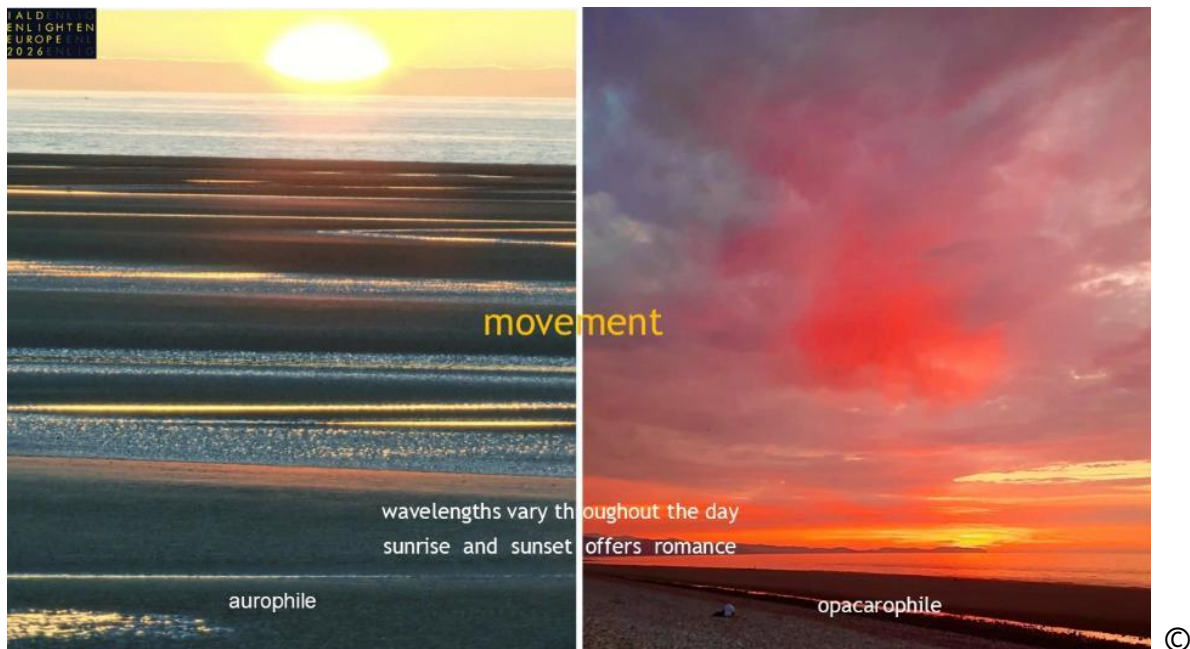


© John O'Keefe

How do we know where we are in space?

We need to create a cognitive map of our environment - and this happens automatically all of the time - the brain's navigation system is actually quite complex, composed of several brain regions and various cells types: place cells which are in the hippocampus, border and grid cells in the medial entorhinal cortex (grid cell system (hexagonal grid) is located in the middle of the brain a bit below ear level) along with speed cells, and then head direction cells located in several brain areas.

Amazing - in a GPS system we need 4 satellites to pinpoint an accurate three-dimensional location (latitude, longitude, and altitude) and precise time - yet these cells are deep inside our brain - how do they get the information and then tell us where we are? Most is internal but also through our eyes, even in the dark.

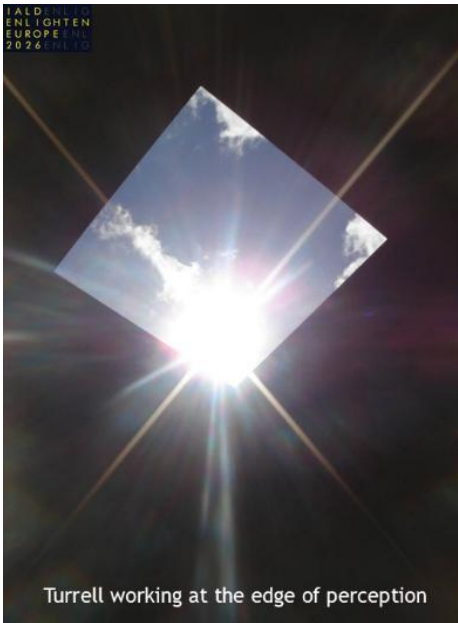


© N Butler

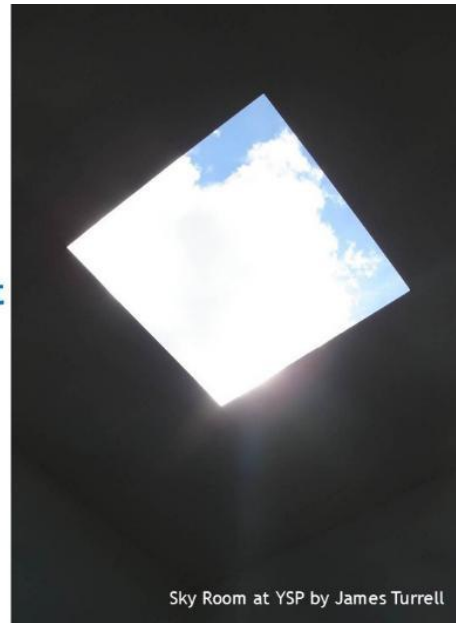
## aurophile and opacarophile

Sunlight and the gentle changing nature of light - stimulus - emotion  
I believe that lighting designers should always work with nature's own light pen – the sun – as the basis for any lighting composition.

This may sound paradoxical, but the lighting designer does not start to work through defining the required lumen output upon a surface: that is for those who formulate regulations. Natural light is dynamic, to be tamed and framed, manipulated or left free by both architect and lighting designer.



movement  
sunlight  
+  
daylight



© Ian Ritchie

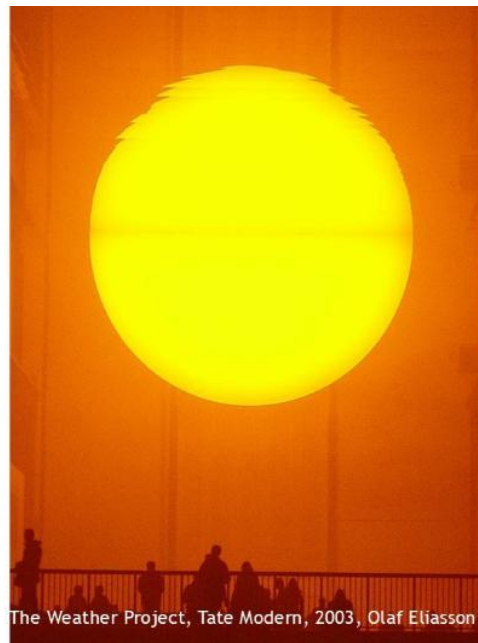
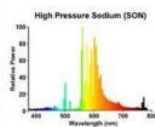
### limits of perception

Framing the everyday - to look and to see - the window. To quote James Turrell *“The idea that light will be the primary material means that concrete, steel, wood, etc., will have to be ‘dematerialized’.”*

Turrell’s rigorous approach as an artist addresses the natural condition of human vision, our sensual reaction to light itself rather than light’s play upon surface and form to reveal architectural space. This leads to discovering that light continues to play upon the shape of the edges of material and can leave us spatially deceived.



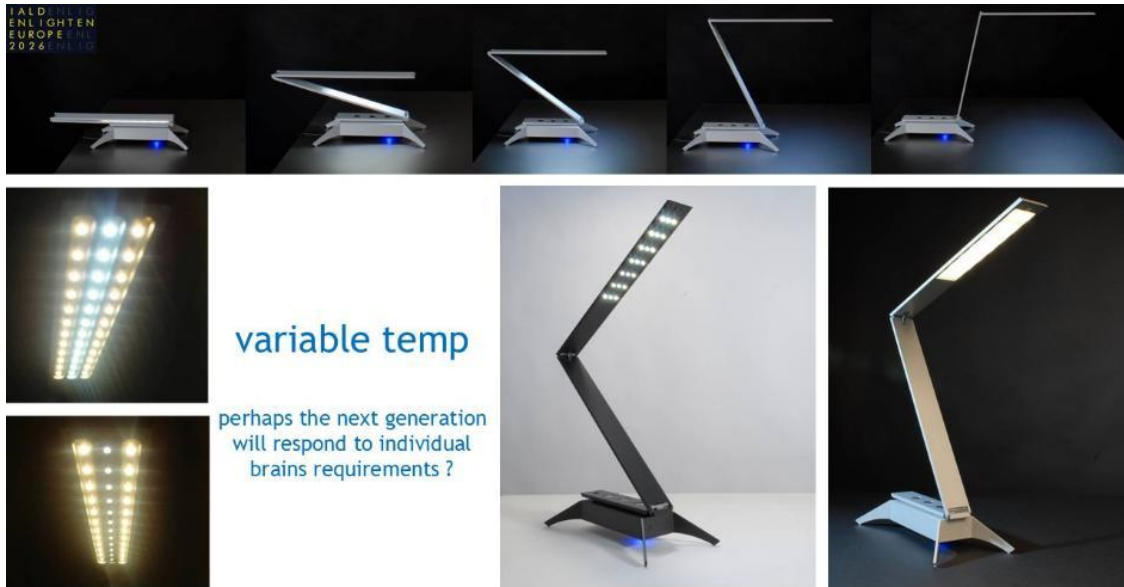
stillness



© Ian Ritchie

## emotion and perception

Olafur Eliasson wanted people to become aware of the act of looking itself - a mirrored ceiling and mist added to evoke atmosphere - and the almost singular wavelength from the sodium lamps reduced everything in the space to yellow or black - surreal.



Zebede Task Lamp by Ian Ritchie Brandi Licht + Hamburg Licht 2007

© Ian Ritchie

Zebede - variable temp perhaps the next generation will respond seamlessly to an individual's brain requirements/desires?



Zebede by Ian Ritchie Brandi Licht + Hamburg Licht 2007

© Ian Ritchie

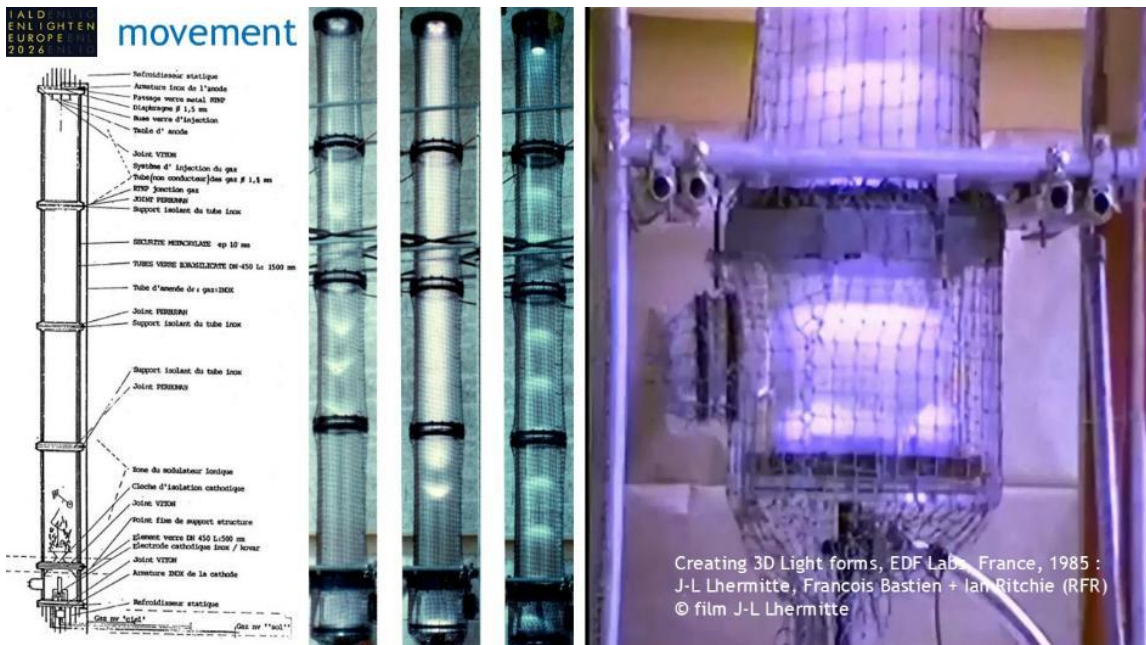
Zebede - high performance task light with variable colour temperature and delivering maximum 1500 lux over an A1 area with 10watts



© RFR Photo and drawing

Cité des Sciences et L'Industrie La Villette 1981-85 Bioclimatic facades  
Rice Francis Ritchie (RFR)

'La Transparence' - Mitterrand's mantra for his socialist government -  
and at la Villette RFR invented structural glazing.



Film © drawing photo and film J-L Lhermitte

Creating 3D Light forms for an installation on one of the bioclimatic façades at la Villette., EDF Labs, France, 1985.

J-L Lhermitte - artist, Francois Bastien physicist + Ian Ritchie (RFR)

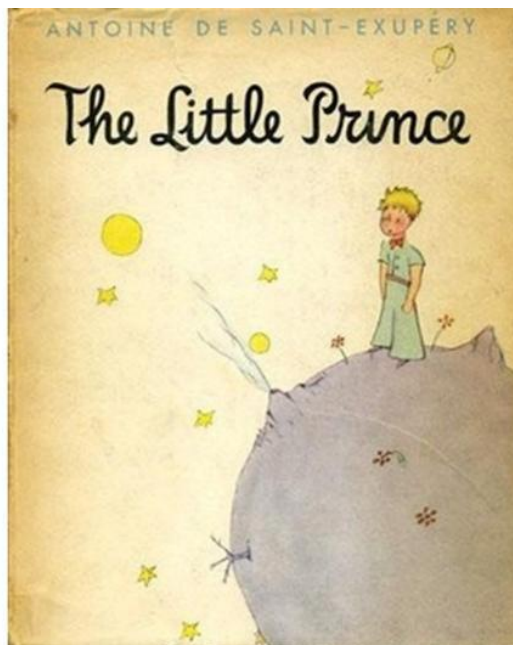
Why? Lasers were developed as almost a singular stream of light - if light can be manipulated in 3D what potential is there in the vacuum of space?



*light is the Opium of the Architect & Shadow its Form*



*shadow is a hole in light*



the lamplighter

his planet is so tiny, it has 1,440 sunsets every twenty-four hours

thus, the lamplighter is busy every minute!



First edition cover source: Wikipedia



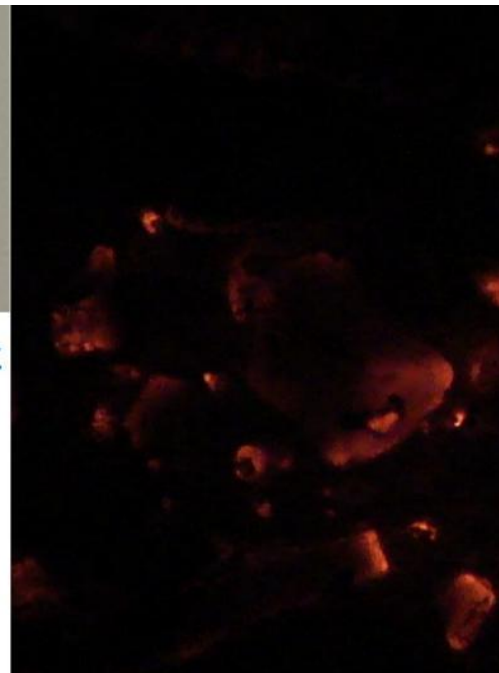
when he lights his lamp, it is as if he brought one more star to life.

that is a beautiful occupation. And since it is beautiful, it is truly useful.'

the lamplighter is faithful  
but is miserable  
because his job allows him no rest



movement



© Ian Ritchie

Our common origin is *Homo sapiens sapiens*. We became *Homo faber*, and one of our ancestors' early works was to make light in the form of fire. Most life on Earth requires light, but life requires C, H and O. from these three chemicals life emerges - life using chemosynthesis not photosynthesis.

Human binocular vision, honed over millions of years without artificial light, was now subject to extended periods of use, and this firelight made *Homo faber* the most dominant species on earth - to the point where, today, *Homo faber* now threatens the survival of all other life, and *Homo oculus* our own.

Perhaps we should look again at the definition of *Homo sapiens sapiens*

JALD  
ENLIGHTEN  
EUROPE  
2026



[Film](#) © Marc Azéma

When we left the cave, having illuminated the earliest drawings with fire, we constructed our own walls and a roof. We saw for the first time our walls from the outside as well as the inside. We made openings in them and the roof to let the daylight in.

Later we put glass in these openings to keep out the rain.

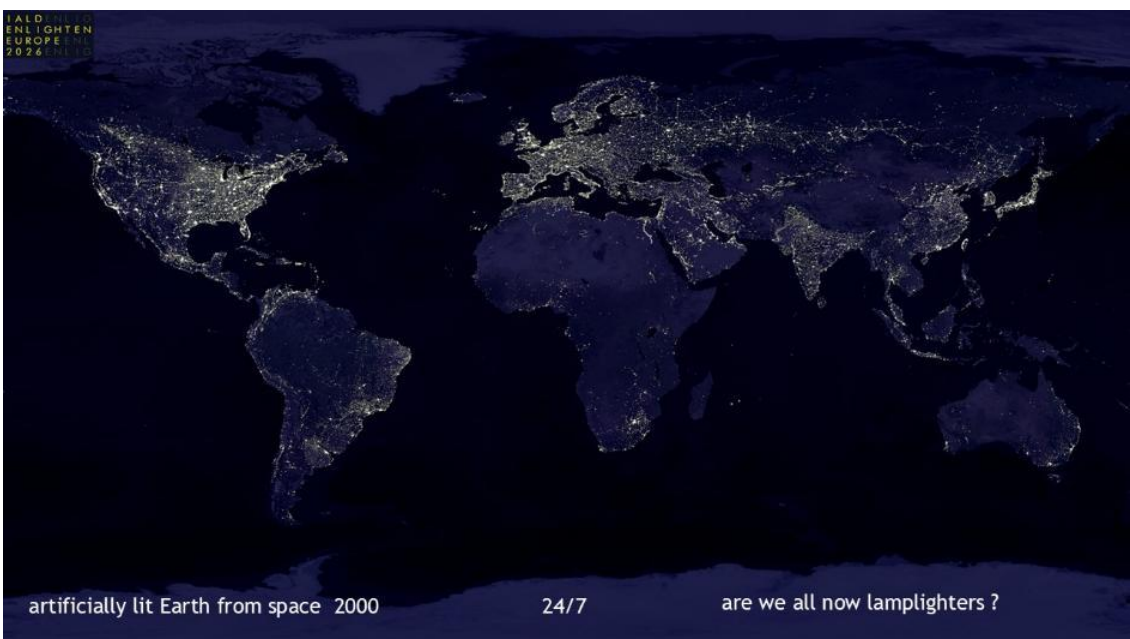


artificially lit Earth imagined from space c.1800

Source: Wikipedia

Throughout all this time we decorated our solid walls with signs of our changing culture and used sunlight to illuminate; we developed stained glass windows to tell stories with natural light. Despite candles and oil lamps being used for the past few thousand years, we lived largely by the diurnal rhythms which still affect our physiology.

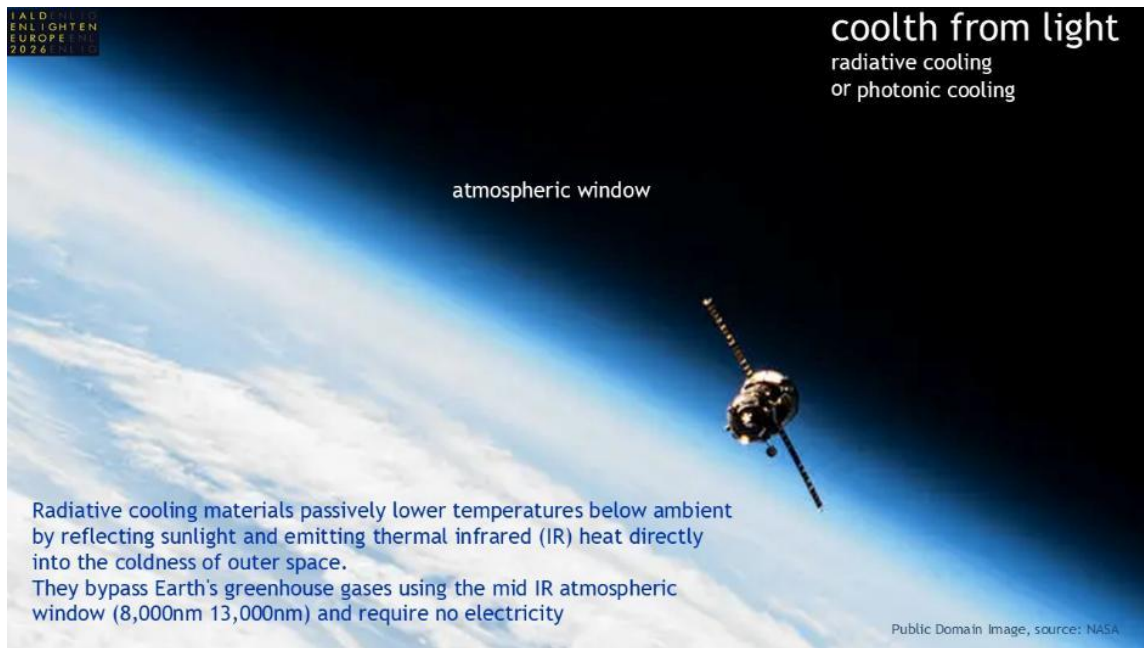
It took a long time for us to advance from fire to oil lamps and then, in the 19<sup>th</sup> century, the electric lamp arrived and with Mr Edison's invention, the system to light the world.



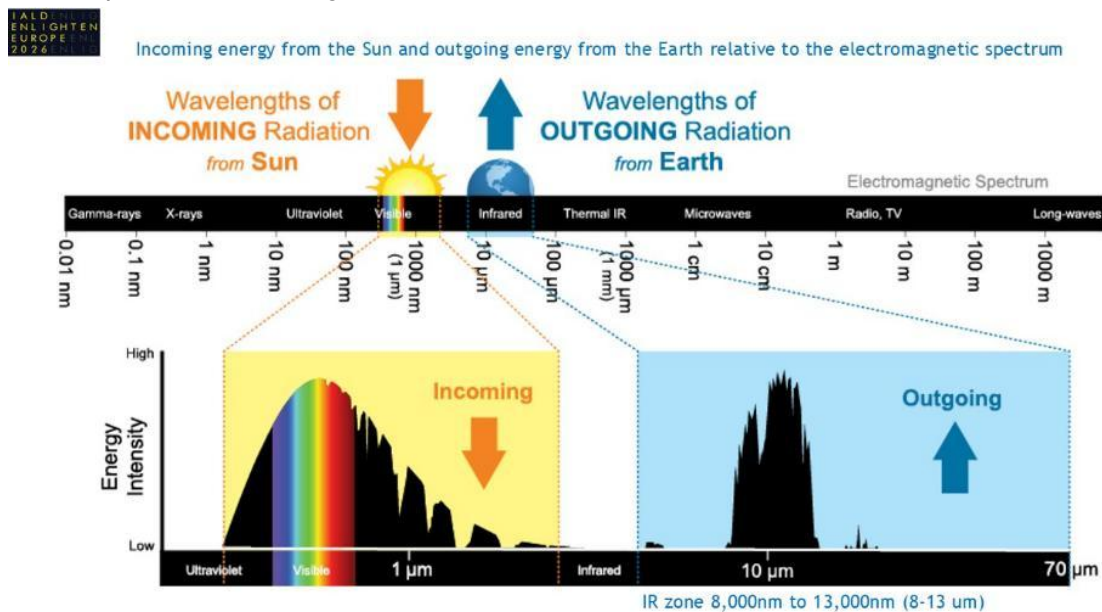
Source: Wikipedia

Today's 24/7 lifestyles for many destabilises man's natural behaviour. *Reflect Orbital* is a company with an alternative view of sunlight - radiate areas that need sunlight, or to call it up to annoy your neighbours - as with glare.

Another emerging technology offers huge potential to reduce energy impact.



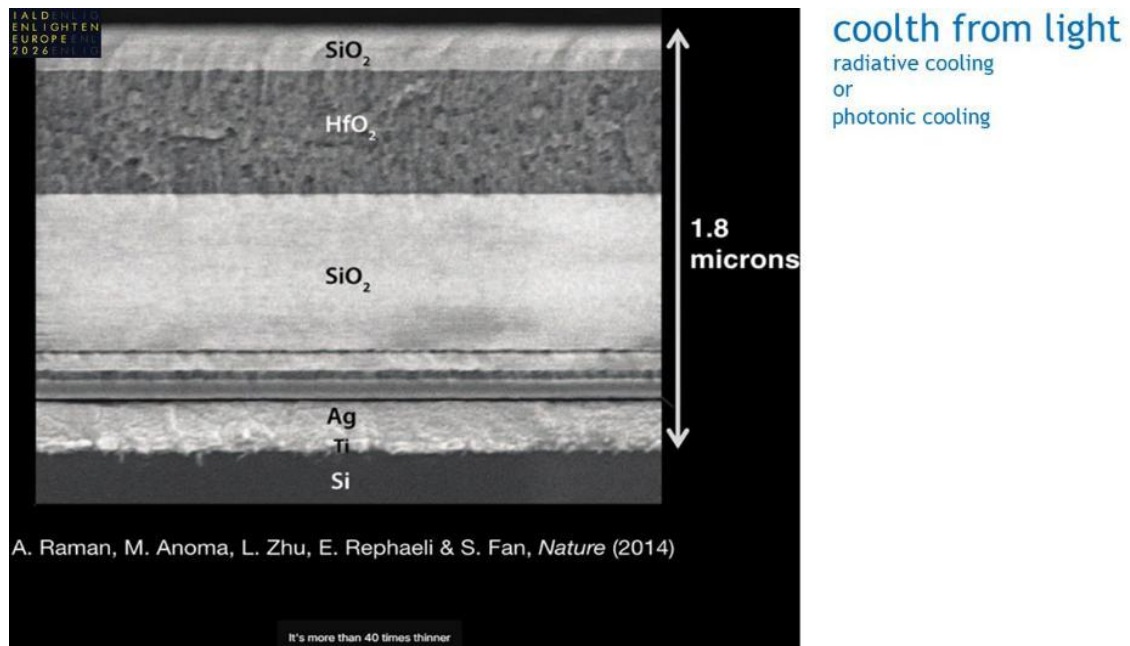
Source: public domain image



<https://www.noaa.gov/>

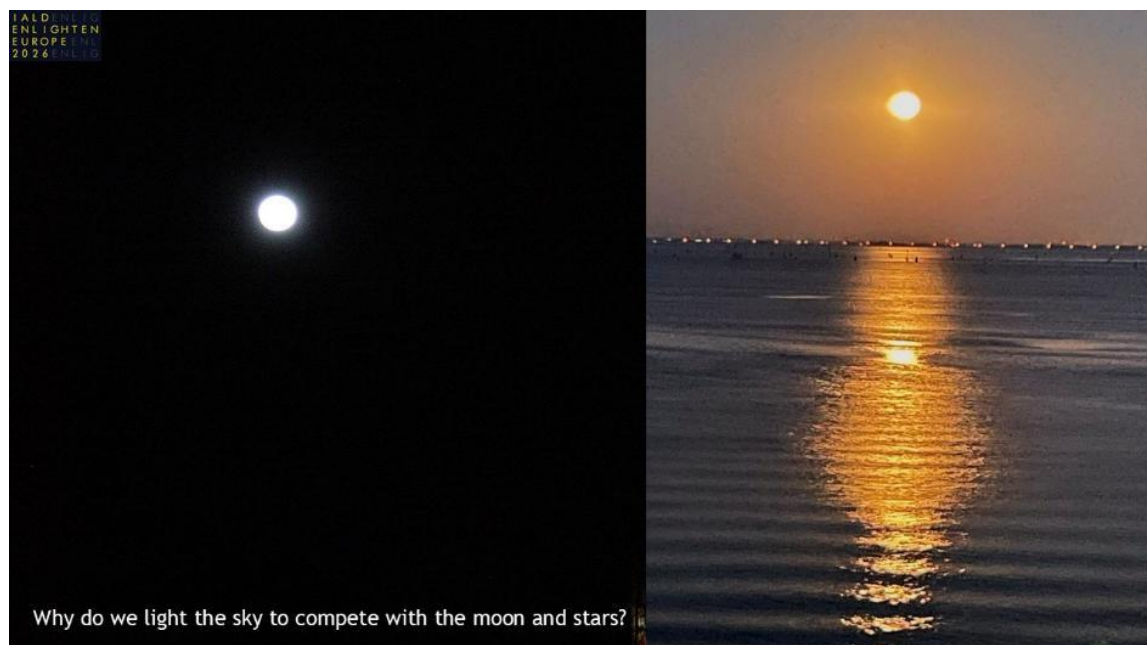
© (NOAA) and Neotech Coatings Australia

Incoming energy from the Sun and outgoing energy from the Earth relative to the electromagnetic spectrum.



© Aaswath P. Raman, Marc Abou Anoma, Linxiao Zhu, Eden Rephaeli & Shanhui Fan © 2014, Nature Publishing Group.

Scanning electron microscope image of the radiative cooling device



© Ian Ritchie



© Ian Ritchie

Has urbanism forgotten something?

Architecture is up against a well-designed consumer wall! And consumerism demands media overload - light!

James Turrell wrote *“In terms of urban situations, one of the biggest mistakes is that by using light to light the night we close off our perception of the universe. As you put light around us - it’s just like having the lights on inside of a house - you don’t see into the dark. This lack of vision to the stars really cuts off our very powerful psychological access to a larger sense of territory. These things might be something for architecture.”*



© ARUP

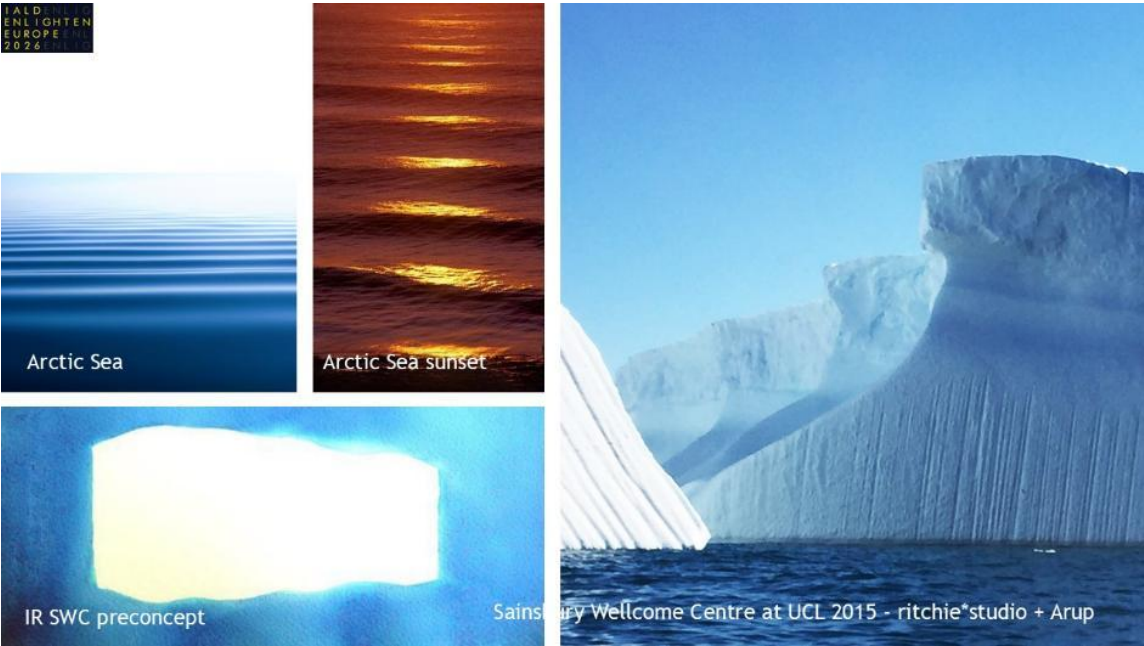
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Sainsbury Wellcome Centre at UCL 2015 - ritchie\*studio + Arup

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Arctic Sea

Arctic Sea sunset

IR SWC preconcept

Sainsbury Wellcome Centre at UCL 2015 - ritchie\*studio + Arup

© Ian Ritchie

Conceptual triggers for the SWC - lines of oxygen, translucency, waves



© ritchie\*studio

Translating these ideas through cast glass and surface treatments



© ritchie\*studio



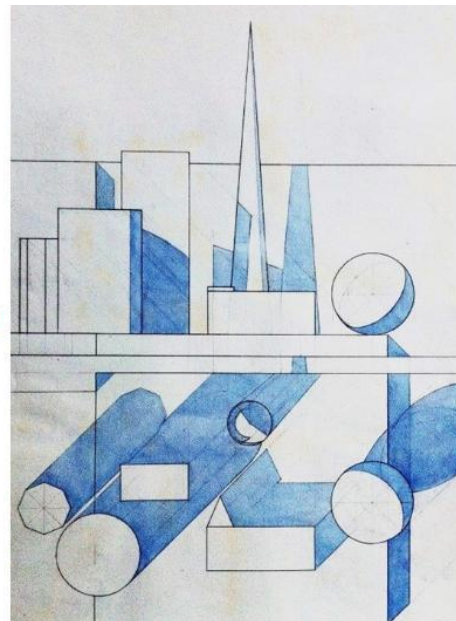
Sainsbury Wellcome Centre at UCL 2015 - ritchie\*studio + Arup

Film © SWC - ritchie\*studio



Fan illusion

shadow



Sciagraphy

(c) 1965 Ian Ritchie

© fan illusion Marty Banks Lab

## Sciagraphy - projecting shadows

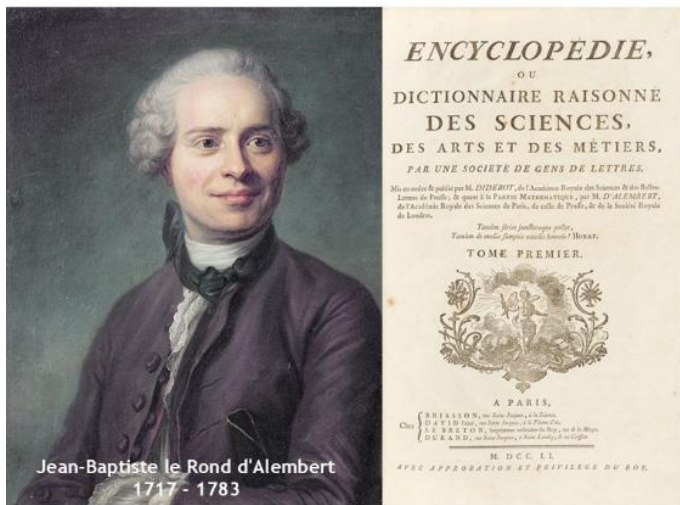
Jun'ichirō Tanizaki from his essay 'In Praise of Shadows' written in 1967 "We never tire of the sight of feeble shadows on clay and sand walls, for to us this pale glow and these dim shadows far surpass any ornament. And so, as we must if we are not to disturb the glow, finish the walls with sand in a single neutral colour. The hue may differ from room to room, but the degree of difference will be ever so slight. And from these delicate differences shadows in each room take on a tinge of their own."

Jean le Ronde D’Alembert (1717-1783), mathematician, physicist, philosopher, and music theorist.

Through reading his paper on shadows at the Arts et Metiers library, the importance of *umbra* was important in the design of the glazed roofs of the Louvre Sculpture Courts.



eliminating harsh shadows from the sun’s rays on sculpture

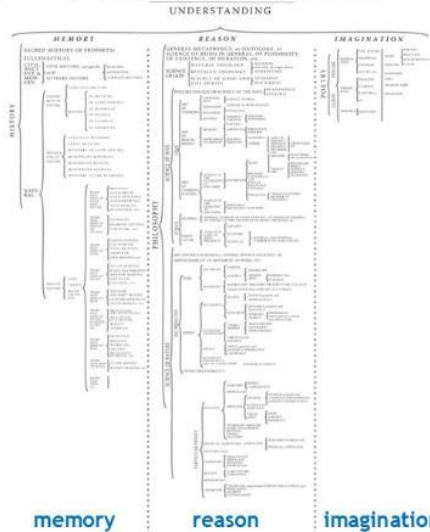


Jean-Baptiste le Rond d’Alembert  
1717 - 1783

d’Alembert

Images source: Wikipedia

MAP of the SYSTEM of HUMAN KNOWLEDGE

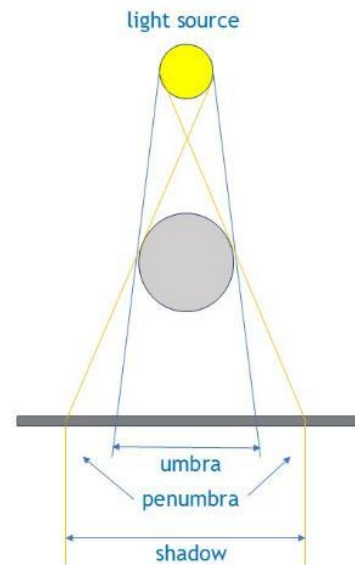
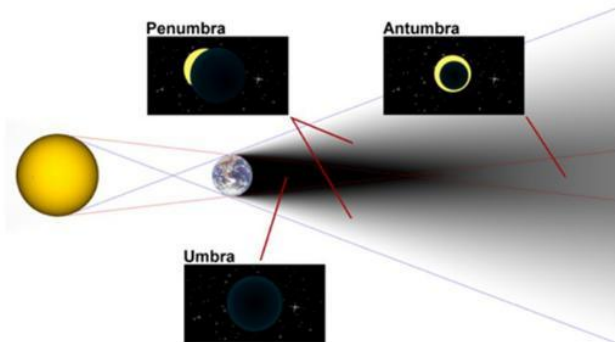


memory

reason

imagination

### D’Alembert and the Louvre Sculpture Courts

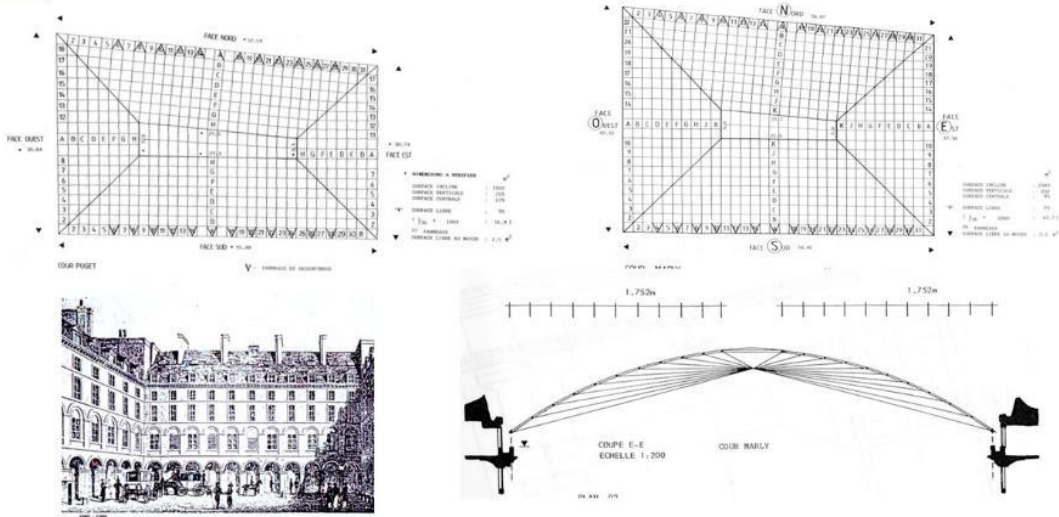


d’Alembert and the Louvre Sculpture Courts, Paris, 1983 - 1993 : I M Pei with Rice Francis Ritchie + ritchie\*studio

Image source: Wikipedia

## Umbr, antumbr and penumbr

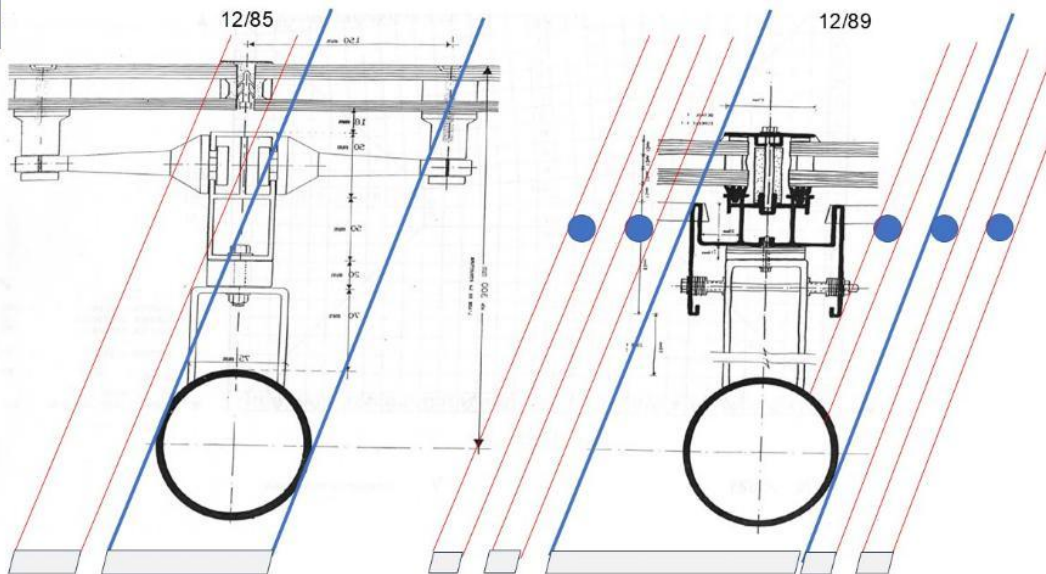
I A L D  
E N L I G H T E N  
E U R O P E  
2 0 2 6



d'Alembert and the Louvre Sculpture Courts, Paris, 1983 - 1993 : I M Pei with Rice Francis Ritchie + ritchie\*studio

© drawings ritchie\*studio + RFR

I A L D  
E N L I G H T E N  
E U R O P E  
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d'Alembert and the Louvre Sculpture Courts, Paris, 1983 - 1993 : I M Pei with Rice Francis Ritchie + ritchie\*studio

© drawings ritchie\*studio + RFR



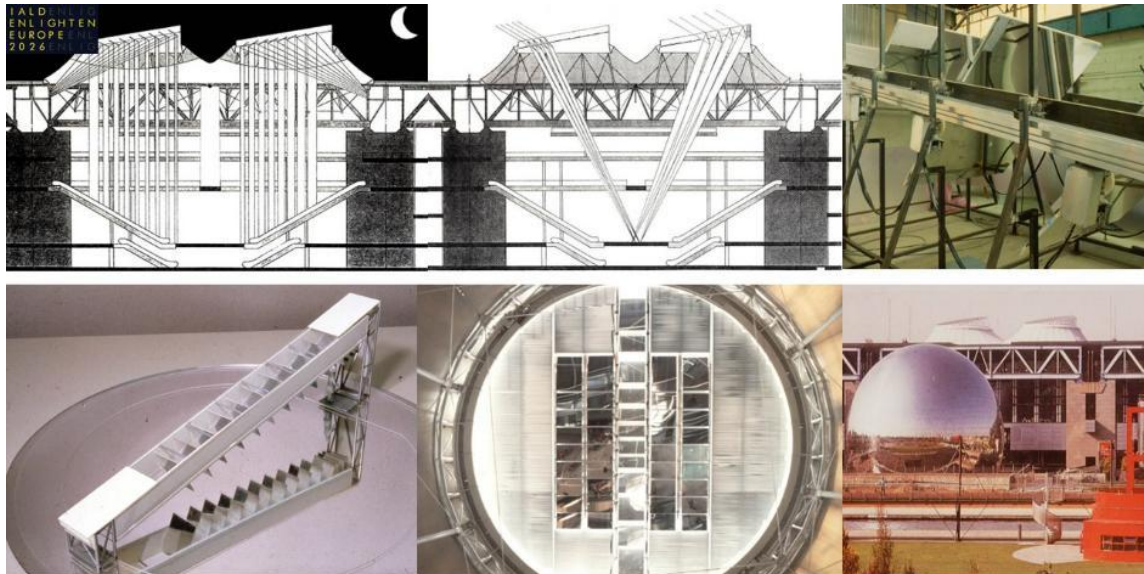
d'Alembert and the Louvre Sculpture Courts, Paris, 1983 - 1993 : I M Pei with Rice Francis Ritchie + ritchie\*studio

© images Arup + ritchie\*studio



d'Alembert and the Louvre Sculpture Courts, Paris, 1983 - 1993 : I M Pei with Rice Francis Ritchie + ritchie\*studio

© ritchie\*studio



La Villette Cité des Sciences Light Transmitting Roof + Rotating Domes + Robotic Heliostat, Paris, 1981-85 : Rice Francis Ritchie

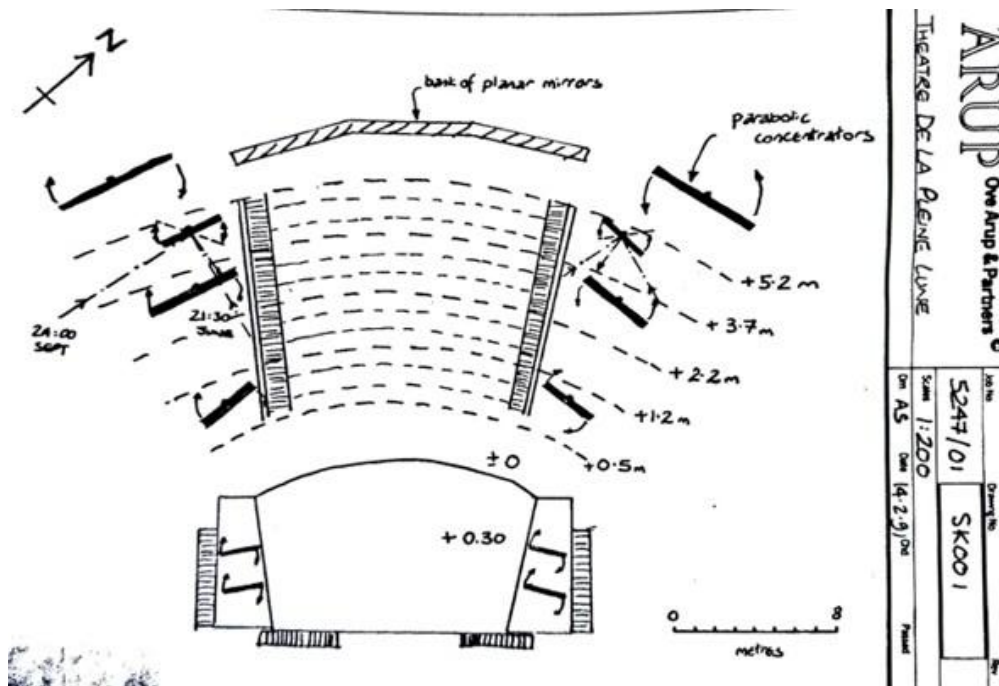
© drawings and photos ritchie\*studio + RFR

Le Hall d'Accueil roof rotating domes and mirrors, La Villette Cité des Sciences et de l'Industrie RFR 1981.

Sunlight and Moonlight robotic mirrors developed by RFR with Réel, Lyons. Trifluoroethylene fabric developed with PTL (Lyons) and Solvay.

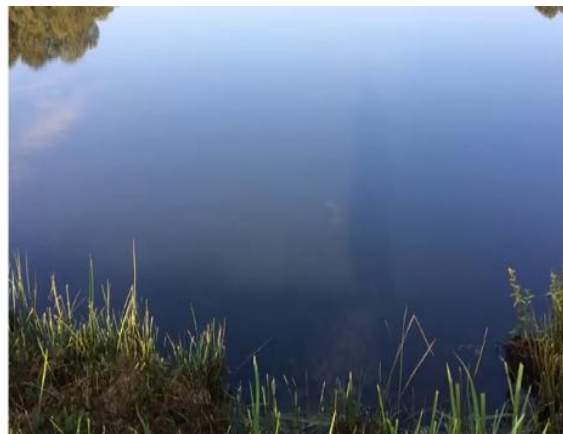
The Full Moon Theatre c.1991-2020) (Le Théâtre de la Plein Lune) is a light symbol of the integration of art, science and environment. Humbert Camerlo imagined it in 1987 at Gourgoubès, a hamlet nestling in the southern foothills of the Parc National des Cévennes, which is now Europe's largest International Dark Sky Reserve. Camerlo was both an artist and lighting engineer and eventually become an opera and theatre director. He invited the structural engineer Peter Rice, who invited his colleague at Arup, Andy Sedwick a lighting engineer, to collaborate on its realisation.

To achieve enough reflected light from the moon required about 200 sqm of reflectors for the 190 sqm stage.



© Sketch by Andy Sedwick (ARUP) 1991

Rice died in 1992, and the theatre then collaborated with Rice’s French design engineering practice RFR (Rice Francis Ritchie), especially Nicolas Prouvé. The Full Moon Theatre continued to experiment with mirror designs—including parabolic helium balloon mirrors tethered with cables to the floor—and ways of using them.



“nature’s beauty is in large measure non-linear“ - Ian Ritchie 2003

movement

Films: ritchie\*studio (not available)



seeking to achieve non-linear behaviour and beauty in our architecture through light and materials

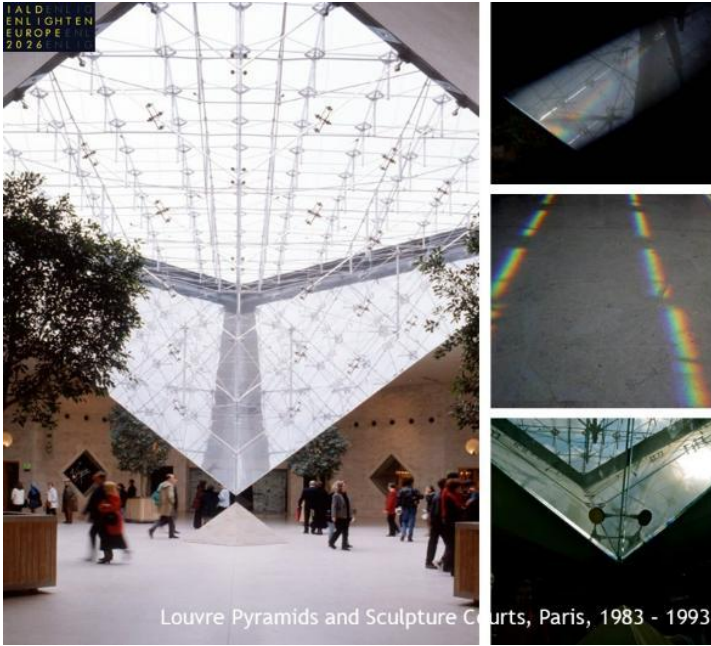
Other than those projects already presented, the following works of ritchie\*studio or RFR have sought to achieve a natural non-linear beauty in the architecture.



Louvre Pyramids and Sculpture Courts, Paris, 1983 - 1993 : I M Pei with Rice Francis Ritchie

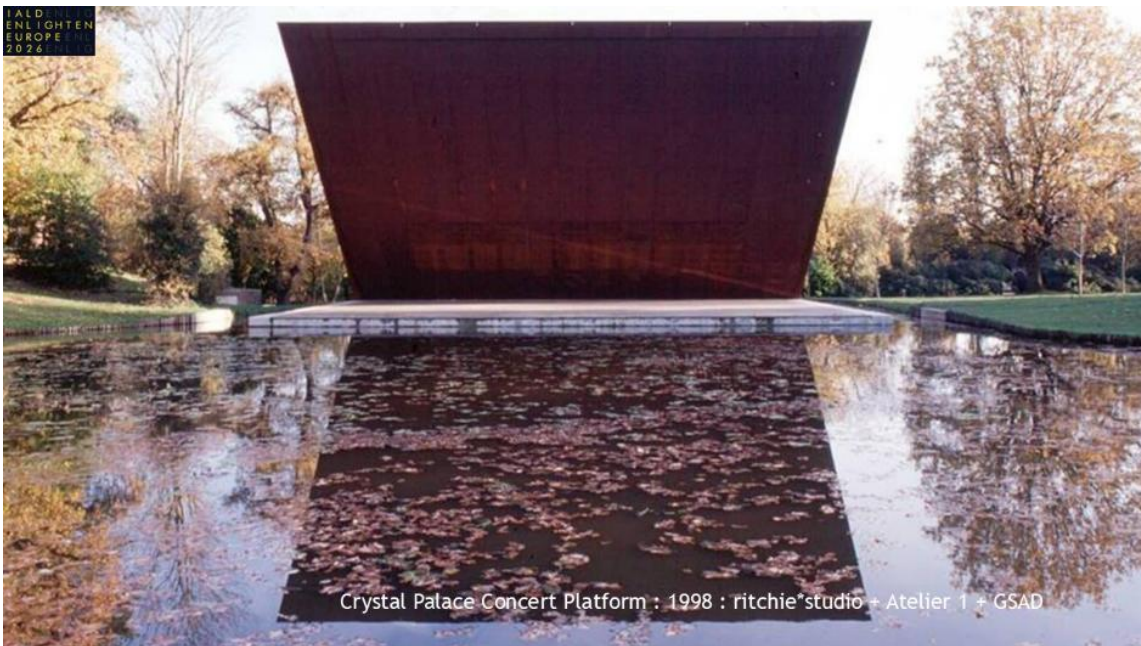
Photo right © René de Wit

The inverted pyramid, an atmosphere created by space and a single chandelier with spectral qualities.



© Photos Ian Ritchie + RFR

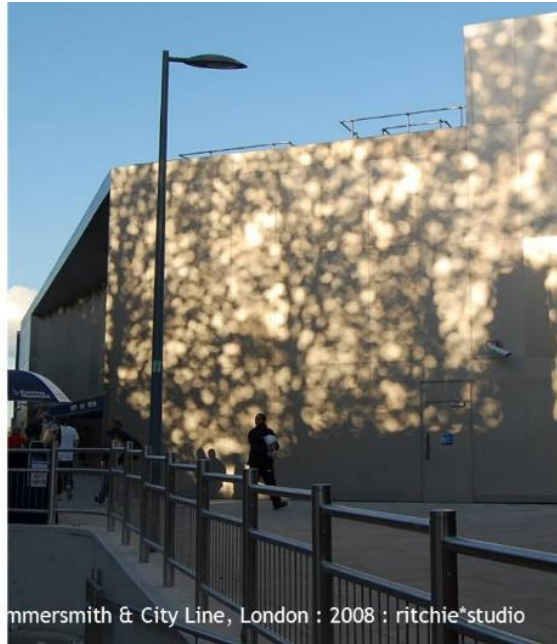
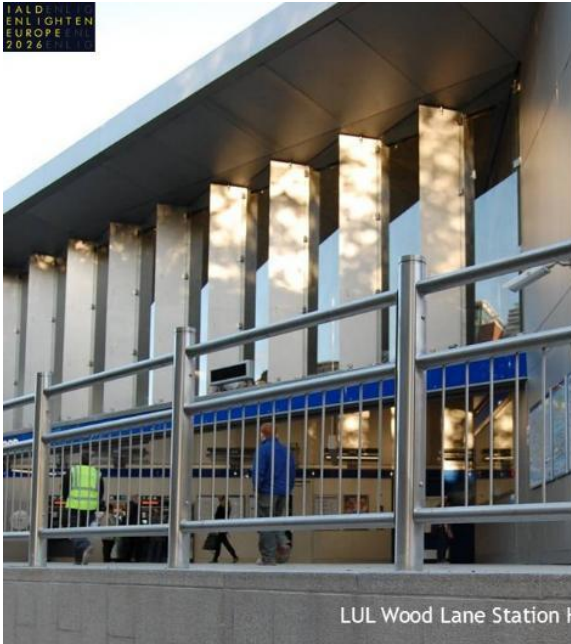
Rainrods as a witness to the weather above



© ritchie\*studio

Crystal Palace Concert Platform, London - shadow as a reflected layer with the landscape

I ALD ENLIGHTEN EUROPE 2026



LUL Wood Lane Station Hammersmith & City Line, London : 2008 : ritchie\*studio

© ritchie\*studio

Wood Lane Station, London - one tree as a changing shadow painting

I ALD ENLIGHTEN EUROPE 2026

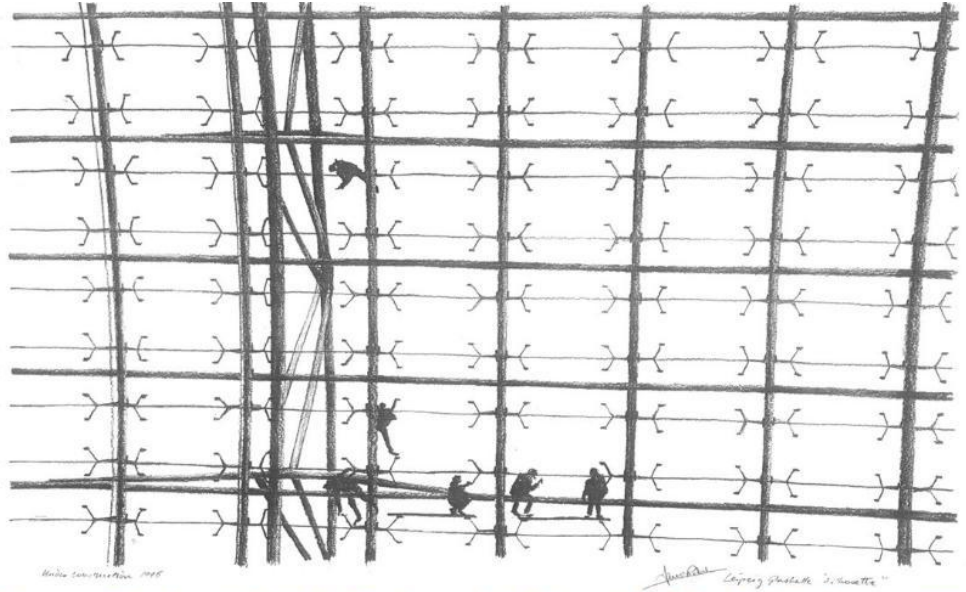


LUL Wood Lane Station Hammersmith & City Line, London : 2008 : ritchie\*studio

© ritchie\*studio

the transition from shadow to artificial light - night ceiling light source

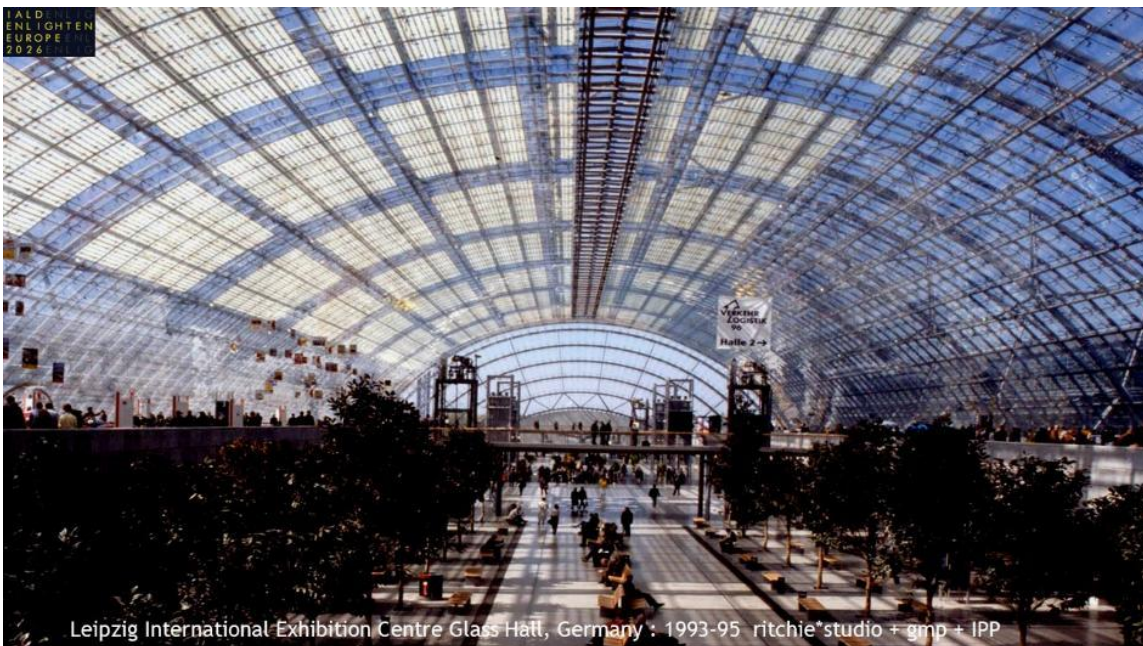
The peened treatment of the stainless-steel surface softens the effect of light and shadow.



Ian Ritchie pencil drawing 1994 of Leipzig Glashalle: The Secret of the Shadow, Light & Shadow, DAM, Germany, 2001

Drawing © Ian Ritchie

Understanding the ‘rule of 12%’ - a shadow between sky and earth to achieve lightness (levitas) beyond which the structure becomes heavier (gravitas).



Leipzig International Exhibition Centre Glass Hall, Germany : 1993-95 ritchie\*studio + gmp + IPP

© PPG

Leipzig Glass Hall 1996 gmp & ritchie\*studio

A framed emptiness  
brings down the sky  
to meet the earth.

The glass frit gives orientation

The story of man's architectural search for the mastery of gravitas by levitas, of light over darkness, began in the 13<sup>th</sup> century, reached a seminal point in the middle of the 19<sup>th</sup> century, and is based upon glass. We learned how to completely dismantle the walls upon which we inscribed our culture and began making them and the roof entirely of glass, held up by thin strips of metal. The Leipzig Glass Hall is perhaps an apogee of such dematerialisation.

In our culture white light has come to symbolise purity, goodness, illumination, rationality, order, and hygiene. So, early in this century, glass, and with it, white light became an aesthetic in its own right; its crystal transparency symbolising rational and economic thought.



[Film](#) © gmp

The scope to exploit the multitude of surface treatments that glass can carry, together with the innumerable developments in intelligent and information systems which can, and increasingly will be, integrated with walls, offers enormous scope for artificial lighting.



© gmp

Leipzig Glass hall at night



© Andy Earl

Eagle Rock House, Sussex, UK, was a design based on solar energy and sunlight and shadows. Energy is collected by air in the roof space. Light is filtered into the spaces below by louvres - akin to the feathered ailerons of a bird. A dance of light and energy - and climate /energy control incorporated a heat pump in 1981.



© Andy Earl



© Andy Earl



© Adrian Borda

The language of space and light and atmosphere - Romanian artist Adrian Borda's magnificent photos inside musical instruments were inspirational in the development of new performance spaces at the Royal Academy of Music, London. They reveal 'architectural' spaces within them - atmospheres.



© Adam Scott + ritchie\*studio



Translated at the Royal Academy of Music's new recital hall



© Adam Scott + ritchie\*studio



© Adam Scott + ritchie\*studio

And in the Royal Academy of Music's new Susie Sainsbury Theatre



© Adam Scott + ritchie\*studio

## Royal Academy of Music's new Susie Sainsbury Theatre



© Joe Smith Trident Park

Mediterranean light - composing with shadows for stillness and movement and cooling.



© ritchie\*studio



© Michael Farrugia



© ritchie\*studio



Trident Park development 2023

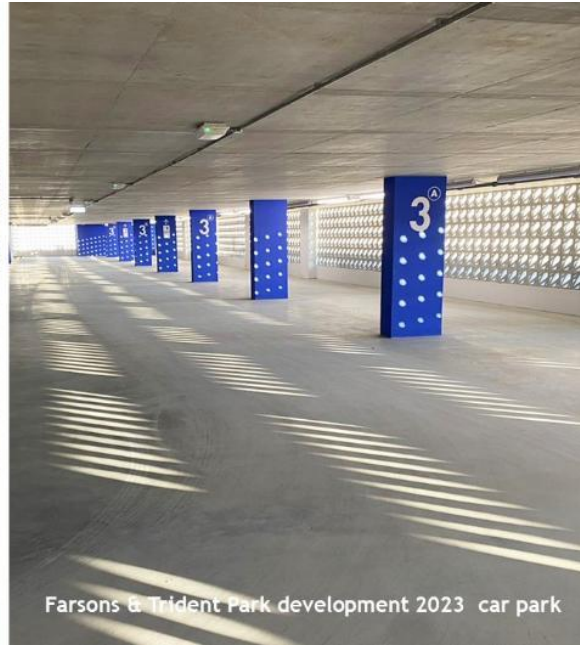
© ritchie\*studio



Trident Park development 2023

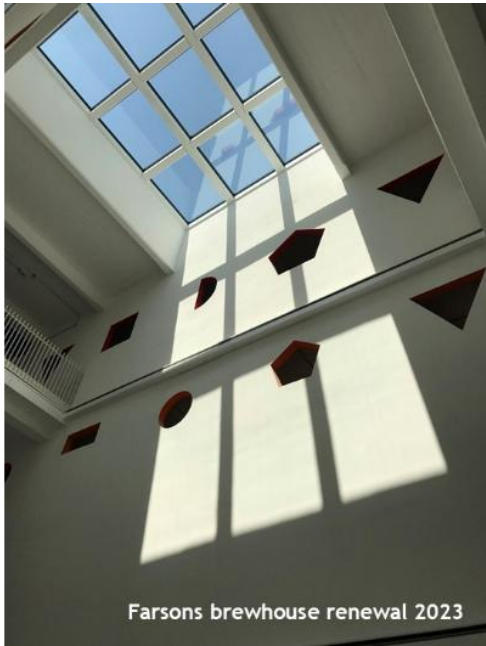
© ritchie\*studio

Recollecting the work of Joseph Albers - light transitions through space



Farsons & Trident Park development 2023 car park

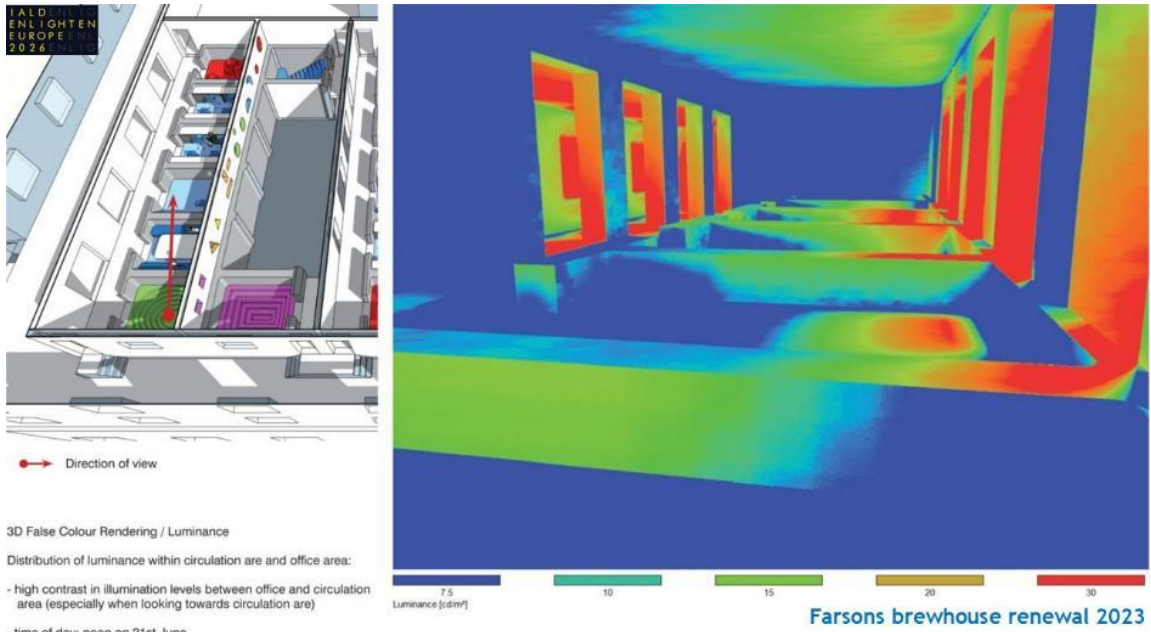
© ritchie\*studio  
And sunlight / natural lighting car parks



Farsons brewhouse renewal 2023

© ritchie\*studio  
The classic atrium - the architects' answer without having to think, as many do with proposing all glass façades.

Glass is the answer, what was the question? Why?

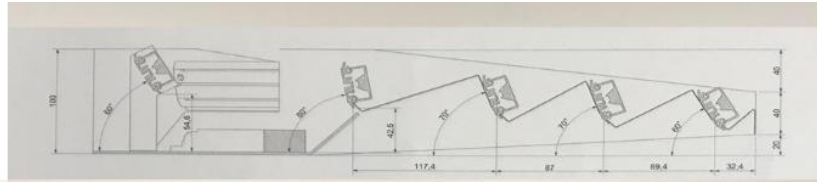
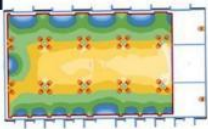


© Brandi Licht

Analysis and control - effecting good light quality and coolth



© Joe Smith + Farsons



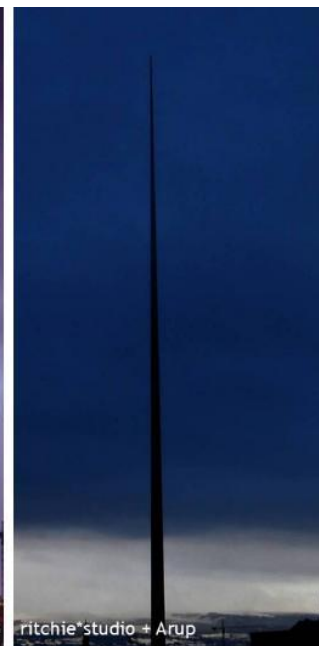
Levita uplighter - ritchie\*studio + Ulrike Brandi Licht + Castaldi Lighting 2018

© ritchie\*studio / Brandi Licht

Levita - an uplighter luminaire designed specifically for the Malta project to diffuse lighting across 20m<sup>2</sup> without a local hot spot.



The Spire, Dublin, Ireland : 2003

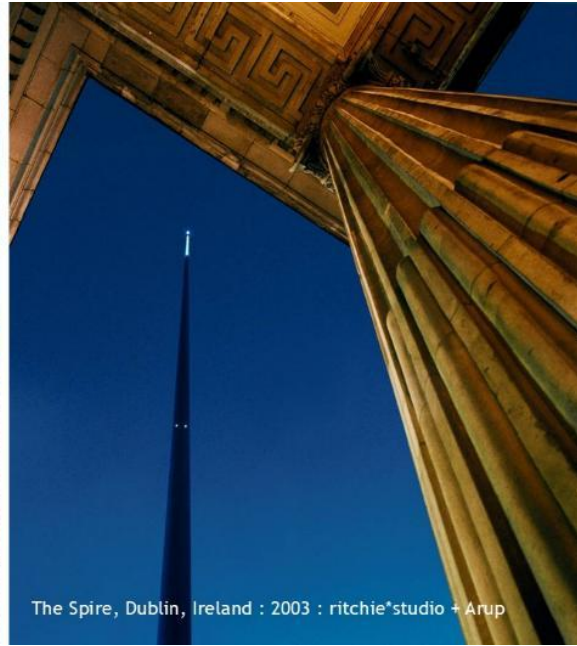
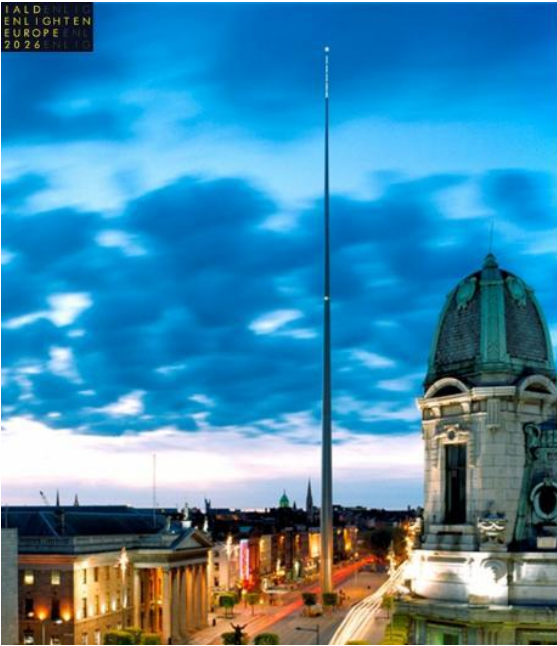


ritchie\*studio + Arup



© ritchie\*studio

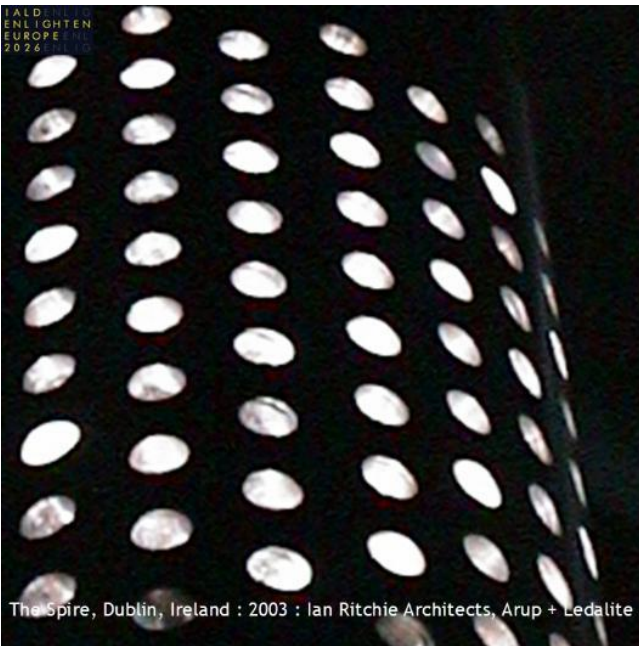
A light monument - celestial acupuncture - a stainless-steel shell whose surface is peened to reflect a soft light from the sky to the earth.



The Spire, Dublin, Ireland : 2003 : ritchie\*studio + Arup

© Barry Mason / ritchie\*studio

## The blackness is darker than the night sky

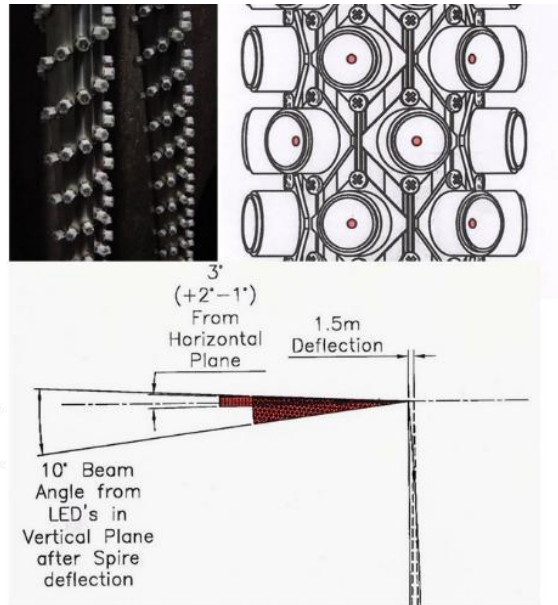
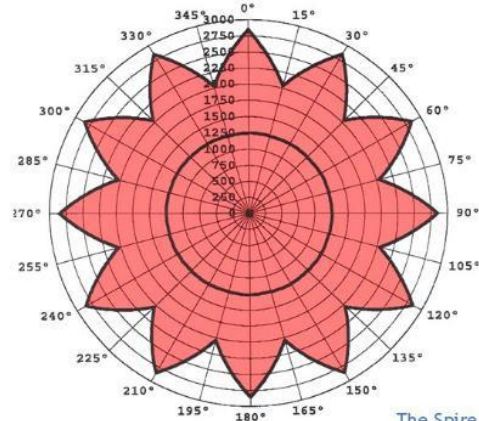


The Spire, Dublin, Ireland : 2003 : Ian Ritchie Architects, Arup + Ledalite - 2000 lux aviation light with Hewlett Packard & Phillips

© ritchie\*studio

The 11m high lamp (from units 1m long illuminate the surfaces of the 11,000 holes. At the very top is a 2000 lumen aviation light developed with Hewlett Pickard and Philips 25 years ago (Lumileds research labs).

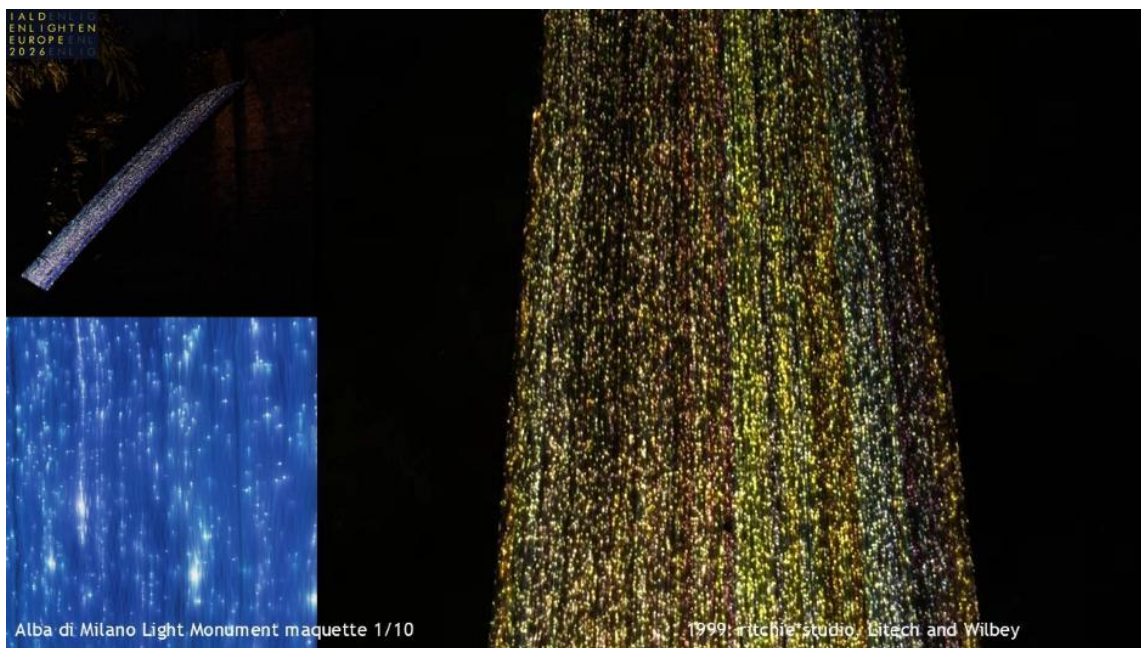
Job Ref. 42 / 5491  
Report Ref. 42 / 5491 / 5491A  
Report Date 2002.12.09  
Customer La Couch Lighting  
Luminaire catalog No. Aviation Warning Beacon  
Luminaire description projected data  
12 columns of 24 LED's on a 30° pitch  
Using 20° Film (42/5416)  
Horizontal distribution (elevation angle of 90°)  
Luminous Intensities (CD)



The Spire, Dublin, Ireland : 2003 : ritchie\*studio, Arup + Ledalite

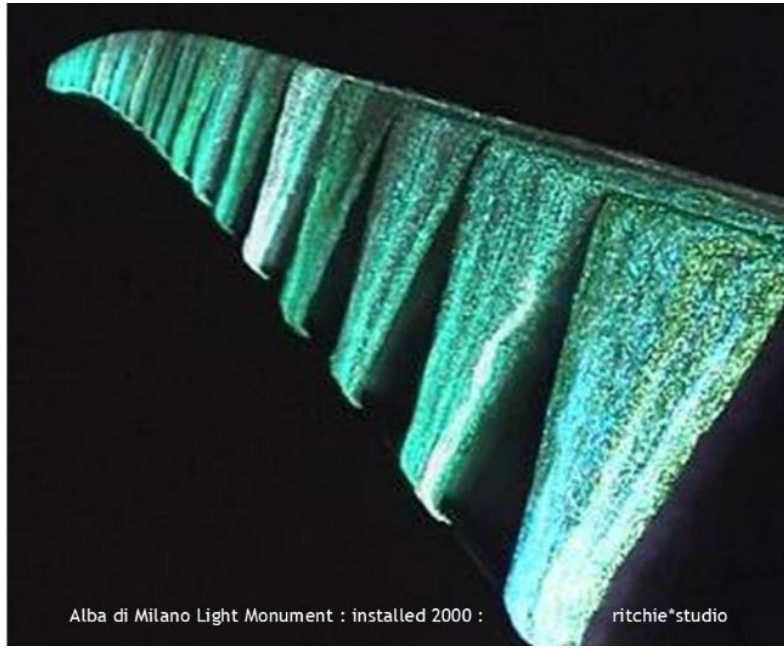
© ritchie\*studio

The arrangement of the 11mm high lighting - pulley system - and aviation rule angle for the pilot to see 2000 lumen light.



Film © ritchie\*studio

Alba di Milano sculpture for inaugurating the millennium in Milan. Weaving light - fibre optics and stainless-steel into a stiffish cloth as an expression of the photonic age and of Milan's renown as a fashion centre. It was removed in 2002!



© Casati

Around 1925, in a lecture Einstein gave in Rio de Janeiro at the Academy of Sciences, he said that he could not accept the idea of light as exhibiting properties of both particle and wave - this duality did not fit classical physics - and one might say that from this moment on Einstein became part of history. The notion of quanta to describe light as discreet packages of energy evolved through Heisenberg's quantum theory around the same time which allowed light - photons - to have both characteristics. The photonic age had begun a century ago.



Light Tunnel, Ingolstadt, Germany, photochromic-reactive glass coating 1992 : ritchie\*studio with Pilkington

© ritchie\*studio

Light often means that part of the electromagnetic spectrum that is visible to the human eye. We should not forget however, that other living species can see ranges of the electromagnetic spectrum that we can't, and that living species also emit light through fluorescence and bioluminescence. The former depends upon ultra-violet light, but bioluminescence does not. How does nature's Lucifer - the Firefly produce light? It does it through a chemical reaction consisting of Luciferin (a substrate), combined with Luciferase (an enzyme), ATP (adenosine triphosphate) and oxygen - bioluminescence.



cold  
bioluminescent  
lucifer - nature's  
own photonic  
communicator

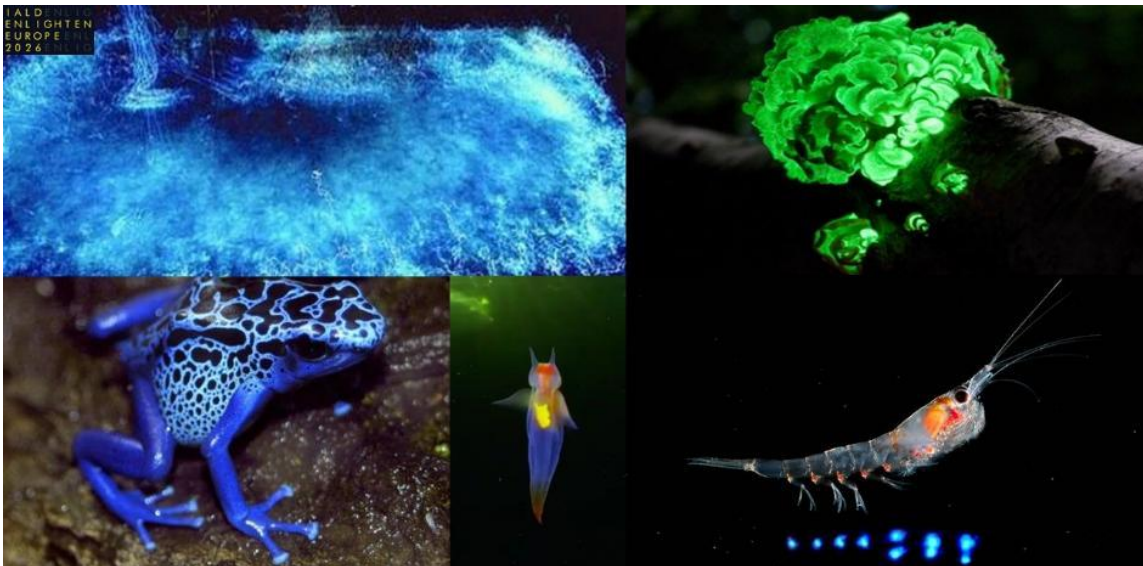
no IR and no UV -  
wavelengths from  
510 to 670nm

Renaissance  
painters ground up  
fireflies  
to produce  
photosensitive  
paint additive



Jardin de l'imaginaire, Terrasson, France, 1995 : Kathryn Gustafson + ritchie \*studio

© Gustafson Porter & Bowman

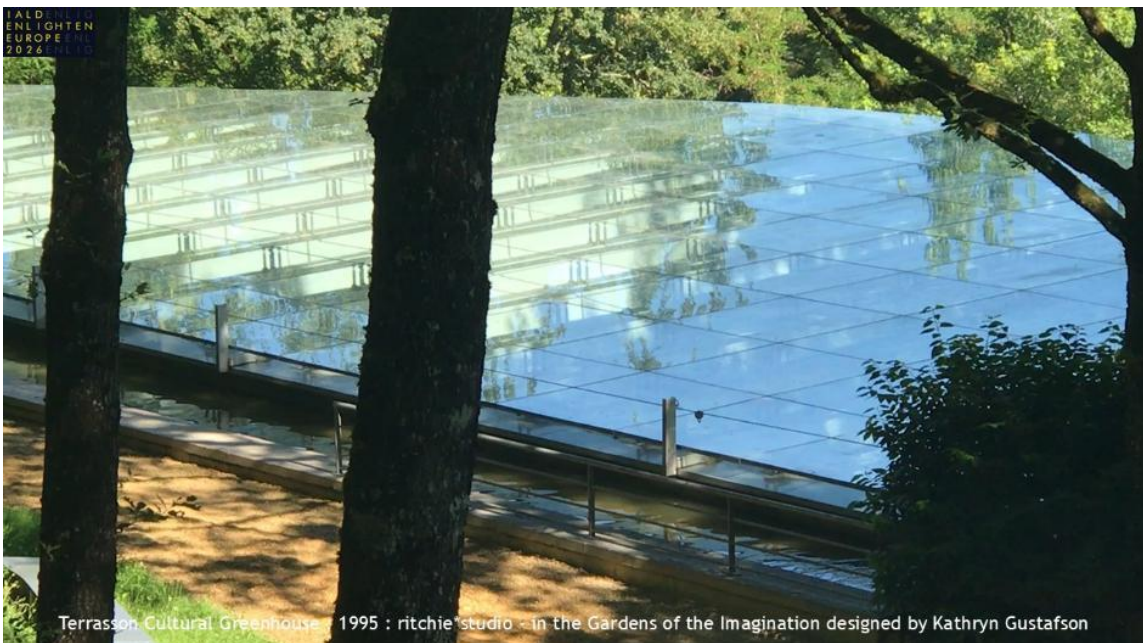


Bioluminescence : enzymatic chemical - more than 50 species emit either bioluminescence or fluorescence



© ritchie\*studio

The Gardens of the Imagination in Terrasson-Lavilledieu, in the Dordogne Department of France, is a public park and contemporary garden set in 5-hectares of hillside, now listed among the Notable Gardens of France. The gabion / glass structure within it represents a cultural fragment - a greenhouse.



Film: © ritchie\*studio

Glass as virtual water - designed to enjoy reflections and energy benefit, as well as a performance space which mirrors the amphitheatre landscape nearby.



© ritchie\*studio

Not afraid of sharp shadows here!



If you want to fall in love avoid fluorescent lighting  
(ir 2002)

The temperature of artificial light becomes colder towards the equator, and warmer towards the Earth's poles.  
(ir 2005)

Light is our umbrella against the dark sky,  
(ir 2009)



and also falls like the rain from a cloudless sky.  
(ir 2009)

Richard Feynman, QED: The Strange Theory of Light and Matter.

*“Light is something like raindrops - and the light is all one colour, and all the “raindrops” are the same size.”*

Berlin reduced street lighting levels by 50%  
fewer accidents, traffic moves more slowly, everyone feels better.

Turning off lights is easy, costs nothing, saves energy and money, reduces light pollution  
and better for our health.

## “Is less light more light?”

Ian Ritchie

we need to enjoy darkness and to rediscover its qualities

During the 20<sup>th</sup> century and first quarter of this one, the dramatic increase in the use of glass and translucent materials to wrap buildings means architects have had more and more freedom to design how much opacity, translucency and transparency they want in buildings. The architecture that emerges from this freedom seems rarely influenced by daylight, shadows or artificial lighting, but it should be. The absence of considering reflections, glare and luminous atmosphere is a chance for designers to get hold of architecture anew.

Is there a simple message here, that we sometimes forget - that by increasing the light level we deny our other senses, and thus atmosphere?

One of my criticisms of architecture is that too often it is about making forms and not spaces. And then you stick the lights in!

I have written that the history of architecture is the way we let light into space - not arbitrarily as seems common today. It is rarely done in the way that light activates the space and makes it alive - with atmosphere.



Turville Water: 2012 ritchie\*studio + Adam Ritchie + Lawrence Owen

Films: © ritchie\*studio

Turville Water is a spiral of light carried by water.

Light is a temporal phenomenon created from burning stars - photons travelling invisibly through the blackness of space. Without light no life, and no creativity.



time for a major reset, and to question the rules  
planet, energy, individual freedom, waste

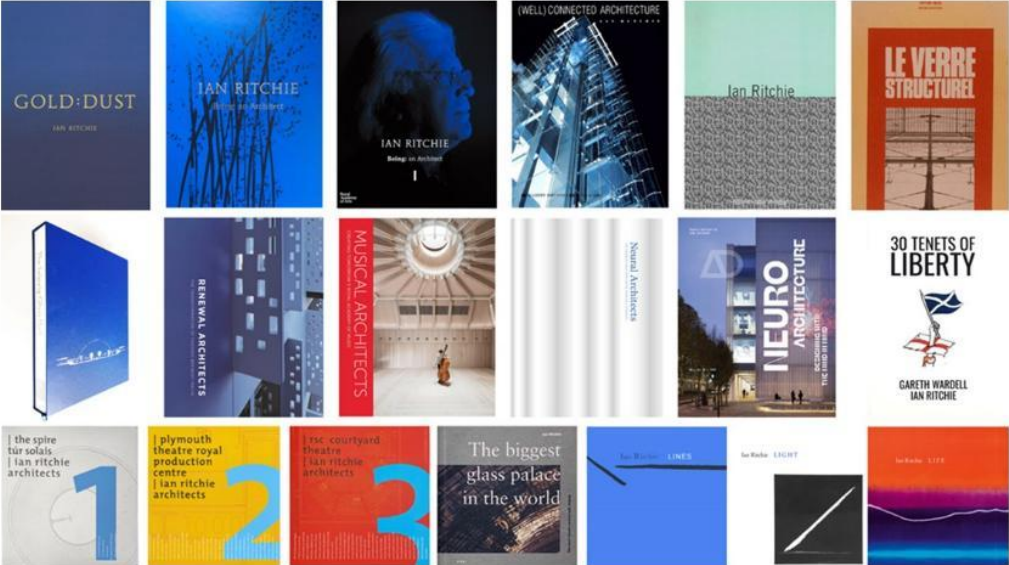
water flame by Jeppe Hein

Film presented: © Ian Ritchie: alternative <https://www.youtube.com/shorts/8dYEs74U3K8>

It is your time to celebrate light, and please design intelligently and enjoy light.



THANK YOU



© ritchie\*studio

END