

**SOM BUILDING SCIENCE & DESIGN RESEARCH SYMPOSIUM
DESIGN, ETHICS AND INNOVATION
19-20 NOVEMBER 2004
BY
IAN RITCHIE**

Introduction

Leaves at Fluy



I will try in this short talk to explain why I believe we are on the cusp of a new paradigm, a seriously important new movement in urbanity and architecture whose visual aesthetic will be multifarious – derived from a synthesis of science and ethics, and the creative desire of man to express himself unselfishly. This opposes recent architectural 'isms', especially superficial and selfish architecture that gratifies itself on hyperbole - *the first, the biggest, the latest, most innovative* - when in reality they represent media and consumer induced

self-aggrandisements. Intelligent, social and selfless architectural expression capable of the most marvellous and spiritually uplifting structures has to challenge turn-of-the century stunt-making architectural gymnastics. The insatiable appetite for 'the new, the different' and the unique identity or image that drives the present economy of the so-called developed world does not have to be sacrificed in the search for radical improvement in social and environmental conditions.

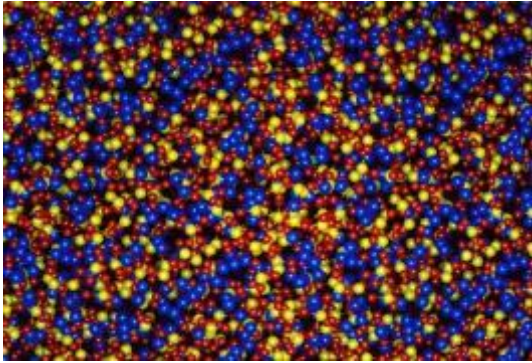
I will address five questions,

1. How does our intellectual heritage shape our actions?
2. What are we thinking about today?
3. How are we behaving as designers?
4. How should we design today – innovate or die?
5. How should we make things?

and then conclude.

How does our intellectual heritage shape our actions?

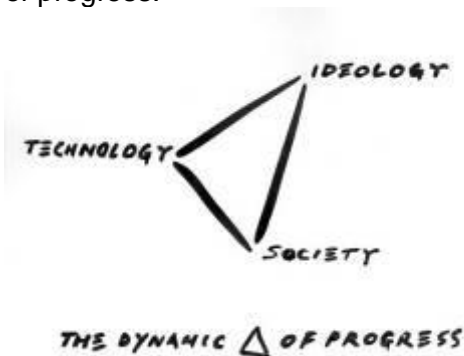
Na glass molecules



I want to step back 2,500 years in order to hint at the origins of our present discomfort of having to live with apparent contradictions, and in particular how that remaining part of *homo sapiens sapiens* has to face up to and find ways of taming a rampant *homo faber* and *homo consumeris*.

The Greeks sought to reconcile the ideas of 'perpetual change and eternal becoming' put forward by Heraclitus with those of the 'unchangeable being' of Parmenides. The outcomes were to have a profound impact upon the development of our western society. The paradox was resolved when the Greeks thought of the atom as the inert fundamental unchangeable 'being', yet which, moved by undefined forces (spirits) could combine with other atoms to generate change. The wholeness of life had been split between spirit and matter, between body and soul; and investigations of the human soul and ethics, rather than materials, dominated western thinkers and society until the renaissance when a renewed interest in matter and the natural world occurred. Descartes focused this division giving a subtle new dimension to it: the idea of mind and matter. He separated man from nature, the subject from the object. Rather than finding ourselves at one with nature, Descartes, inadvertently, took us on a path separating us further from nature, towards a world where man thought himself more important than nature, and which consequently justified man's actions in exploiting its riches for the benefit of man. Meanwhile, in other regions of the world there was no such apparent split. Ways of living, beliefs not religions, such as Buddhism and Taoism in the East bear witness to this and describe, much as Heraclitus did, the cyclical nature of change.

In the last few hundred years our western ways have impacted upon the traditions of other cultures and upon the nature of the planet we share. At the risk of over-simplification, the history of geographic expansionism seems to have a predictable sequence. First come spies (historically the priests) followed by soldiers to take the territory that allows merchants to exploit and finally artists arrive (if at all) to question or comfort. Outer Space seems to be following the same trajectory. Urbanism and Architecture is not isolated from this cycle. And in this cycle lies the idea of progress.



Civilisation, according to the late American social anthropologist, Stanley Diamond, may be regarded as a system in internal disequilibrium; technology or ideology or social organisation are always out of joint with each other - that is what propels the system along a given track. Our sense of movement, of incompleteness, contributes to the idea of progress. To put it another way, when we are able to appreciate the way the world is really working, it is never quite the way we would like it to be working and this is why making a better future is so challenging.

I think it is clear that the paradigm I am referring to is far more than some architectural style. Also, I hope to show that it has to be more than the conventional notion of sustainable architecture or development. It has to recognise a world that has already urbanised and is globalising with little evident shared humanity. For those of us living in economically powerful post-industrial societies it is about a fundamental change in the way we think, behave towards each other, design and make things.

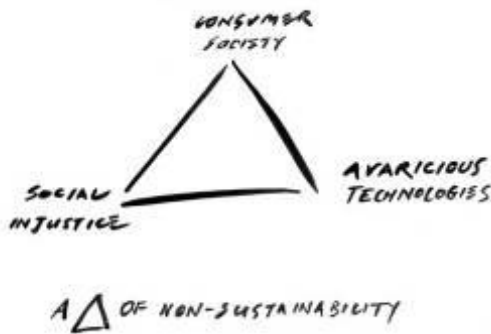
What are we thinking about today?

Recalling Descartes again, "I think therefore I exist (am)."

homo faber, "I think therefore I make."

homo consumeris, "I buy therefore I am"

homo sapiens sapiens, "I exist therefore I care".



Our *individual and collective* thinking is sandwiched between a moral environment full of bureaucratic rules and regulations telling us how to behave (and to design) and a moral vacuum where international agencies acting on behalf of our conscience cost us the occasional coin dropped into an Amnesty or Greenpeace collection box or envelope. Then we proceed to consume their moral actions through the reports in the media in much the same way that we consume the products of our technology.

We are, ironically, becoming less responsible for our lives, not more so. In the West we have become the product of our own economic thinking to the point where financial reward can be obtained from being irresponsible, from not caring for others or our environment. The decline in the only lifelong relationship we have – the family - is paralleled in the rise of an increasingly contractual and litigious social world.

Mumbai water pipe



The quality of life is strained, and most people cannot choose or control it. This leads to a sense of alienation, of loneliness. Not in the sense of not having people around (for our urbanisation contradicts this) but in the sense of seeing ourselves as more than vessels of blood, held together by bones and skin – vessels containing a spirit of life that may suggest to us an idea of the point of life, a point or moment when life gives us a sense of its richness, of meaning or value. Surviving what life's chance puts in front of us is the reality for

most people and finding time to make sense of its complexities is compounded in a process of urbanisation whose in-migration destabilises both city and countryside.

Olafur Eliasson's *The Weather Project*

Martin Jacques wrote recently¹ of *the family* as the central site of intimacy as expressed between family members. "Intimacy is a function of time and permanence, and rests on mutuality and unconditionality and is rooted in trust. As such it is the antithesis of the values engendered by the market." Intimacy belongs, as does love, in the realm of the spirit, not of the body or matter – and it is becoming more elusive.

Let's not delude ourselves. We live in an age of quantity not quality, of individualism not community and it is so evident all around us. We live to produce, consume and to waste. Life without meaning becomes shopping. The shift from settled to dynamic communities where the void of community life is filled with the artifice of the media is slowly reducing our sensitivities towards each other.

It only takes one generation to really care and we have a real chance for positive change. Similarly it takes only one alienated generation satiated on



technological media-game-playing and voyeuristic gratification growing up with a decreasing experience of stable human relationships within which a sense of security, love, care and sharing are nurtured for our hopes of seeing a better world to all but vanish. Most of my generation has lived as if there was no tomorrow, but there are also many who have sensed its loss of soul, questioned the meaning of progress and wanted to do something about the loss of values.

Ecology Gallery

Our mental structures were honed over millions of years of living in small tribal groups, and we bring the same structures to bear on an existence that has changed materially, however we measure it, by several orders of magnitude. The rate of technological progress towards the (apparent) mastery of nature bears no relation to the rate at which human social evolution can keep pace with the consequences.

Our western capitalist *culture* continues to deny the natural environment by exploiting it. The rape of nature's resources to make money in order that we can measure growth through GDP is still totally embedded in our society's idea of civilisation. Our culture is dominated by economics and by economists who are not sufficiently engaged with creating methodologies that embrace the needs of the wider natural environment, or of the poor.



Economic growth has been dependent on the political and industrial exploitation of scientific investigation and upon exploiting individuals within society. The individual economic effort is now so divorced from life that it is not surprising that so many people long for recognition within a group outside of the workplace.

In 1967, Robert Kennedy² wrote in a text entitled "The American Environment":

Limehouse Beach 2004



"And let us be clear at the outset that we will find neither national purpose nor personal satisfaction in a mere continuation of technical progress, in an endless amassing of worldly goods. We cannot measure national spirit by the Dow-Jones average or national achievement by the gross national product.

For the gross national product includes our pollution and advertising for cigarettes, and ambulances to clear our highways of carnage. It counts special locks for our doors and jails for people who break them. The gross national product includes the destruction of redwoods, and the death of Lake [Erie]. It grows with the production of napalm and missiles and nuclear warheads, and it even includes research on the improved dissemination of bubonic plague. The gross national product swells with equipment for the police to put down riots in our cities; and though it is not diminished by the damage these riots do, still it goes up as slums are rebuilt on their ashes. It includes Whitman's rifle and Speck's knife, and the broadcasting of television programs which glorify violence to sell goods to our children."

Ian Ritchie Architects projects – design approach to energy sustainability, architecture 1



Our culture is driven by competition not altruism, which in turn produces an aggressive rough, tough and fast world in which matter matters, and fewer and fewer seem to benefit. Many designers have become preoccupied with the amount, nature and ultimate life of this matter and how it affects our environment.

We seldom achieve progress in a universally agreed sense - the term is too loaded politically, since many of our notions of progress are achieved at the expense of the quality of life of others elsewhere in the world. Progress is fundamentally a journey of the individual, and all will measure it differently.

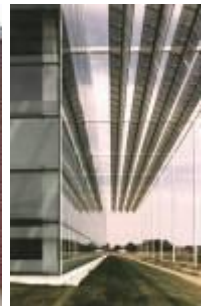
Progress is inconsistent with a defined end.

It is, therefore, difficult to find a consensual definition in a global society.

More fundamentally, since the notion of progress exists in our definitions as a way of measuring where we are in some abstract continuum, it becomes a direction marker, a signpost indicating distance, or a speedometer, by which to navigate and predict our "estimated time of arrival" at different stages of our lives.

The problem is to know when we have arrived.

Ian Ritchie Architects projects – design approach to energy sustainability, architecture 2



At this point, we have eliminated the sense of differential by which we can judge our position or direction - it's a bit like having a compass to find the North Pole. When you get there you lose all sense of direction.

So the end goal of progress has constantly to be redefined, and this process is part of a critical review of our advances since we last defined the goal.

The idea of progress is also bound up with the polarization between optimist and pessimist - those who can embrace the future, and deal with uncertainty, as opposed to those whose insecurity drives them to cling to what they think they know. Often, we have the impression of twentieth century attitudes to progress and the future as being characterized by optimism, and above all, certainty. Only recently has there been sustained and significant reference to doubt the essential goodness of the direction in which the developed world was "progressing". Architectural Modernism grew out of this and was underpinned by a desire to share the fruits of progress through new housing, educational and welfare facilities with as many people as possible.

This was the last real architectural movement that was founded on an idea more fundamental than finding a new superficial or spatial aesthetic.

Ian Ritchie Architects projects – design approach to energy sustainability, architecture 3



The new paradigm is also predicated on the notion of sharing – not the fruits of a limitless fossil fuel economy, but on the understanding that we share this planet with each other and with all life, and that every one of our actions affects our environment.

How are we behaving as designers?

All that's left of nature



Sustainable, like the word environment, is so general a term, interpreted and appropriated by all types of governments, companies, institutions and agencies, as to render it almost meaningless. And architects are often principal actors in presenting environmentally-coated images of sustainable architecture – as such an appearance can be a useful caché today to help secure a commission.

Fluy House



I think that most designers believe that they are essentially doing good. Nowadays, when we attempt to solve a problem or derive a design solution we try to expand our analyses to include a more complex global vision of interdependence. But in simple terms, most of us believe that a sustainable approach is one which gets more value out of less material, pollutes less, wastes less and recycles more and does not reduce the next generation's choices. This is relatively naïve, but in the absence of a more profound approach we

struggle along. The origin of this approach was the oil crisis of the mid-nineteen seventies and a gradual realisation that fossil fuels might just run out some day. Our need for and dependency upon fossil fuels, particularly oil, makes us insecure. So if we can use less of it and find renewable alternatives then we can feel more secure because we will be more independent. If this is the basis for the promotion of alternative energy, to have more independence, then one must hope that this renewed confidence will not seek more expansionism but altruism.

At the moment, the contradictions between helping to create a more intelligent world in which moral and social justice rather than economic justice prevails and producing architecture within the current economic model are inescapable.

This is the principal conundrum that has concerned me since I began my own practice in 1976.

Eagle Rock



I am aware that one can try to make the built environment more visually and spatially attractive; that one can express a need to de-process and de-contaminate the manufacture, distribution and consumption of building materials and energy in the interest of conserving natural resources and reducing toxin emissions, and I have even found a 'visual' statement – a metaphorical intelligence through this way of thinking and designing. However, this cannot hide the underlying local and global social trends that more and more people are feeling disenfranchised.

There is no doubt, that as the world feels smaller, there is not only a mutual assimilation of cultural activity – banal as much of it appears to be – but also a subversion of differences through the products we design – whether they be international architectures that have no contextual or aesthetic frontiers, or mobile visi-phones. One might even suggest that there has been a blurring of eastern and western aesthetics.



The unforgettable title of Ian McHarg's book, 'Design with Nature', published in 1969, represents in many ways my approach to design. This has perhaps more in common with the traditional aesthetics of the East [where I spent some time in 1970], which does not seek to impose form upon the landscape but to allow it to emerge from it; not to control it but to be part of it; and not to assert one's own identity but to be absorbed by the environment.

Terrasson



Western capitalism has been absorbed into Far East economic culture and has now entered China's commercial communist culture. For the people of these countries and their cultures, the invasive power of recent western economic thinking has also had a destabilising effect on their design culture.

Culling Road



In architecture, the spread of modernism, brutalism and hi-tech aesthetics reflected the globalisation of architectural style that occurred during the 20th century. And similarly personal products - the car, bicycle, DVD player, clothing – finding differences is becoming more difficult. The cultural difference is becoming invisible to the eye, but perhaps not in the mind. It is here that the soul or spirit of place and object resides.

Concert Platform



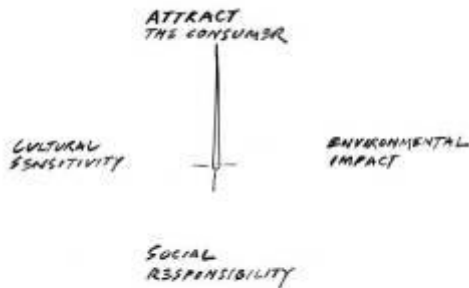
With this globalisation, which we find at its most banal in fast food, fast movies and fast games, is there about to be a backlash from designers? Can we see the signs that suggest a new tendency - less towards even more banality more towards a creative syntrophy from cultural differences – that will produce new aesthetic diversity, that express a revitalised sense of being and meaning.

WHAT IS THE COLOUR OF THE WIND?

Can architects and engineers help to produce this?

Or, is our work, like that of product designers, in the end simply to be consumed because our designs are more attractive to the client, who is after all the first consumer of our architecture?

Where the compass is pointing now?



The tragedy is that design in our present society remains judged, both qualitatively and quantitatively by the question – Does it attract the consumer? We designers may think that we have more noble standards – of providing functional artefacts that are environmentally and culturally sensitive - but are we deluding ourselves? Do we actually need most of the things we design? Do they simply serve to perpetuate the status quo?

Triangle towards sustainability



Humanity and intelligence have as much to do with the process of decision-making and progress as the tangible artefacts that result from our application of science, technology and economics to matter.

How should we design today – innovate or die?

The question is based upon the assumption that our ecological and socioeconomic irresponsibility cannot continue. There are two reasons – the consequences of increasing urbanisation and planetary wide pollution. Therefore we must innovate, and think differently.

What is the relationship between architecture and industrial innovation?

Alba Fabric



Understanding the context is the first investigation of architecture. The context is physical, intellectual and sensual. The architectural process and architecture itself is synthesis, not separation - the synthesis of ideas, of people, of materials and ultimately a sense of man's union with nature.

Creativity and innovation in architecture works through the investigation of memory, context and the way buildings can be constructed. These investigations take place with both a sense of freedom and discipline.

La Villette

What are the key ingredients of an innovation culture? I believe that they include confidence, skill, judgement, understanding, and notably foresight - a sort of early warning system for the next 10 to 20 years. Any organisation that incorporates foresight thinking as an integral and shared part of its operations builds in the recognition and potential to innovate, and to survive.

Improvements in materials have been largely based upon one single objective - to be able to better predict their performance, thereby improving performance and reducing costs. This is no longer sufficient to meet the demands of the new paradigm.

Leipzig Glass Hall



We have to ask ourselves whether we can influence the evolution of design in general, and if so, how to go about it.

Despite pretensions to our importance, and certainly the media has played their part in this myth making, as architects we rarely initiate new directions – our power is essentially formal. We are rarely in the front line to prescribe or determine in any consequential sense the context, use, production, cost-relationship, profitability, marketing, durability, ecology, etc. of the materials from which we make architecture. Some of us try, and just occasionally we are successful in influencing an industry or two.

Primary decisions on, say, whether housing or education or energy should be given more importance come from politicians responding to the more powerful or politically important constituencies. However, housing type and density, the nature of urban and ex-urban space and development is within our direct sphere of influence - and it is at this point that most of us begin to contribute.

Light reflecting coating



France – Japan Monument



A basic “re-design” of products in conjunction with new standards for recycling, toxic elimination, energy and resource efficiency, de-materialisation etc. is complex. And as we begin to analyse the eventual transformations in product life-cycles and industrially produced material with the potential for endless utility and human health and safety, it is evident that the criteria for analysing impact, the capacity to construct a general picture, the language employed in their definition and communication, the methodologies by

which to apply conclusions to new design problems are at present far too limited in scope to cope with the problem of global impact and its effect on the quality of life.

We have to begin to think differently. We have to make our designs not only an asset for the investor, but for the environment and our collective humanity as well.

A definition of environmentally positive design might be “where any manufactured by-product of the design solution has a net contributing value when analysed in terms of environmental and social impact.” Having thought through the issues, the challenge will be how to pull together and evaluate all of the data, if it is indeed available? It is obvious that new intellectual and creative alliances are needed in our industry and others.

London Regatta Centre



Initial reflections on “sustainability and design” in the late nineteen seventies as a pragmatic search for a “clean eco-design” methodology has since become, for some of us, a more fundamental inquiry into the problem of “design” in general and of its re-evaluation in terms of an impending evolution in world views from an industrial reductionist culture to that of a post-industrial holistic one. The opening up of our investigation to include a more social, political and philosophical criticism of design is complex but indispensable if we are to take the “re-design of design” seriously.

Our present goal can go only so far as to open up a critical discussion on the role of design in modern society in view of a re-evaluation of our ethical responsibility as designers.



The Spire, Dublin

An object or structure has intrinsic characteristics that we can recognise and which are independent of their surroundings. This sounds like Descartes at his best. It assumes that an object separated from the mode of thought of its designer and its mode of production, presents to us, a subjective viewer, identifiable (although not necessarily universal) qualities - such as beauty, harmony, truth, etc. Yet we know that in western philosophy, absolute and fundamental criteria have shifted with historical paradigms.



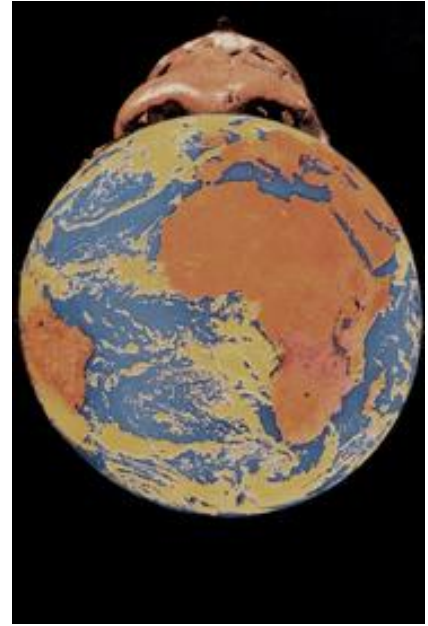
Western philosophy in its rationalization of each historical paradigm, has upheld a certain collection of criteria as being "absolute" or "fundamental". It has maintained that an object has intrinsic characteristics independent of its surroundings or of its viewer. The succession of paradigms has produced a long history of different and often contradictory results each entirely dependent on the specificity of a particular time/culture/space of its inventor. The history of philosophy is characterized by, and at the same time oblivious to, this paradox. As if the form and content of the criteria for judging quality, such as truth, goodness, beauty, progress, diversity, etc., could be a common denominator or residue of a perfect filtering system. This problem extends to our perception of reality as well as the way in which we act upon that reality - as in construct, design, destroy etc. If we are to determine and employ any criteria by which to judge impact, and thus quality, we must take into account and in some way resolve these paradoxes. Consider our present society where truth in design is considered, if at all, a secondary quality. We have become inured to the “image” that accompanies a consumer product which is a representation systematically constructed as a separate entity to conform to the prefabricated “desire” of the consumer market. This representation takes on a primary role as a substitute for the profound meaning of the object itself. This distinction between “image” and “meaning” contributes to obscuring from our eyes the nature and importance of an object’s indirect impact. For an object to have meaning it must be perceived and experienced. The question today is whether we have reached a point of time/culture/space where we must place our collective environmental wellbeing more in harmony with nature or allow our present actions to proceed.

How should we make things?

Architecture is culture. Vilém Flusser, the Czech-born philosopher, made a convincing argument in his short essay *The Factory*², that it is through 'the factory', i.e. the place of manufacture, that we can understand the science, politics, art and religion of a society, and identify the human being in that society. His sense of humour suggested that *homo faber* (maker) was perhaps a better description of the common characteristic of human beings rather than *homo sapiens sapiens*.

The materials and physical spaces that our architectural thinking ultimately has to engage with is a powerful witness to *homo faber*, but today, we have to ask deeper and more difficult questions if we are to find solutions that respond to the idea of *homo sapiens sapiens*.

Neanderthal man and planet earth



The architecture we produce, and how we make our buildings reflect our worldview. At the moment nearly all architecture that we create in the West, no matter what its visual reference or theoretical underpinning, is maintaining to a greater or lesser extent the consumer status quo. Although there needs to be a revolution, realistically there can be no revolution in the industrialised regions of the world with regard to the way we extract, process, manufacture, distribute, design and consume materials - only a long campaign

or catastrophe it seems will eventually change our habits. It is still difficult to access and realistically compare hard facts on energy, labour, environmental and social impact, and the effectiveness of recycling materials used in construction.

Illuminated regions of the planet



Graphs depicting comparative energy consumption of, for example, extracting raw materials and processing them do exist. However, these 'facts', important as they are, represent little in terms of the more holistic picture. For example, we do not necessarily have the combined knowledge of the energy sources used, their comparative polluting effects on the local and distant environment, the effect of the production processes on

the health of workers in these industries, and full details of the consequent social and health costs, and the reduced financial resources that result from this extra health spending on other programmes such as housing or alternative energy programmes.

The impact of legislation and technological change on energy consumption still remain slight. The ways in which we use - or waste - energy seem part of a world power game. Europe (along with the USA) continues to exert a disproportionate influence in the exploitation of the earth's resources, and energy is one of the most dramatic instances of this. The ethos of the so-called "right" of the individual to enjoy freedom - of private transport, the products of energy-intensive industry, and an inefficient but comfortable home and work environment - demands a high price.

Fougère Pylons

I sense that we will end up with a clean electrical energy society one day – but to get there solely with safe renewable sources will be very, very difficult, and some societies will almost certainly have to revisit the nuclear source on the way (as Finland decided to do last month).

The short term view of material gain and the difficulty we have in altering these values could change when legislation (rather than hope for universal enlightenment) brings about a different set of criteria and performance. If we believe more in the power of collaboration, cooperation, and the fundamental altruism of humans as part of our instinct for survival then this paradigm shift will become more evident. We do not need to undermine but to redefine the principle of an economic structure in the world with ethical values, for we have the ability to create competitive new industries and products that pose no health risk, that positively serve us and our entire biosphere. The economy should serve people not only in a material sense but, by placing it in a wider, more holistic context, value non-material issues as important as material ones. I can imagine a post-fossil age where companies still compete, but they compete to make environmentally sensitive products that do no damage at all because that is what people want, society has fully legislated for, and because their materials have been designed and assembled in ways that ensure they are reusable over and over again in different products.



Competition has been and remains the conceptual trigger of our present economy and society. We do not believe that this is inevitable as is often argued. Collaboration, cooperation and indeed altruism are as common a natural inheritance as 'survival of the fittest'.

People often cite the ant colony as an exemplar of cooperation and altruism. Yet we now know that nepotism exists in ant colonies (Finnish researchers 2003). And we know that the invasive Argentinean ant is not benign towards other ants, insects, newly hatched chicks, beehives and has also impacted upon the Horned Lizard in California by overpowering the indigenous ant – the source of food of the Horned Lizard. This anecdote illustrates just how easy it is to make and receive simple judgements and how hard it is to assess impact.

Competition has been and remains the conceptual trigger of our present economy and society. We do not believe that this is inevitable as is often argued. Collaboration, cooperation and indeed altruism are as common a natural inheritance as 'survival of the fittest'.

But I would like to relate the activities of a friend, Toni Ruttimann known as “Il Suizo” whom I met in Lucerne a few years ago. He makes and builds bridges.

Toni and friends in Central America



He is not an engineer, architect or designer in the sense we think of, but he does all of these activities and more. In 1987 he had just started University to study engineering when he saw TV news images at home of the horrendous landslides in Ecuador caused by an earthquake. He decided to go to help. During the two weeks he was there he realised that he was unable to help much, but he did recognise that one of the most urgent needs was to rebuild the bridges to connect people back together, and to the fields, hospital and school. Within weeks of his return home to

Switzerland, he decided to quit University and return. He met Walter, a sixteen year-old Ecuadorian who was a welder. Thus began an extraordinary story. They began to build bridges in areas, often remote, devastated by landslides, flooding and war. Toni obtained scrap cables and steel tubes from the oil industry, and more recently from the cable car industry and recycled them into bridges. The bridges are built with simple techniques. They build them with the labour and laughter of the devastated local community *only* if they are prepared to help. The bridges are nearly always suspension bridges for pedestrian use – although animals and single person vehicles also use them. By keeping the width down Toni can predict the maximum crowd loading and prevent four-wheeled vehicles using them. They are erected in only a few days (typically three) at extremely low costs – typically \$1000 for a 50m span bridge. Most of the bridges have a central span between 50 and 100m long, but much longer bridges have been built, the longest spanning 264m. Toni has to negotiate for permission and help from governments, the military, the oil industry; organize transport and people, and risk his own life to construct them. Since 1987, he has built more than 250 bridges in Central America and Southeast Asia helping to reconnect nearly a million people.

After the congress where we met, he had the following thoughts: "These are the people who build our modern world", I thought, listening to their presentations, looking at their expositions and posters. These are the people who personally make happen those immense bridges like the one in Japan or the one recently opened between Denmark and Sweden. These are the people who design and build the highest towers, the longest tunnels and boldest structures on earth, who research and teach the most advanced concepts of engineering, calculation procedures and material properties.

At this world congress of the IABSE (www.iabse.ethz.ch/), I have been given the exceptional opportunity to talk to in an auditorium full of some of the greatest living bridge builders, to construction company managers, delegates of public transportation ministries and engineering professors of Universities from five continents.

Rescue Bridges: SE Asia



During one hour and a half, I tried to convey to these professionals what bridge building means to me. And what it means to those millions who live with disaster every day, who fear the rivers and long for simple freedom. I showed them how little it actually takes to change that misery, and of how much these poor people are capable of, when somebody shows them that it is possible. The junk bridge builders touched the modern bridge builders, maybe because their task, too, is to cross people from one side to another, maybe because many of them try, too, to make possible the impossible. Their Danish President, Mr. Klaus Ostenfeld, put it this way at the Closing Ceremony:

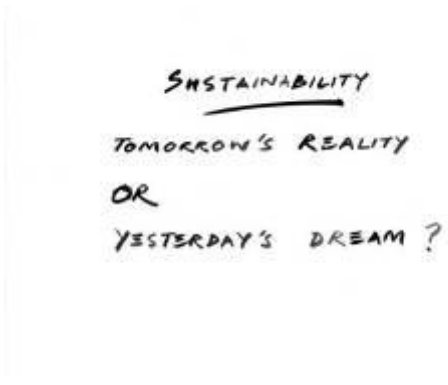
"[...] It dawned on me during that presentation, that here lies a fundamental basis for a revival of what I would consider is real engineering. In spite of the fact that Toni is not a graduate engineer, he is - as an autodidact engineer - going out directly and doing what an engineer was meant to do: construct structures which can help mankind to make a better and safer life. [...] This kind of understanding could definitely bring back the interest of our children to the engineering profession. When they can see what they can accomplish, for what human purpose, then engineering will be worthwhile to pursue, for what very few other professions are able to do. After all, engineering is not that mysterious and difficult."

I would like to say the same of poor people's bridge building. For me, bridge building is an expression of love. And love, after all, is not that mysterious and difficult.

The need for "evident intelligence and humanity" in what we are doing is indisputable, and it is a beautiful idea!

CONCLUSION

I chose to limit an exposé of my own work in order to share with you some of my thinking about a new design paradigm concerning environmental impact in a more complete sense, about quality in its most profound sense and about cultural identity in its most politically controversial sense. I have concluded that, for this new design paradigm, we have to re-define and expand the criteria for determining whether or not design solutions are functional and meaningful. Functionality is ultimately “impact” in a world where our goal is the quality of life. Meaning reveals values within the ultimate art of all – the art of living together on one planet, and will have an indirect impact on how we develop our world.



Martin Wright and Jonathan Porritt³ in an article entitled ‘The future won’t be secure unless it’s sustainable’ argue that “a more sustainable world will be a safer and a fairer one - because environmental degradation and social injustice are increasingly feeding off each other. Any refugee camp or urban shanty town is a picture of un-sustainability, populated by people who have been forced to leave their rural homelands due to water shortages, soil erosion, climate change and civil conflict. That sort of runaway environmental and social breakdown is happening right across Africa and AsiaIf we want to feel more secure ourselves, we should start by improving the security of the poorest”.

Spaceman 2001



As you will have recognised, I am an optimist, for I do not have all the facts, and as Benjamin de Cessaris said, “Progress is nothing but the victory of laughter over dogma.”

I do hope that one day people will laugh at our inability to recognise that the United States of America and the European Union were simply stepping stones to a fully cooperative and sharing world.

THE END



¹ Martin Jacques, The Guardian, 18th September 2004.

² Technology and Values, John G Burke (Robert Kennedy, The American Environment) The Great Ideas Today, Britannica, 1969

³ Martin Wright is Editor of Green Futures (www.greenfutures.org.uk) and Associate Director of Forum for the Future; Jonathon Porritt is Programme Director of Forum for the Future, and Chair of the UK Sustainable Development Commission.

References:

The Tao of Physics, Fritjof Kapra, Fontana, 1976

The Dancing Wu Li Masters, Gary Zukav, Rider & Co. / Hutchinson & Co. 1979

Pippo Lionni, Up against a well designed wall, text from seminar at the INCSID Education Interdesign Conference, Silicon Valley, California, USA. 1992

(Well) Connected Architecture, Ian Ritchie, Academy, 1994

The Shape of Things, A philosophy of Design, Vilém Flusser, Reaktion Books, 1999

Living Philosophy, Christopher Hamilton, Edinburgh University Press, 2001