TATE MODERN LONDON
INTELLIGENT GLASS SOLUTIONS
7 DECEMBER 2017

IAN RITCHIE

ON THE EDGE OF REASON: THE PULSE BETWEEN PERIPHERY AND CENTRE
GLASS IS THE ANSWER BUT WHAT WAS THE QUESTION: IDEAS AND USERS

Film of Leipzig Glass Hall

I came to architecture from the edge,
somewhere between the edge of medicine and the edge of art,
wanting to help people and to express myself.
Both my humanity and my art were intuitive.
I think I was lucky with my DNA
and the access I had to nature's wonders.

I lived on the edge of architecture
yet the actions were central.
But I thought about society as much as form,
I tried connecting architecture schools,
and investigating free-time space,
and speculating on where urbanism was going.

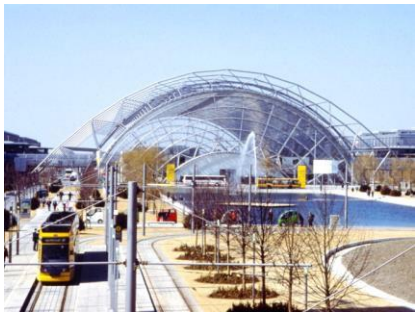
I realised architecture in East Anglia,
and saw egos and business competitiveness.
I built real buildings with my own hands,
then taught architecture, but not really.
I had insufficient knowledge, but
I shared building buildings with students.

Then, working, learning and engineering at Arup.
I worked with industry, I researched,
and I dirtied my hands in the workshop.
And the boundaries of architecture
that had begun to appear began to dissolve
and I saw that I was out on the edge.

Then, a design engineering partnership in France,
no boundaries other than the sensual
nature of buildings and streets, and
materials, light, landscape and technique.
I remained on the edge but in the centre
of French political ambition.

A knowledge and feel for glass
that brought me to the centre,
because the image was potent
and sought after throughout Europe,
and later worldwide, but I had cracked glass.
I moved outward again, weaving and deploying new materials.
I NOW had knowledge, maybe even wisdom,
Out to the edge again, giving back to society.
And now I write as much as I draw,
my imagination is still on the rim of reason
and I do not know my next architecture,
but my responsibility is still towards humanity.

CENTRE



Leipzig Glass Hall 1

In 1999, for the new millennium, I wrote an essay for the Irish Times titled 'Zero the Hero', describing some of the public architecture 'Zero' has given birth to and playing with some ideas of what it might stand for in relation to where we are headed as a society.

In it I described how around 628 AD the astronomer Brahmagupta in India conceived of Zero as part of a system of abstract mathematics. This opened up the possibility of negative numbers, and a continuous number line stretching to infinity in both positive and negative directions with the symbol 0 - *śūnya* the nothingness - sitting at the boundary between positive and negative. It enables our entire system of mathematics to be at the very core of computer logic.

Zero can symbolise the beginning, the central point of balance between two forces, the trace of the infinite point.

I suggest it also symbolises the creative centre - where synthesis replaces duality between subject and object, and where the creativity fed by the periphery takes form.

In order to enter this creative space, architects - or artists, or scientists - must breach the borders of the rational and the security of their psychological and intellectual limits. They must relinquish control to freely transplant knowledge between the sciences and the humanities. They must ask the right questions; question what is self-evident in order to create something genuinely new, essential, and potentially meaningful.

PERIPHERY

For me both personally and professionally the periphery is a fertile place.

It's an edge, a boundary zone, a frontier. When we speak of a frontier, we speak of a challenge. When we say something is 'cutting edge', we're talking of the most daring and creative manifestation of any field of knowledge or research.

The Wall came down – East met West. In Leipzig the Sky is brought down to the Earth.

Leipzig Glass Hall interior 2

In the natural world, boundary zones are the peripheries where ecosystems meet, and are often the richest and most ecologically diverse.

The same goes for when intellectual ecosystems meet!

According to Vitruvius:

"Architects should be educated, skilful with the pencil, instructed in geometry, know much history, have followed the philosophers with attention, understand music, have some knowledge of medicine, know the opinions of the jurists, and be acquainted with astronomy and the theory of the heavens"

I'm trying! I've performed as architect, engineer, thinker, urban advisor, artist, poet, writer, and critic - though am a dead loss at music, which is one of my great regrets.

CONTROL

Relinquishing control in the creative and interpersonal sense can open us to the thrill of creativity and the richness of cooperation and mutuality.

The inadvertent or unwilling loss of control in the personal, professional or cultural sense is another matter. That is when the centre becomes empty - like the emptiness at the centre of our consumer culture, designed never to be filled - and the periphery becomes neglected, forgotten, ignored and discounted - a zone of danger rather than richness.

ARCHITECTURE WITHOUT CONNEXITY

We may not be the only animal that creates its environment, but we are the only animal which deliberately creates environments which are dysfunctional.

We're social animals. Even nomadic peoples converge periodically, to exchange news, trade goods (and genes!) celebrate or engage in spiritual rituals.

We soon also realised that certain human activities can be conducted more easily when clustered together rather than dispersed. Villages, towns and cities evolved and grew to fulfil human needs for centres of connexity.

The great cities have always been the richest centres of connexity because they are densest - in population, diversity, complexity, races, cultures and wealth. This is one reason they have absorbed invasions and outlived many and diverse systems of government.

But more than centres of density, cities are complicated organisms with lives of their own - many-layered and culturally specific. They evolved in response to the surrounding environment and the unwritten, sensed needs and values of the communities which built them and were in turn shaped by them. There was a direct correspondence between the architecture of a city and its people.

Architecture creates urban environments which mirror the philosophy on which a culture is based. Today's philosophy? Capitalism first and with it the ubiquitous high rise skyline.

Shanghai Waterfront

As the rich and powerful shape our world more than they did in the past, the glass towers sprouting in cities worldwide are monuments to wealth and might.

And here I must admit to some culpability: I helped create façade engineering and the technology that makes them possible - which just goes to show that as designers we can only make sure that what we create is adaptable enough to anticipate futures that are as yet undefined.

Profit-driven development and ego-driven architecture are the manifestations of urban planning and architecture which no longer put society and cultural continuity at their centre.

The effect upon the buildings and public spaces and upon the global environment generally, has been devastating. As cities lose their complex urban fabric of mutual influence and adaptation, they dehumanise the humanity that inhabits them and nature itself.

These buildings express and evoke the least attractive aspects of the human psyche. Selfish and egocentric, they stand alone and isolated. They do not share walls or face each other; they rarely make places welcoming to the street life which makes a city alive. They are urban spaces deliberately designed not to be lived in but moved through - perhaps with a pause to buy a cappuccino.

Corporate acquisition of large chunks of public space is further transforming cities, with implications for social structures and the richness of the urban fabric. On a larger urban scale, the answer to these problems is very much a matter of restricting the ability of private wealth to affect urban development.

The free market approach of London makes this difficult, but even here control - for good or bad - can be exercised by individuals and communities with the will and power to influence the planning system.

Paris from the air

As the present Deputy Mayor of Paris, Jean-Louis Missika, who is responsible for architecture, urbanism and economic development in the French capital, explained recently:

"We don't accept to give the management of public space to the private sector,"

"The question of how you manage the design of the city, of the streets, and who has the right to be in the streets, and how you share the rights of the different users of the public streets, is very decisive in future,"

"You also have the question of social mixing; a city where the poor and the rich can be in the same spaces because segregation is the worst problem for cities. You see it in Paris, you see in it London… The city that accepts segregation is a dying city."

And in the words of Pasqual Maragall i Mira, the Mayor of Barcelona during that city's development for the 1992 Olympics:

"The exteriors of your buildings are the walls of our public rooms, so we will have a say about what they look like because we have to live with them."

Even as an individual architect you can remain aware that you're answering to the needs of the public as well as your client.

The ability to discuss the design with the public is vital. In the case of the Sainsbury Welcome Centre, iRAL consulted local interest groups and statutory authorities early and extensively during the design process to make sure the way the building 'plays well' with its immediate neighbours and the public.

Control of the urban fabric isn't a utopian fantasy. In fact, it has been done successfully in Paris, and it's an example of what can be achieved when the right questions are asked during the process of city planning to produce a coherent philosophy.

(INTERMISSION STORY…the value of philosophy) 1981 IR & Paul Delouvrier

Metro map

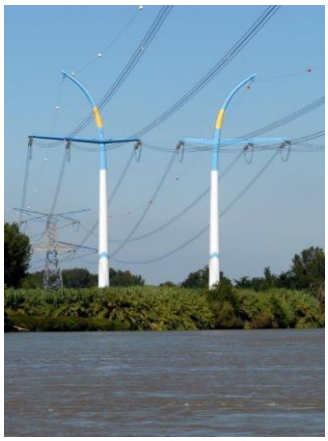
In 1981 I had a conversation with Paul Delouvrier when he was President of the *Etablissement Publique du Parc de La Villette* (1979-84). The first building in the project was the new *Cité des Sciences et de l'Industrie* for which Rice Francis Ritchie (my firm - known as RFR) was commissioned to develop the bioclimatic facades and central roof.

By the mid-50's it had become became evident that the future of Paris – one of Europe's greatest cities – would have to be planned if it weren't to lose its character as its population increased. Charles De Gaulle, being a busy man, asked his secretary to find him someone who would create not just a development plan but *a philosophy for Paris*.

A young man then, Delouvrier volunteered to deliver it. After several months of frequent round-table discussions by a multi-disciplinary group of leading French figures: artists - including writers, philosophers and theatre directors; economists, scientists, planners and geographers, a raft of papers was produced.

This was systematically reduced and finally edited down to one piece of paper, of which de Gaulle allegedly read only the first line: *'Paris risks falling into the Atlantic Ocean*!'
The group had identified the emergence of a powerful 'economic banana belt' lying along the Rhine, and Paris was too far west to benefit from it.

Initially this led not to a philosophy for Paris, but to one for France, with, of course, Paris at its centre: The government under de Gaulle initiated the development of a high-speed rail service which culminated in the TGV; drew up a national motorway construction programme to link Paris with the rest of France and with the rest of Europe; founded the French Atomic Energy Commission and the project to launch the first all-French commercial nuclear reactor in 1956 with the aim of becoming the major electricity supplier to European countries, via a European grid of transmission lines; and finally, the idea of supersonic air travel to connect Paris to the world (Concorde) which in turn led to the joint Anglo-French Concorde agreement in the early 1960s and a new airport Roissy.



EdF Fougére Pylons by Ian Ritchie Architects with RFR and K Gustafson

Nevertheless, urban design at a granular level is an extraordinarily complex endeavour, even with the new technologies which can help planners and designers make sense of demographic and environmental data, public opinion, racial equity and economic benefits.

Not only reason, but also knowledge and theory are needed if we are to understand how buildings fit together to form civilized environments where communities can live in harmony and grace. And we must reclaim our memories, imagination and emotion to create these environments, as we are slowly coming to the realisation that in the rush to progress, we have left some of these behind - not only in architecture, but in our ways of relating to each other.

ARCHITECTS TRYING TO REGAIN CONNEXITY

The intellectual, design and technical territory of the architect has been slowly eroded. There is no doubt that architects themselves, and the way we are now educated, have contributed to this.
In current architectural teaching the stress is placed upon knowledge and theory - the periphery, while emotion - the unquantifiable human heart central to architecture - is constrained, considered immature when expressed strongly and unsupported by either knowledge or theory or both.

Moreover, the architect's full range of skills - which used to be taken for granted - has become diluted through specialisation and management.

Few architects now design with a deep knowledge of structure, materials, environmental physics, cost of systems and construction, acoustics and lighting, combined with a really good understanding of politics, law, economics, social structures, urbanism, planning, construction and manufacturing industry.

Without these skills, an architect is not able to advise on healthy urban infrastructure or to administer and control the process of delivering the building he has designed. That has been taken over by management.

The result has been the subjugation of design to process and the separation of the two, with the power of management increasing at the expense of architecture.

Conformity and ownerless decisions inevitably become management's allies. The growth of a risk-averse culture, of chains of responsibility so long that nobody knows who is accountable, have led to the marginalisation of genuine experimentation, research and innovation. It has also led to the marginalisation of architecture in its broadest and most social sense - its ethical stance - because the values of architects and managers are different.

I think that most designers and architects believe that they are essentially doing good. I think that the idea doesn't enter most managers' heads.

SHIFT

The fundamental tragedy is that design - as is everything else - in our present society remains judged, both qualitatively and quantitatively, by the question: does it attract the consumer?

Architectural space cannot realistically be in conflict with the commercial world, for it does attract - or repel - the consumer, and architects do not finance their own buildings. But architects can recognise the real world of consumerism, and we can make architecture real within and beyond it. We are uniquely placed to provide the vision and to synthesise its spaces - their underlying structure and character and chameleon-like potential.

We have the skills through our training and application that enable us to imagine extraordinary and memorable spaces, to enable them to be built, and to understand how they can be inhabited and enjoyed. They do not have to exist in isolation from the viewer or the user - they can be changed by their presence.

Architects can create spaces which appear visually seductive, but do they consider the user, or is the user in effect being asked to adapt by changing himself? Who asks for the users' response after the initial attraction? How many architects live in their creations? How do they learn?

How many contemporary architects will let their client or the users change their buildings without feeling aggrieved and complaining that their building is no longer what it really was?

Can we, as architects and engineers, regain the ground we have lost by initiating a change in the negative aspects of our collective culture?

I remain hopeful that we can help make a change by going back to the fundamentals. We can also stand firm on ethical issues and make our concerns public when we see unethical behaviour within our professions.

The late American architect Philip Johnson – one of the most influential figures in 20th-century architecture – once said, *"Whoever commissions buildings buys me. I'm for sale. I'm a whore."*

The statement raised hackles in the architectural profession, as arrows into the centre of a guilty conscience often do.

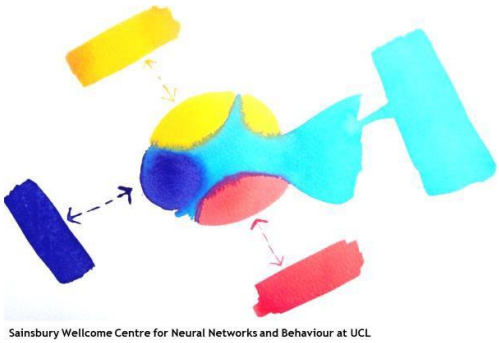
Sometimes cognitive dissonance is required to reconcile ethical issues and the behaviour of those paying the architect's fees. Important social and political issues relating to planning, design and architecture often fall by the way. Very few architects take an ethical stand, or refuse to plan projects that perpetuate social inequality - and not everyone can afford to be righteous, especially financially. But some can, and do.

Architects and designers, engineers and industry must engage with the users of their products through wider lenses, those that look past the simple monetary and egocentric values of their products.

SWC

Our practice seeks to achieve better social and environmental design solutions through genuine collaboration and intelligent design. Our aim is to achieve the very highest standards in design and in the manner in which we undertake our work, and that our actions reflect the highest level of ethical behaviour.

What do we know about the universe? Or about our brains? Neuroscience research is focused on the brain which, according to Woody Allen in his film 'Sleeper', is his second favourite organ.



SWC IR Ink drawing of flow: labs, spec lab, write-up and interaction

The Sainsbury Wellcome Centre for Neural Circuits and Behaviour is a unique, world-class neuroscience research institute at University College London (UCL) completed in 2015, with the final phase of lab fit-out being completed 2017.

We won this project through an OJEU international competition. We did not draw a single line of a building or concept - we presented a strategy and process: how to deliver a paradigm shift in realising user and socially-centric neuroscience laboratories: experimental, molecular, electrophysiology, cellular, developmental, structural, functional, evolutionary, and theoretical–computational including neural networks.

SWC labs

The SWC at UCL is now at the heart of a global research programme – The International Brain Laboratory - an ambitious project to answer one of the greatest mysteries of all time: how the brain decides what to do.

The SWC was specifically designed 'from the inside out' to give the scientists working in different fields of neuroscience the chance to meet easily and to encourage informal conversations and collaborations. Unlike other facilities purportedly designed with a similar goal, the design process for the SWC made the scientists themselves central to the design process. This happened through monthly workshops from the initial design to occupation, and post-occupation.

John O'Keefe, the 2014 Nobel Laureate, was the then director of the SWC. He, along with Peter Dayan, who heads the Gatsby Computational Theoretical Unit, were our key scientific advisors as we designed the building from the inside to outside, along with Russell Foster - Professor of Circadian Neuroscience at Oxford and others.

John O'Keefe's work has been on Place Cells within the brain – which help us navigate in our environment.

Our ability to navigate through space, to know where we are and what movements to make next are governed by cognitive maps based on four cell types acting together. Consider the threshold to a house, or in front of a reception desk, or the edge of a pavement. All of these are sensed and processed by our brain, and we make choices about what to do next, very often on the basis of risk and reward.

Architects design spaces and places. What better partner for this project?! We had to learn his language, and he ours. He coined the term 'We are all Neural Architects'.

The SWC is one of the first buildings in the world designed to incorporate what neuroscience has learned about how the spaces in which we live and work affect our mood and behaviour. These include the scale of spaces, how they are perceived to be connected, and how wavelengths of light and sound inform perceived levels of comfort, privacy etc.

The laboratories and other areas of the building are uniquely adaptable. Single and double-floor height spaces can be reconfigured, and the many services the scientists use are designed to be 'plug and play' for maximum ease and flexibility when experiments are set up.

It is impressively energy-efficient and the first new building in the UK that uses a demand-control ventilation system.

SWC Exterior view Howland St

The building is mostly clad in a unique modularised white cast glass façade (patent pending) and raises the quality of light in the street and within without causing any disturbing reflections or glare. It has no maintenance system. Seen from outside, the building glows softly at night. Openable windows with motorised louvers are integrated and supported by the cast glass. The SWC's exterior is also about interaction with the public. Windows and controlled lab environments demands subtle air control systems.

There is no permanent maintenance system as the exterior glass profile is self-cleaning.

Conceptually it is a metaphor of an iceberg: it expresses the melting of barriers between theoretical and behavioural scientists that the client wanted to achieve, as well as the climate change the Earth is undergoing.

SWC Dance and music

How well it actually functions is now being studied by a Masters student with the help of the scientists working in the building. We know already that it's described as 'scale-free' – a term recently adopted by the neuroscientific community as a description of the brain's functional networks. They have also said, "It is a shockingly good building to work in". This is most encouraging!

FUTURE

I would like to be able to believe that with a greater understanding of why we react the way we do – and an empirical understanding of what we find beautiful and why, our reactions to beauty, and what exactly makes the human spirit soar is probably as good a place to begin as any – we just might be able to create not just buildings which are good for humans, but cities and societies as well.

As architects and as societies I sense we are beginning to ask ourselves different questions: From where we derive our meaning? Where do we place our meaning?

Mumbai water supply without access for the poor

We see the fundamental altruism of humans every time there is a disaster, when the collaboration and cooperation that is part of our instinct for survival take precedence over the values imposed upon us by a competitive socioeconomic system. We sense that being in touch with the natural world is crucial to our inner selves every time we take a walk through the woods, along a beach, in the mountains.

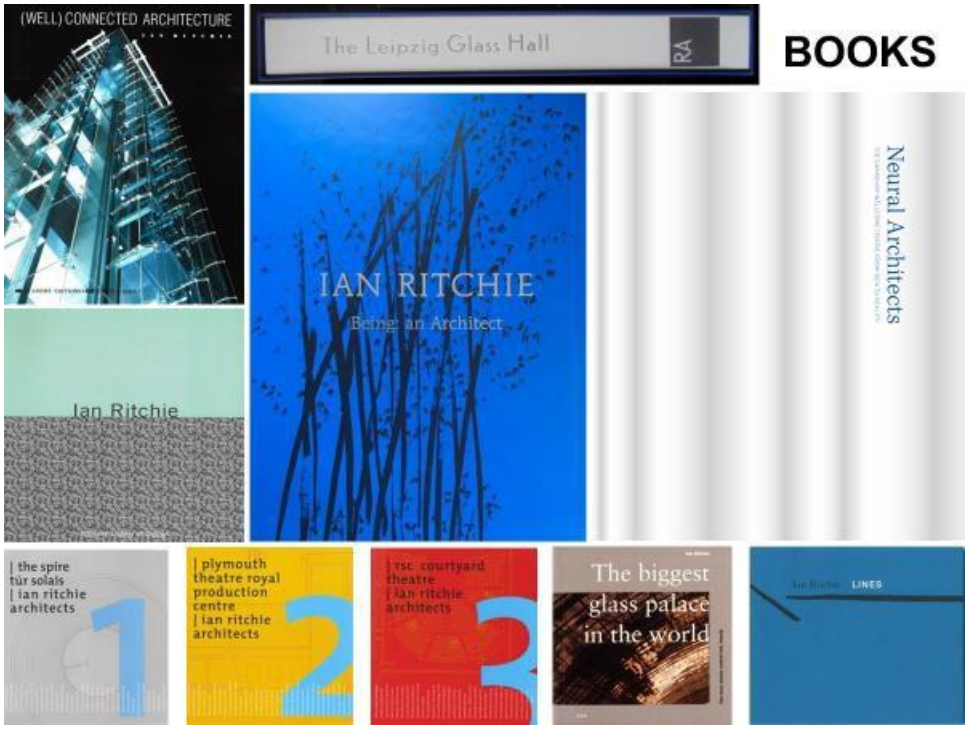
The bridges built by Toni Rüttimann are simple but life-changing

Bridgebuilder Toni Rüttimann

When we begin to recognise unbridled lust for wealth and power for what it is: a pathology which needs to be curbed - by legislation if necessary - like any of the other addictions we recognise as damaging, we will be on our way toward a solution to what plagues our cities and societies.

Grenfell Tower

With luck, the compass will swing from ‘due profit’ to ‘due cooperation’ - toward a new paradigm predicated on the notion of sharing – a collective identity and empathy with our fellow beings and with our environment.



IRAL Books

Our Earth is 45 million centuries old, but this century is special. It’s the first when one species – ours – can determine the biosphere’s fate.

What a tragedy if we do not understand anything important about ourselves before we ruin the Earth.

Is that what a black hole might really mean?

Brexit may be a dark space ahead for the UK, but it is the Earth’s delicate balance that could really mean a black hole for humans.

END