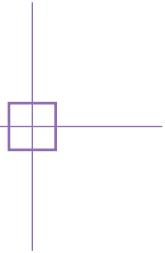




paperspace



THE UNIVERSITY OF BATH DEPARTMENT OF ARCHITECTURE AND CIVIL ENGINEERING

ISSUE TWO
MAY 2014

ALIEN

NEWS REVIEW TECHNOLOGY HISTORY COFFEE BREAK
ACE 4ES ON THE MOON THE BRITISH EMPIRE CARTOONS

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Colophon

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Disclaimer

This is a student-led magazine. The following articles do not reflect the views of the Department of Architecture and Civil Engineering at the University of Bath.

Editorial

There is something about the concept of alien that both fascinates and terrifies us. Although the alien represents something to which we are not accustomed; it is born out of our imagination, therefore retains a form of similarity with the human experience. It is this twisting of our frame of reference into an incongruous creation that makes us both uncomfortable and mesmerized.

The theme of this new issue proved an extensive source of interpretations and the Paperspace writers strived to investigate the role of "alien" in architecture in a variety of fascinating ways.

In these pages, we analyze some buildings conceived as aliens. Architectural experiments, such as **Moshe Safdie's Habitat 67**, gave us striking new aesthetics and redefined the codes and standards of the built environment. Sometimes, taking a unique approach, like in the **Wallasea Island development**, can lead to ground-breaking results and make "alien" a positive denomination. Some of these innovations become the norm, starting new aesthetic or technical movements. Other experiments, however, remain glitches; manifestations of their time and the adventurous spirit of a maverick individual. In this case, is it rational to maintain buildings and structures, which like the **Victoria Bridge**, are famous for their inefficiency?

This issue also discusses instances where the context is the alien and architects are faced with a challenging territory; from the scale of **Bath**, a city that rejects all modern developments, to the exorbitant frontier of **space architecture**. Dealing with such challenging sites can lead to exciting new solutions. The redevelopment of slums in **Medellin** has rendered the environment less alienating for its inhabitants.

Finally, we dwell on the situations where the architects themselves become aliens. We reflect on the self-proclaimed curse of architecture students who, from the moment they start their university life, alienate themselves from other students, creating a mystical identity around the elusive "studio". Making this distinction a strength, we offer advice on standing out on the job market by creating an [online portfolio](#).

Always faithful, Paperspace will keep you company over the summer, whether you are enjoying our **Coffee Break** section on the beach; visiting all the exhibitions featured in our "**What's on**" section or translating our thought-provoking articles to locals halfway around the globe. Impatient to return to work? Our "**Get Inspired**" section has all the links you need to stay animated by architecture until you find your way back to 6East, or start the next chapter of your career.

This year, our department has provided exciting opportunities for students to get inspired, participate in their education and stimulate one another creatively. Paperspace is proud to have been a part of this exhilarating development and we are eager to participate in the thrilling life of the department in the next academic year.

Without further ado, I invite you to turn the page and experience the Alien. Thanks for reading,

Marie d'Oncieu

Founder and editor-in-chief of Paperspace

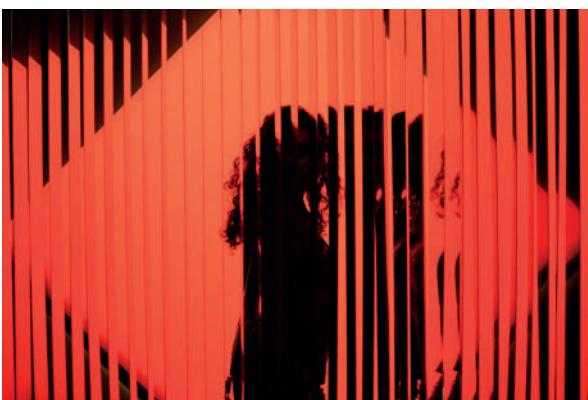
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Photo competition



3rd place: **Reshma Upadhyaya**

1st place: **Jade Appleton** (see p. 14)

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2nd place: **Joann Haddadin**

News: In Architecture

Caught up in the student bubble, we might not have noticed the world outside of the studio walls. Let's catch up on what's happened since our last issue...

By Emaad Damda

In the faculty

- » Proposals for 4ES and 10W submitted for planning
- » Triple ACE win at SU Activities Awards
- » Architecture retains top spot in Complete University Guide
- » Civil Engineering holds on to top three position
- » ACE innovative research featured on CNBC's The Edge
- » Professor Vaughan Hart's work exhibited in France
- » Wen-Shao Chang awarded funding for bamboo workshops
- » 6th year, Alex Noble wins RHS Garden Design competition
- » Graduate Torsten Sherwood's furniture published on Dezeen
- » Candid Arts to host London degree show for a third year

In the industry

- » RIBA reviews 3-part education system
- » Terry Farrell calls for planning reform
- » Building Design magazine ends print edition after 44 years
- » Overseas applications for UK design courses highest ever
- » UK architects' workload rises in 2014, according to RIBA
- » British architects run "most ethical" small businesses in UK
- » Toronto Architecture students release study on mental health
- » Fire devastates part of Mackintosh's Glasgow School of Art
- » Campaign against London skyscrapers takes off
- » Rise in the number of new homes built in the UK
- » Russell Group universities plan £9bn architect-led development
- » Angela Brady calls for UIA to suspend Israeli architects
- » RIBA regional award winners announced
- » Foster+Partners top AJ100 table with 290 registered architects
- » Make scoop AJ100 Practice of the Year Award
- » Feilden Clegg Bradley take Client's Choice Award
- » Shigeru Ban wins 2014 Pritzker Prize
- » Eric Parry's £420m scheme for 10 Fenchurch St published
- » Zaha Hadid to present BBC film on Russian artist
- » HR Giger and Hans Hollein sadly pass away at 74 and 80

In the world

- » Artist Wolfgang Buttress to design UK pavilion at Milan Expo
- » BRE to set up facility in Shenzhen to tap into Chinese market
- » Ground Zero memorial pavilion opened in New York City
- » Qatar World Cup construction embroiled in more controversy
- » Construction of 1km tall-tower to begin in Saudi Arabia
- » World's first full-sized 3D printed house is underway
- » Designs for 3D drawing pens launched
- » Brazil World Cup eagerly awaited this summer



Alex Noble's winning entry for the One Show / RHS Garden Design competition

7 things we learnt at the RIBA Student appraisal...

By Reshma Upadhyaya

1. The thin-sandwich structure is considered a great aspect of the course and is often what draws people to Bath
2. Weighting the entire degree on 4th year creates a lot of pressure, but a solution couldn't really be found
3. Architecture students spend too much time in studio – but the problem is so widespread that it's very difficult to tackle
4. To help provide a break from studio, students could organise more non-academic events and get involved in extra-curricular activities
5. To maintain links between BSc and March, announcements of reviews and presentations should be announced more widely
6. Lectures by visiting speakers are usually the most popular – if there is someone you would like to speak at the department, just email them and see if a talk can be organised through the ACE society
7. There are some great facilities in the department that are quite unknown (e.g. the metal workshop) and some facilities that are lacking – hopefully lots of these will be tackled with the new architecture building.



Building the highest tower at the "Fun-Raiser" event for the end-of-year shows



The overall winning group at the "Fun-Raiser", with their quizmasters



ACE society hosting renowned bridge engineer Bill Harvey in a fully packed room.

News: In Architecture

This academic year has seen a spectacular and unprecedented recognition of the efforts of ACE students:

By Konstantinos Vouliotis

Our fledgling ACE Society, the department's student-led effort to organise events and blend with the industry, has been named the Best Departmental Society of the Year 2013-2014! This spectacular win against other much more experienced societies was aided by two very interesting talks organised by the committee: architect Nathan Ovens from Feilden Clegg Bradley Studios gave a presentation on the new Arts Centre on campus and renown bridge engineer Bill Harvey inspired more than 130 students with his talk on "Unintended Consequences" when designers don't pay attention to the details. Konstantinos Vouliotis, the Society's chair, said: "This is an incredible and highly deserving win, especially given that we started the year with no participation and ended up clogging the corridors of 6E to sit the attendants of Bill's talk!"

Two more ACE students were in the spotlight in the activities awards in April: Engineers Without Borders, with Amy Jowsey in chair, picked up two awards, the Best Ethical and Political Society of the Year 2013-2014 and the incredible Best Overall Society of the Year 2013-2014. Enactus Bath, with president Sorrella Smith, won the Outstanding Contribution to the Community Award and the highest accolade, Best Overall Activity Group 2013-2014.



The ACE Winners.

Opinion: Zaha and Qatar

Opinion on the latest events regarding the construction of Hadid's stadium for the 2022 Qatar World Cup.

By Lauren Carpenter

Zaha Hadid's Al Wakrah stadium for the Qatar 2022 World Cup has been in the spotlight since it was revealed in 2013. However, in recent months shocking statistics regarding migrant worker deaths and conditions have come to light, creating huge debate amongst architects and human rights activists all over the world. Recently reported in the Guardian, more than 500 migrant construction workers have died in Qatar since January 2012.

According to the International Trade Union Confederation, without urgent reform of the construction practices in Qatar and the conditions in which migrant workers are expected to work, up to 4000 workers may die before a ball is kicked in 2022. The workers, mainly from India and Nepal are often expected to endure 12-hour days in sweltering conditions and live in squalid, overcrowded accommodation.

When Hadid was questioned regarding the high number of deaths she stated; "It's not my duty as an architect to look at it. I cannot do anything about it because I have no power to do anything about it. I think it's a problem anywhere in the world. But, as I said, I think there are discrepancies all over the world."

"I have nothing to do with the workers," she said. "I think that's an issue the government, if there's a problem, should pick up. Hopefully, these things will be resolved."

Her response has prompted outrage by human activists who say that Hadid, who was named as one of the world's most influential people by TIME magazine, should use her voice to demand better working conditions for the construction workers.

Personally I think this is an appalling attitude to have. Good safety must start with good design. If architects are not thinking about constructability and safety in implementation then they are simply poor architects.

I realise that she has probably unfairly been thrust into the spotlight to take all of the criticism, for which many parties are responsible. I understand that it is difficult to have power over what should be a government's responsibility, but her comments haven't helped her cause,

She still has made the choice to turn a blind eye to the consequences of her design. She still carries on designing

buildings that she knows will be constructed by immigrant workers in terrible conditions, inevitably leading to deaths. Anyone with a moral compass should refuse such commissions. I am not sure I would be able to sleep at night if I was complicit in the deaths of hundreds of workers.



Visualization of Al Wakrah Stadium in Qatar.



Zaha Hadid

Sochi: The Olympics of Architecture

The 2014 Winter Olympic Games in Sochi have been anticipated by many people around the world. But what does the architecture of the venues mean to Sochi?

By Paulina Konkina

As a Russian citizen, I always felt proud that my country was chosen to host such an important sports event. However, I couldn't help but feel disappointed by the way many Russian politicians allowed their financial interests to outweigh the interests of the country, wasting millions of pounds. Many articles have highlighted the controversial aspect of the recent Olympic Games. However, this article compares the architectural and economic issues, as I try to decide if, in my opinion, it was worth 30 billion pounds.

The fact that these are the most expensive winter games ever held raises many questions. Is the spending justified? And who is benefiting? Olympic Games are often linked to the will of governors. They are responsible for the exorbitant expenses poured into Sochi. No other Winter Olympics has ever cost this much. In comparison, the 2010 games in Vancouver, Canada totalled at roughly 4 billion pounds. This is about one seventh of Sochi's budget. Indeed, most of Sochi's infrastructure to support the games had to be built from scratch; roads, electrical infrastructure and sewage treatment facilities were enlarged too. The program included not only the main stadium and other sports facilities, but also the athletes' residences and new hotels for spectators. Advanced technological infrastructure also had to be commissioned to handle the massive demands imposed by presenting – and covering - the games in this digital age. One of my favourite projects is a digital pavilion by Asif Khan that creates self-portraits in a house located at the entrance to the Olympic Park. Built for 180 thousand pounds, the 2000m² cube has a kinetic façade that can recreate the faces of visitors from 3D scans in photo booths installed in the building. Portraits appear three at a time, eight meters high, larger than the face of the Statue of Liberty.

There are many other expensive and spectacular venues. One of them is the Fisht Olympic Stadium: Populous' Fabergé egg-inspired stadium. Built solely to host the opening and closing ceremonies, the translucent polycarbonate roof bears a slight resemblance to the nearby, snow-capped peaks of the Caucasus Mountains. Once the Games are complete, the stadium's 40000-seat capacity will be expanded to accommodate the 2018 FIFA World Cup, before retiring as a scaled-down 25,000-seat home venue for the local football team. Although the money spent seem to be justified, one can only wonder merited the sum of 460 million pounds. The Bolshoy Dome, a 12,000-seat venue



42 kilometres of new rail tunnels are currently being bored under London.

also inspired by the Russian's iconic Fabergé egg, was built to host the ice hockey events. After the Games, the dome will serve as an "ultra-modern, world-class multi-purpose sports and entertainment centre." The price of the hockey arena seems to be a little more reasonable, 110 million pounds, because the project scale is much smaller. In comparison, the Iceberg Skating Palace, a movable, multi-purpose arena with the same seating capacity of 12,000 spectators built for the figure skating and short track speed skating events, cost 29 million pounds. Once it has fulfilled its purpose at Olympic Park, the "palace" will be dismantled and moved to serve as a skating centre in another Russian city.

These spectacular arenas celebrate themes of greatness and victory, dear to the Games. However, I felt that the buildings at Sochi absorbed and diminished the festive atmosphere. Their flashy appearance and spaciousness reminds me of the way the USSR used to treat similar events. The architecture, so concerned with boasting the greatness of our nation; pushed aside issues of cost, practicality and environmental impacts. The quality of the buildings wasn't driving the design, especially for the buildings that were not shown to the general public. However, many of these preoccupations were forgotten in light of the spectacular shows and magnificent exteriors.

Building P-Review: 4 East South

A view on the proposed design for the new ACE department building, what makes it stand up, and where it falls down.

By Harry Streuli

With the imminent release of caps on student admissions to universities, institutions are looking to capitalize on a huge income potential from new students. Consequently, Universities such as ours are scrambling to find the space for prospective students. We are fortunate enough to have secured funding for a hundred million pound redevelopment of the University campus, of which some projects have already been completed. The Chancellor's Building was completed in 2013, and, (as anyone arriving on campus will have noticed) a 708-room accommodation project is under way.

The latest project to enter into the foray of rapid and cost effective development is part of a £50M loan for new teaching space. The 4 East South Building is a proposed to be a new building primarily for the use of the Architecture and Civil Engineering Department. It will also accommodate a data centre for BUCS, and a 'Research Hub'. It is to be located to the south of the Parade, adjacent to the rear of 4 and 8 East, in development plot identified by the approved Campus Masterplan.

The brief sets out numerous constraints that stem from the Masterplan. The maximum height is dictated by a nominal 'shoulder' height; the general height of buildings proximate to the Parade. This allows Norwood and Wessex Houses to retain their prominent stance over the Parade. Equally, the new proposal is to provide one edge of a frame, that should enhance the University Park. It attempts to draw people around the south side of the Parade, forcing a more significant connection and utilisation of the parkland.

Along with the data centre and 'research hub', the brief includes provision of new design studios, associated review space, staff offices, and a workshop.

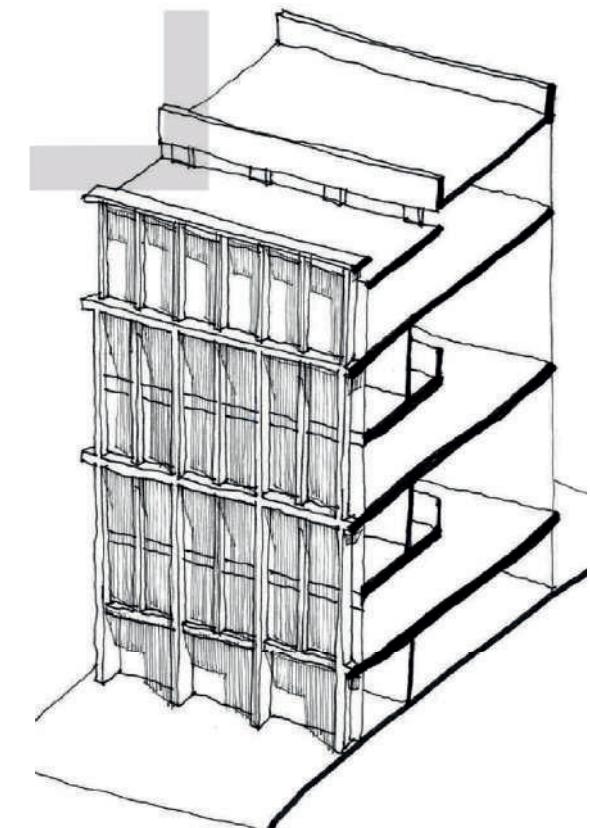
The footprint matches the intention of the Masterplan, in the form of a large linear building. The resultant rectilinear block is tall: six stories to the 'shoulder' of the Campus.

Programmatically, the block is divided into two parts, with a circulation and services core between. To the west is accommodation for BUCS, and to the East is a zone for Architecture and Civil Engineering. The base layer is expressed by full height glazing, to expose the entrances and exhibition spaces. It also exposes the ground floor workshop. Above, three studios

stack on top of each other, each with an area of 400 sqm. The southern edge of each double height studio space has specific review space below academic offices, which are at a mezzanine level. The 'heavily modelled facade' controls light and ventilation from the south side.

There is no denying that the diagram suggested by the proposed building offers a suitable scheme for an architectural school. The potential relationship between studio and review spaces, and the academic offices above, will be exciting, and equally, there is a somewhat interesting relationship to the parkland, which is mediated by the "highly modelled facade". There may still be a few niggles left in the detail of the programme and the plan itself, but they should be worked out during planning and tender processes.

However, with continuously high ranking education and research at the Department of Architecture and Civil Engineering, one feels that there is still something to be desired. Moreover, there is a



Sectional Isometric diagram shows the facade, and studio/review spaces beyond.

significant detachment from the existing school, its ethos, and the wealth of knowledge within.

The current home of Architecture and Civil Engineering is 6 East, which was completed in 1988 by Alison and Peter Smithson. The building is linear, relatively tall, and helps manage the flow of people both internally and externally. The kinks and twists of the internal corridors, and the articulation of the parade-side facade, offer an almost playful ascent to the Parade. They slow down ones movement, and encourage conversation between those sharing a journey. You wonder whether some of these architectural features could (or should) be remembered in a new proposal. A metaphysical connection such as this, helps unite two buildings. The open plan studio arrangement suggests something that is drastically different to what the department is currently used to. While the change may be refreshing, it could perhaps impact the 'studio culture' that Bath enjoys.

The programme also suffers from a lack of a physical connection to 6 East. There needs to be a literal connection to the home of the department, where the rest of the academic staff, administrative staff, and students will continue to reside. The site is crying out for a bridged link over the access road, that can connect to an existing stair core of 4 East, and in turn back to the Parade. At the very least, one feels the need for external access between the two buildings to be covered.

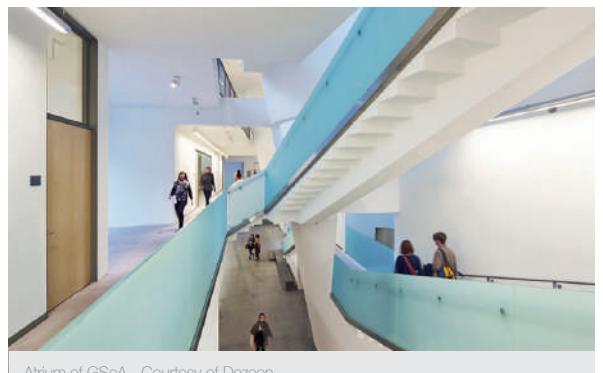
Along with lack of metaphysical and physical connections, the scheme perhaps feels a little disconnected in terms of its materiality. Bath is home to industry leading research in innovative and environmentally friendly construction materials. It is easy to see the scheme develop from a simple concrete frame, to one that draws on the vast wealth of concrete knowledge at Bath. Fabric formed concrete, advanced composites, and low carbon materials are just some of the research interests at Bath, and it is a shame to see this expertise so blatantly ignored.

Continuing on the theme of connection and relation to context, it seems that there are further connections that could be made. The masterplan is encouraging the University parkland to be framed by buildings, yet there is a dialogue between the building and the parkland that is yet to be fully realised.

The masterplan has forced any new proposal for an Architecture and Civil Engineering building to be physically apart. Yet the school has always been holistic in terms of its involvement between disciplines, and year groups. A complete detachment of any new facility for the department undermines its entire ethos, which is fundamental to the success of the school.

There are a number of recent projects of similar typology that draw on ideas of connection. Steven Holl Architects have recently completed their addition to the Glasgow School of Art. The Reid Building sits opposite the iconic school which was originally designed by Charles Rennie Mackintosh, over a century ago. It seeks to create a 'symbiotic relationship' between the old, and the new buildings. The clever use of light employed by Mackintosh in the original building inspired engaging spaces to embrace

the needs of the programme. The relationship between two ideological elements proved a key driver of the project.



Atrium of GSoA - Courtesy of Dezeen.

Additionally, the Strasbourg School of Architecture, by French architect, Marc Mimram, uses transparency and massing to engage with its context: the city of Strasbourg. It delivers a strikingly similar brief to 4 East South, but manages to empower the ethos of the school. It reflects a principle of 'construction of knowledge, and knowledge of construction', throughout the scheme. It also forms a compelling engagement with its surroundings, which emphasises the importance of context to the students studying within.



Strasbourg SoA - Courtesy of Julien Lanoo/ArchDaily.

With a world-leading department of Architecture and Civil Engineering, and an internationally renowned practice such as AEDAS, one wonders why the proposed scheme for 4 East South seems to miss such a fundamental contextual relationship to the existing department building. Obviously, capital projects on our campus are, as are all other projects, affected by quality, time, and cost. And indeed, time and cost are perhaps more pressing in this case. Yet, I feel that this is no excuse for ignorance of the existing department and its ethos. The core mantra of the school should be echoed through the entire brief, as it is what makes our school consistently stand above the rest.

Integration between disciplines is, as ever, disparate in the industry, but projects such as this hold a unique opportunity to encourage holistic, and contextually aware, building design from the very outset. To instil notions such as this onto students at this level is an opportunity that the University should jump to exploit, as it is one that is so rarely seen in Architecture school. Despite the polite response delivered, I feel that it doesn't quite rise to the occasion.

What's On?

London - Bath

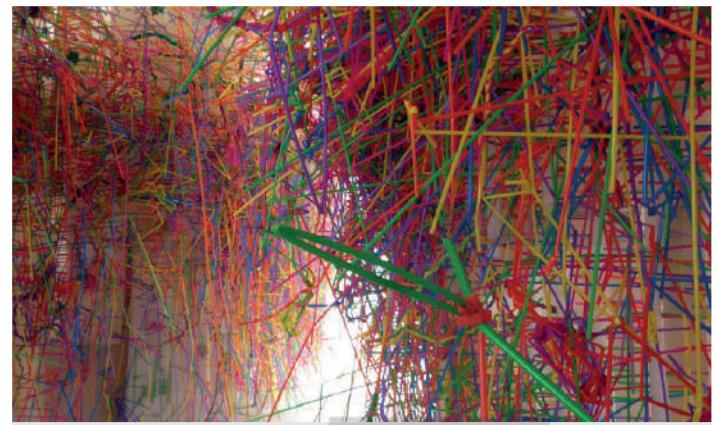
A small dose of culture and artsy things to see...

Sensing Spaces: Architecture Reimagined

25 January 2014 — 06 April 2014

Royal Academy, Burlington House, Piccadilly, London

Rating: 



By Issy Spence

We encounter buildings daily, but seldom do we appreciate what it feels like to interact with these spaces. The Royal Academy's recent exhibition *Sensing spaces: Architecture Reimagined* set out to rekindle the appreciation of the places we find ourselves in.

The exhibition showcased the work of 7 practices from across 4 continents. These included Grafton Architects (Ireland), Diébédo Francis Kéré (Burkina Faso and Germany), Kengo Kuma (Japan), Li Xiaodong (China), Pezo von Ellrichshausen, (Chile), Álvaro Siza (Portugal) and Eduardo Souto de Moura (Portugal). The different cultural influences and values of the firms created a great range of responses to designing a space that evokes the senses. It was refreshing that the countries and firms selected were not the usual and obvious – none were from the USA nor from London.

The works were specific to the rooms of the Royal Academy. For example, the monolithic slabs of Grafton's installation were the maximum size to fit through the doors. The show was interactive. Pezo von Ellrichshausen's large timber structure had 4 spiral staircase that could be climbed and elevated you into the roof space of the gallery. Kéré's tunnel form encouraged you to place straws into the structure as you walked through. Kuma's work was even interactive on your nose. His darkened room housed an intricate bamboo structure that was aromatic with a smell evocative of tatami mats.

Verdict: The Sensing Spaces exhibition was very successful in engaging the public. There were no models or drawings, just the installations themselves. The focus was architecture as an artwork. It is to be enjoyed and experienced, and the exhibition highlighted that this attitude to architecture should not be solely restricted to the setting of the RA, but should carry through to our everyday lives.

Things to see in London...

Designs of the Year 2014

26 March – 25 August 2014

Design Museum, 28 Shad Thames, London, SE1 2YD

This exhibition displays the best designs from around the world, including digital, graphic and product design, architecture, fashion, furniture and transport.

Building the Picture: Architecture in Renaissance Painting

30 April – 21 September 2014

National Gallery, Trafalgar Square, London, WC2N 5DN

Renaissance paintings, with their religious subject matters, often have a backdrop of architecture as open to interpretation as the scenes being depicted. Explore the sometimes-magical architecture of some of history's most prominent paintings.

Digital Revolution

03 July – 14 September 2014

Barbican Centre, Silk Street, London

Digital Revolution explores the impact that digital technology has had on art through the ages. With work from filmmakers, artists, musicians, architects and video developers, including will.i.am and the makers of Gravity.

Royal Academy Summer Exhibition

09 June – 17 August 2014

Royal Academy of Arts, Burlington House, Piccadilly, London, W1J 0BD

This annual open exhibition never disappoints, with a variety of work from artists, sculptors and architects.

Bath Hits London: Bath University's Architecture Degree Show

27 June – 29 June 2014

Candid Arts Trust, 3 Torrens Street, EC1V 1NQ

Come along and celebrate the work produced by Bath's architecture students of 2014. See the 4th Year Basil Spence Projects, individual Primitive projects set in Stroud and the Masters projects set in a host of European cities.

Things to see in Bath and Bristol...

Julian Opie Collected Works

22 May – 14 September 2014

Holburne Museum, Great Pultney Street, Bathwick, Bath, BA2 4DB

This exhibition displays the works of one of the country's most important contemporary artists, who has created portraits of some cultural icons of this generation.

Wallace and Gromit from the Drawing Board

30 April – 21 September 2014

M Shed, Princes Wharf, Wapping Road, Bristol, BS1 4RN

Celebrating the 25th anniversary of the first Wallace and Gromit film, this exhibition takes the viewers into the world of the characters in the home of their Bristol creators. It offers a chance for visitors to draw their own stories and experience recreated "rooms", scrapbooks and scenes.

Living City: The Anatomy of a Green City

07 May – 10 August 2014

The Architecture Centre, 16 Narrow Quay, Bristol, BS1 4QA

Just as the human body relies on health of body and mind to exist, the city relies on key life forces to keep it going. Explore what a sustainable city needs to maintain a healthy existence.

The Promise

19 July – 09 November 2014

Arnolfini, 16 Narrow Quay, Bristol, BS1 4QA

A series of off-site installations and an exhibition at the gallery explores how the ambitions for our societies often does not live up to the realities and neglects certain human needs. The presentation in the gallery exhibits architectural models and historical material about the city of Bristol realising the disparity between the imagination and the realisation of a city.

The Fashion Paradox: Fashion in the Museum

Fashion Museum, Bath

Rating: 

By Joann Haddadin

The Fashion Museum at Bath, formerly known as the Museum of Costume in 2007, is currently housed in the Assembly Rooms designed by John Wood, the Younger in 1769, only to be transformed two centuries later to house more than 30,000 iconic historical garments for men, women and children that defined the late 16th century to the present day. There is a transition from the shopping spree in the city centre, where the everyday clothes are so overwhelming that you hardly ever notice them, into the museum, where the clothes are framed on a pedestal. It takes you through a distinction between material possession to a visual meditation. Walking through the museum, you cannot help but get a sense of the zeitgeist in each era of British Fashion, but what would it have looked like for a 16th century spectator?

What was most intriguing for me was the 'Behind the Scenes' section, where the specimens of a variety of historical styles are arrayed on figurines and then labelled, boxed and shelved as regularly as books in the library. You can see how men and women objectified their hopes, dreams, and desires through their attire. Their creativity and potential for transformation became attached to physical objects, something so apparent in the Victorian era. You can see the ladies who lose their minds to their gloves, their silks and their ribbons. It seems as though the 'outside' is consumed by the 'inside', represented as a visual commodity - ornamental and superficial, desires nourished on fashion.

Buried in the museum, anything that is collected immediately loses its significance as fashion; yet, outside the walls of the museum, styles also lose their fashionability. Therefore the main question becomes, does the museum capture fashion in its system or is it captured by fashion's system?

The paradox of the fashion museum is somewhat strange, as it would seem to be directly opposed to the concept of fashion, which usually focuses on originality, the present, and sporadic change. However, fashion collections' are so dependent on the charms of novelty. Therefore, as a dedicated foundation, similar to today's contemporary Art Museum, it regulates the taste of particular aesthetic ideologies. It not only preserves, but also produces fashion. Thus, this engages in a sort of cyclical self-generation, taking part in the design and production of its own content of the very objects it is established to document. This is similar to the 'Wunderkammer' (Cabinets of Curiosities), where the items collected are yet waiting to be defined. Just as the contemporary Museum sets expectations for the viewer about what art should be, and so model the objects they collect. So the fashion archives produce norms and standards for style, thus taking part in the production of fashion itself.

Personally, I would have loved to see more visual reference of how each garment was constructed, where the displays would begin to foster the reality of fabrics and the techniques used for producing the final artefact. This would allow them to be displayed as garments as well as how they lived as processes. This eliminates them from being viewed as beautiful alien objects that sit in the museum's collection. Therefore, the determination of fashion suggests that the production of the object is inseparable from the production of knowledge about the object. In doing so, viewers begin to embrace a dynamic relationship over the time taken to make the displayed garments, engaging more with the history of design and its use as a whole, and is left to determine why it was (or still is) fashionable. Fashion then becomes a frame of life to unfold in.

The Shed: At the National Theatre

It's big, it's bold, it's bright. Haworth Tompkins' new temporary theatre brings a bit of colour and stitches itself to the Brutalist setting at the Southbank.

By Emaad Damda

The Royal National Theatre was founded in the 1960s in order to provide a London theatre that truly reflected the diversity of the nation, with an eclectic mix of productions compared with the West End. Denys Lasdun led the team that constructed its new home south of the river in the late 1970s. The building is undoubtedly of its time, forming part of a collection of post-war architecture including the Festival Hall and the Hayward Gallery.

The smallest of its auditoriums, the Cottesloe, closed last year for refurbishment as part of the NT Future redevelopment plan. Haworth Tompkins and Charcoalblue were appointed in 2012 to design a temporary theatre to operate in its place for a year. Their proposal is a pop-up theatre occupying the sunken square facing the Queen's Walk promenade by the Thames. The £1.2m project was conceived and constructed in just over a year; it is an installation as much as it is a building. Although events and public activity on Theatre Square are compromised as a result, The Shed brings the National Theatre out into the city, equally enticing and mystifying the public.

A 225-seat steel-framed auditorium sits within a sharp cubic red box, using seats reclaimed from the old Cottesloe. Four towers rise from the corners of the box to form chimney stacks that naturally ventilate the auditorium. The resulting form references the flytowers and distinctly geometric form of the National Theatre itself. Clad in roughly sawn timber boards, the materials are an inverse of Lasdun's boardmarked concrete. At night, the red box complements the flytowers which light up with colour.

A harsh critic may pick out the new entrances as being somewhat weak, with two ramps poking out of the back. However, this is perhaps what allows the form to be read as the bold cubic mass that it is. Nevertheless, having seen numerous captivating schemes for the Basil Spence project last year with a similar brief for the National Theatre, I cannot help thinking that there may have been several missed opportunities.

In any case, the Shed is an elegant solution that celebrates yet softens its Brutalist environment. The architects, themselves, acknowledge that it is not a "perfect sustainable theatre" but more of an experiment into what a sustainable theatre may be in the future. It is certainly a project that the current Southbank developers may wish to pay attention to.



The natural ventilation system is crisply detailed and proudly expressed

Pixar: 25 years of animation The Story, The Characters, The Universe

An exhibition at the new Musée d'Art Ludique, showcasing an impressive body of work that has taken the world famous animation house a long way.

By Reshma Upadhyaya

An exhibition celebrating the 25th anniversary of Pixar has been travelling the world and completed its tour this May at the Caixa Forum in Barcelona. The exhibition displayed the spectrum of processes that goes into every Pixar creation, from the initial ideas to the minute details. I visited the exhibition whilst it was in its Paris phase, and was impressed by the new Musée d'Art Ludique, dedicated to entertainment; films, video games and animation.

The exhibition itself was arranged into the three fundamental elements that form the core of every Pixar project; the story, the characters and the universe. The vast extent of development involved in creating each of these aspects is gradually revealed to the viewer. For example, we discover the multitude of variations explored before the characters that we consider so familiar are conceived. Even the scenes that may have even gone unnoticed on first viewing or background scenery, we learn are carefully storyboarded and designed to the smallest detail.

What is perhaps the most fascinating feature of the exhibition is seeing the variety of media used by animators to develop ideas. It is easy to associate animation with digital software and even to assume that much of the work is completed by these complex computer programmes. However, whilst walking around the exhibition we see sketches, paintings, collages and sculpture. Each animator uses their own unique form of expression and exploration, encouraging the imagination of each individual involved in the process.

The finale of the exhibition involves the "zootrope" and "artscape". The "zootrope" is a variation on the 19th century optical illusion game, where sequences of images fixed inside a cylinder spin to create a moving image. The Pixar Toy Story Zootrope uses figurines spinning under a strobe light to create an incredible installation of three-dimensional moving images.

"Artscape" combines traditional and digital techniques, to create an installation that transports the viewer to the Pixar universe by a 3D audio-visual journey through the paintings and drawings of Pixar animators.

The exhibition reveals that the end product of computer animation is the result of extensive exploration where imaginations are stretched to the limit and each detail is carefully designed and considered.



The pop-up Shed bringing the National Theatre out into Queen's Walk



The pop-up Shed bringing the National Theatre out into Queen's Walk



The pop-up Shed bringing the National Theatre out into Queen's Walk



Alien

Inside an Earthquake

The town of Cinchona in Costa Rica was struck by a devastating earthquake in 2009. The whole town became a ruin, and has been left derelict. This photo was taken inside a destroyed church. The beautiful interior is particularly alien to the ghost town.

Photo by Jade Appleton

Winner of the photography competition



Note from Alex: Thoughts on Education

Each issue, we ask a member of staff from the department to share some of their current musings and ideas...

By Alex Wright

Not that much has changed in architectural education recently, well at least not in the last 56 years. Back in 1958, at a meeting referred to as the Oxford Conference, the UK's university-based architectural education system was agreed, and it's been pretty much the same ever since. A few courses, like Bath's, depart from the normal structure, but every school has to deliver the same basic education. The rules, or "criteria", for this education are authored jointly by the RIBA and the ARB, who respectively act as gate keepers into the professional body (the RIBA) and the Register of Architects (the list that gives you the legal right to call yourself an Architect).

Although the criteria have changed little in the last 56 years a few other things have, for both architects and students. This obviously includes the fact that students have to take out huge loans to pay for their education. It also includes the requirement that today the UK has to work within the framework which governs the qualification of all Architects across Europe. This framework is set out in what's called the Professional Qualifications Directive (PQD) and complying with this means that once you've qualified in the UK you have the right to register as an Architect in any EU member state.

All of which sounds rather dull and bureaucratic, so for those who've read this far, here's the more interesting bit. Everything is about to change...possibly. A revised PQD came into force in January 2014 and the UK has two years to put it into effect. This has prompted the RIBA to initiate its first review of education in living memory, which started last year and which has already suggested abandoning the 3 Part qualification model. Meanwhile the ARB has announced it will be setting up its "Review of the Routes to Registration" this year and carrying it out next year; a review that's promised to be "fundamental".

Last year the UK Architectural Education Review Group, an independent group of educators and practitioners, got ahead of the game by producing a report called "Pathways and Gateways", which proposed a single gateway or entry point into the profession (you can check it out at [http://people.bath.ac.uk/absaw/fi les/](http://people.bath.ac.uk/absaw/files/)). Last month the Farrell Review into the Built Environment strongly endorsed this report in its recommendations to Government.

"...frankly, our current system is inflexible, unfair and needs to change."

I'm involved in each of these reviews because, frankly, our current system is inflexible, unfair and needs to change. Coming up with a framework for architectural education is essentially a design problem and it seems indefensible that architects have made such a shocking job of it. In the next year I hope each of the on-going reviews will seek the views of students. I urge all of you to make your views known. At the start of next year we'll also be looking for 2 students from Bath to act as our representatives to the Architect Students Network (ASN), which I hope will be very vocal in making students' opinions heard.

All of which appears to have absolutely nothing to do with the theme of this issue: 'Alien'. However much of the motivation for this change is prompted by concern about the vast debts you are all incurring in the course of your education. A 'lien' (get it?) is a legal claim that someone or something has on the property of another person until a debt has been paid back. Which is my tenuous, last ditch attempt to suggest I'm maybe not so far off-theme after all!

Good Alien: Crossrail brings a nature reserve

What do you do with 6 million tonnes of earth? RSPB has proposed to use material from £14.8bn transport project to form the biggest man-made nature reserve

By Gabriele Ziliute

There is something absolutely mind-boggling in the idea of the new growing infrastructures of such scale changing the landscape completely over the time. Although this time the project will create an entirely new ecosystem and not just a new cityscape, which is normally the case.

Began in 1880s, the idea to build a new railway across the Capital is soon to come true. Since Crossrail first broke ground on 15 May 2009, TfL together with Network Rail have managed to complete 75% of Crossrail's route following the Whitechapel breakthrough and excavate more than 2.5 million tonnes of earth so far. The tunnels will run over 100km creating an east-west connection and cover an area from Reading to Shenfield and Abbey Wood which are scheduled to be complete in 2018 and cost around £14.8bn in total. The value for money has always been in debate as the new investment exceeds the cost of the London Olympics. Meanwhile, the new railway lines are not linked to the areas of London that are expanding the most nor any other new transport infrastructure such as the Eurostar station at St Pancras and, somewhat bizarrely, Terminal 5 at Heathrow. The Mayor had a £1.4bn hole in his transport budget already before the start of the project and had to fund £3billion of debt left over from the Treasury's collapsed Metronet infrastructure company. Therefore, a new investment of such scale seems slightly unreal and it will definitely distract management for a good decade. However, an expert in London planning at the London School of Economics, Tony Travers, believes that 'Crossrail is being built not because it is definitely the best way of spending the money, but



42 kilometres of new rail tunnels are currently being bored under London.

because it was so large and so persistently put forward that the government grew tired of saying no'.

It is indeed considered to be the largest and the most invasive construction project in Europe, or how Guardian likes to call it 'the biggest archaeological dig'. But, on the other hand, Crossrail, together with RSPB is also trying to bring some green infrastructure as well. The largest wetland conservation site in Europe is to be created using excess material generated from the project. Previously the site was being used as farmland, and sea walls were holding back the tide from the land, which was then 2m below sea level. Today the island is being transformed into the thriving 670-hectare wetland it once was. The project involves creation of lagoons, mudflats and saltmarsh to provide a protected habitat for wildlife. Over the coming years, the site will accommodate more than nine miles of new and improved access routes, and eventually a range of visitor facilities. The idea is to introduce an entirely different approach to the issues of climate change and coastal flooding by going back to nature instead of trying to fight against it.

Such an unusual collaboration between the construction industry and wildlife conservation might provide the gold standard for future infrastructure schemes showing how to combine both economic growth and nature protection. The chairman of Crossrail, Terry Morgan, believes 'this is not a construction project, this is a regeneration program' and seeing the new ecosystem being born makes it feel very different from any other project done so far.



A new jetty and an 800 metre conveyor belt have been built in order to transfer the earth to the island.

Habitat 67: A different kind of living

Habitat 67, by Moshe Safdie, is a revolutionary urban housing complex that re-imagined high-density housing and aimed to improve social integration through architecture.

By Lilian Tran



Habitat 67 can be seen as three 'pixelated' ziggurats when viewed from across the river

Without any prior knowledge of the scheme the project might seem alien, or even ugly, at a first glance; an enormous structure lining the Saint Lawrence River in Montreal, Canada. However a closer analysis reveals that each apartment is linked via pedestrian streets and bridges, and the offsetting and interlocking composition of 'cube' units allows every apartment to have their own private landscaped terraces, open views across 3 sides, flowing fresh air and maximum natural light. In this sense, some have described it as a giant sculpture of pedestrian streets and suspended terraces, angled skylights and large plazas.

The project began life as Moshe Safdie's thesis at McGill University in 1961 – A Case for City Living: A Three-Dimensional Modular Building System. Safdie experimented with designs for a new housing typology where pre-fabricated modular units could reduce housing prices and become a new form of affordable housing.

Two years later Safdie's thesis advisor invited him to develop his project for the World Exposition masterplan in 1967. It was planned as temporary residences for visitors, and included a school, shops and other mixed uses. He was awarded the project despite his young age of 23.

Unfortunately, funding issues forced him to drastically reduce the size of the project from 900 apartments down to 158 and remove other programs. As a result of this, an integral plan of on-site prefabrication to reduce the cost of production could not be realised. Ultimately this led to the cost per unit being actually very high, and Safdie's desire to demonstrate a new way of living in increasingly crowded cities did not lead to the revolution of prefabricated modular development he had hoped.

However the complex still became a successful project in itself, sheltering a thriving community, and it began a new, effective typology that can be adapted to different sites. After the world

exposition, numerous 'Habits' were built across the world: in New York, Puerto Rico, Israel, Rochester, and Tehran.

Habitat 67 now contains 146 residences, made up of 15 plan-types to house different family sizes, and to foster a diverse community. Apartments vary from one to five 'cube' units, which can be between 190 to 914 square metres in area, positioned over one, two or three floors. Overall the whole building consists of 354 of these pre-fabricated concrete units, which are held together with steel cables.



Pre-fabricated, steel-reinforced concrete modules were made on-site and installed with all internal fittings before being craned into position

What I find extraordinary about this project is that each individual unit with its outdoor spaces and privacy is maintained throughout, and they are ingeniously arranged in such a way that spaciousness can be densified. It is this pure and unwavering aim that morphs it into such a non-standard form, because it ignores any pre-conceived notions about what a house 'should' look like, and works solely towards creating great spaces that all work together.

Safdie wanted to utilise pre-fabrication technology to streamline the process and achieve his vision of a modern utopia, and whilst it may not have revolutionised housing in the way that he intended, his work embodies a social ambition that was quite rare in his age of globalised capitalism, and is most certainly inspiring and still an architectural wonder.

FAT: The End of a Bold Career

FAT have announced the end of their collaboration. This gives us an occasion to take a look back at this eccentric practice which stirred the codes of the built environment for 23 years.

By Marie d'Oncieu

FAT, acronym for "Fashion Architecture Taste" began in 1995, when Sean Griffiths, Charles Holland and Sam Jacob came together fresh out of college. In the midst of the recession, "being young architects in London seemed completely ridiculous" says Griffiths, "there weren't any!". They therefore considered themselves a "loose collective" rather than a legitimate practice and proceeded to establish themselves as the rebellious teenagers of 90s architecture. In a way, seeing themselves as a joke gave them freedom. Peter Pans of design, they refused to see the world through preconceived ideas and set out to challenge the profession.

In an interview following the split, Sam Jacob stated that "Architecture should be a form of communicative art. We live in the age of communication, not of industry. Architecture is a form of media"

This approach is clearly visible in their projects. Their work seems to smirk; an impudent, playful poke at the monotony of the built environment. Characterized by bright colours, striking patterns and cookie cutter facades, it uses an aesthetic usually left to the marketing or design industries. Their "Pavilion" built for English Heritage sparkles with thousands of blue sequins like an ironic over scaled Romanesque décor. Their community building "The Villa" dares the audacious combination of blue, yellow and pink with sculptural cladding and their last project, "A House for Essex", has the enchanting aspect of a ceramic gingerbread house.

Their architecture is intended to lighten the mood, to appeal more to common taste than to intellectuals of the profession. Highly controversial, they channeled "beauty" the way few architects dare, through ornamentation and colour, humour and fantasy. Ultimately, they asked the simple question: Why can't architecture be fun?"

However, the farce is only on the façade. FAT has also produced some of the most finely executed compact social housing of the decade. And it is by dissimulating these often neglected buildings behind whimsical cut-out profiles, that they express their socio-political intentions. We are left with an ambiguous message on appearances. The building is hidden behind a "fake" facade, sticking its tongue out onto the street. And FAT ironically shows us that dressing problems in colour always comes off odd .



Sint Lucas Art Academy, Boxtel, 2006

More importantly, for Jacob, this "worship of tremendous 2D flatness is a purer form of communication and a riposte to the swirling 3D effects of architects such as Zaha Hadid". Refusing both "form follows function" and "function follows form", FAT considered their facades and internal planning as separate entities. This system allowed them to develop two fields of interest without compromising either. The facade allowed them to reinterpret classical codes and invent a personal expression of beauty while the plan was a testing ground for their sociological and psychological intents (e.g. the Anti-Oedipal house separates children from their parents).

What is truly tremendous about FAT, is how a firm with such a cheeky approach to architecture has developed into a highly respected practice. Sam Jacob still "can't believe [they've had the opportunity to design so many buildings]. But how will FAT's controversial legacy go down in history? Like Team 10 several decades before, their impudent approach to architecture brings hope to new generations of students wishing to challenge the system and to inject their own utopias in the built fabric. And Sean Griffiths' appointment as professor of Architecture at the University of Westminster prefaces the revaluation of individuals with alternative visions. But, does the end of their collaboration epitomize something bleaker? As Charles Jencks expresses, they have never had the chance to express their ideas at the scale they deserve. And perhaps FAT was simply a naughty child, cheekily defying the norms, stirring up a bit of trouble before growing up and realizing that the world isn't too kind on playfulness.

Architecture of the British Empire in India

This should be a twenty five to thirty five word abstract. It should act as a brief introduction to your article, but not give everything away. Not more than two lines.

By Benedict Hignell

British Imperialists believed Indian culture and its languages had a common origin and development with Western civilisation. They believed that India lagged behind Britain because Hinduism stalled the process. This resulted in the Britons' attempts to propagate their own culture, Christianity and the assimilation of contrasting Indian architectural styles to show their cultural superiority.

In response to the large scale mutiny in 1857 Britain became a more systematic governor of India and architecture became an important part of portraying the colonists' power. Some colonial architects felt that buildings in India should represent Western art and be an extension of the Empire's superiority; emulating the legacy of the Greek and Roman Empires. T. R. Smith, an academic and architect said "Were the British occupation of India to terminate tomorrow, the visible tokens of it would survive in our canals, and our railways, our ports, and our public buildings". Others believed that the British should adopt Indian styles to respond to the climate but also be informed by their own heritage, as the Mughals had done when they settled in and conquered most of India.

Early imperialists defined Indian architecture by dividing it into two distinct groups with mutually exclusive styles: Saracenic; the architecture of the Muslim, Mughal Empire; and Hindu; a

conglomeration of styles from Hindu cultures. This simplification of the architectural landscape represented the Indians as simple people who's only concern and purpose was religion. Only Saracenic was seen as logically architectural owing to its application of symmetry and domes and arches, architectural elements similar to Continental styles. In 1870, The Governor of Madras, announced that the Hindu style was "unavailable, under the present Government for the purposes of State, and ill-adapted for common or public use". This proclamation was due to the Hindu style being seen as particularly unsophisticated due to the lack of the use of symmetry, though they based this only on early Delhi Sultanate dynasties. Where the unsymmetrical buildings were found the Brits found it exceedingly difficult to paint as they could not conceive of asymmetrical buildings.

The British Empire developed from building predominantly in Classical and Renaissance styles to a truly colonial style, which increasingly incorporated the Saracenic style. This led to examples of architecture that showed both Britain's presence as the ruling power but also responded to their location and the cultures of Indian. The British and the native Indians in Bombay viewed the city and the relationships between the spaces differently; the British viewed the city as a whole with a 'European quarter' and 'native town' and travelled in carriages between European areas and colonialist built public buildings dispersed throughout the city. This produced public buildings that looked out onto the



The influence of British Imperialist architecture is not unnoticeable in public buildings such as this found in India



(Top) An Indian designed building showing Western influences from The Old Oriental Bank Building below, but maintaining a traditional Indian courtyard.

streets and were units of a single function. The native population in Bombay viewed it as a vast area of interlocking communities and cultures. These complexes form with walkable paths between areas and each compound acts to serve the various functions required by their individual community. Locals built complexes which looked inwards on themselves and reflected on the economic and cultural identity of the people living within those compounds.

In Bombay there are examples where Indians have adopted elements of colonial architecture in their buildings. This suggests an appreciation of British styles and shows that Britain succeeded in making an architecture that is not alien to the indigenous population. Predominantly where colonial elements have been used these have been confined to the elevations of buildings or the shape of gates and colonial styles and have not been implemented in the plan or cultural use and appreciation of the space.

The Victorian Memorial Hall, Kolkata, is a late example of Indo-Saracenic architecture where the British, Baroque, and Classical styles has been sensitively infused with a Saracenic style that it is reminiscent of the Taj Mahal in the use of Makrana marble and implementation of a main dome and four subsidiaries. This combination of styles respects both Britain's and India's cultural pasts, whilst also symbolising Britain's powerful rule over India and leaving a lasting legacy of the British Empire.

Review: Art as Therapy

By Joanna Burleigh

At only 43 years old, Alain de Botton has an outstanding list of credentials to his name. He has examined diverse and provocative subjects from why work doesn't work to what education and the arts can learn from religion. Now seen as somewhat of a meditative self help guru, he teams up with art historian John Armstrong, to question what arts most intimate purpose is, and how we should be exposed to it. Their argument is simple - art is a tool. In viewing it this way, we inevitably ask it to do something for us. We use it to aid our psyches in 7 ways: ignite our memories, awaken hope, empathise in sympathy, rebalance our mood, unveil self understanding, provide a platform for growth and finally use it to transcend us to a level of appreciation.

Wow. Isn't it almost sacrilegious to expect art to perform a specific function, especially as ego-centric as to cheer you up? 'Not so!' they profess. After all, for hundreds of years Christian art has had a clear goal to direct us towards righteousness. Many Buddhist sculptures aim to encourage us to achieve an inner calm by contemplating the serenity of a Buddha's face - what is the secret behind that smile? Why not take inspirations from our history, and apply them to our museum musings?

It's here that de Botton leads us to the miserable truth; many of our meanders around museums leave us untouched. They argue museums have taken a wrong turn. We weave through display upon display, self conscious and unsure of what we are supposed to be doing. We stare at a piece and attempt to question its purpose. We lean in to read the explanatory wall text, lean back to explore an arbitrary detail and then quickly shift onto another completely unrelated piece, simply placed there due to its period. DeBotton and Armstrong present a manifesto that abolishes museum curations which reflect the academic traditions in which their curators have been educated, and instead presents collections organised around human themes, such as aging, marriage, despair and love. Maybe we could stop learning art-history trivia, and instead start addressing personal questions - where can I find beauty like this in my life?

I personally find that Alain de Botton can be condescending, as he simplifies the average trip to an art museum to that of someone who seems wholly incapable of thinking for themselves, and instead needs everything laid out for them in a direct theme. However, the point they emphasis is if you love art, you should try and love the things that the artist you love, loved - not just the work they produced. In a museum, these ideas may seem contentious. However, once you pass the threshold into the hectic reality of life and start feeling and noticing what and who is around you for what it is, it all starts to make sense.

To Infinity, And Beyond!

As architecture continues to journey into outer space, what was once only perceived as science fiction is finally becoming reality.

By David Janosi and Yacine Abed

The history of architecture on Earth is as old as the history of man. Could we learn from it to expand into the cosmos? Can science and technology dictate a new form of architecture on the Moon and in space? Can habitat design be exploited in the endless void beyond the atmosphere? What was once only science fiction is finally forming itself to become a reality.

Habitat Design in Space

Despite running for a mere 55 years, NASA has seen many light-years beyond the Earth's scope. Astronomers, engineers, chemists, biologists – they've all convincingly imposed their importance in the governmental agency since its baby days, making dreams come true and taxpayer dollars go missing, but the playground of intelligence now calls for a new breed of nerd: architects.

In a video clip entitled 'Tour of Orbital Laboratory' (available on YouTube), commander Sunita Williams takes us around the interior of a space station orbiting the Earth and accommodating astronauts from the US, Russia, and Japan. Having to stay in space for 6 months, the laboratory really is a machine for living in. Le Corbusier would shed tears of joy if he were to watch the 25-minute clip, without a doubt. A complex piece of engineering that revolves around extreme temperature control, rigorous gas exchanges, and most excitingly: zero gravity.

Zero gravity and the extra-terrestrial setting can altogether inspire a multitude of ideas for the architect's mind to linger on, but let us concentrate on what we already know. For a first, an architectural space, in space, would not be defined by a floor, walls, and a



ceiling, but by surfaces that can interchange between the three depending on the astronaut's body rotation. So the conventions of plans, sections, and elevations that architects hold so dearly to heart suddenly become irrelevant. 2-dimensional drawings can only define the look of a surface but not the entirety of its use, so 3D modelling and more importantly 3D thinking must be in use at all times. Living on Earth means gravity does not only pull our bodies down, but also pulls our notion of space into one plane, so tailoring our imagination to think in an infinite amount of planes is definitely a big hurdle to overcome.

Commander Williams begins by showing us the sleeping area, which comprises holes wide and deep enough to contain a human body in a sleeping bag. These sleeping holes are all over the room, and in earthly terms some astronauts would be sleeping upside down whilst others standing up, but in space this doesn't mean a thing. The food is plentiful on the spacecraft and most of it comes in a dry form for preservation purposes, and water is just added to it before it gets heated up – very straightforward. The toilets are not too dissimilar to the ones on Earth, they are just a lot more compact in size and every component has a suction system



The International Space Station travels 5 miles per second and orbits the Earth once every 92 minutes.

with belts and straps to keep the body in place to prevent human fluids from flying around.

It all sounds dandy so far, but being in the great vacuum that is space has its downsides. The lack of gravity means the human body is always at rest, and forces only act on it when something is pushed against. This results in a rapid loss of both muscle and bone mass so, to prevent themselves from becoming floating bubblegum, the astronauts must exercise very frequently. Funny articulated workout equipment allows them to simulate activities from cycling to weightlifting. The equipment is designed to wobble and hover during the exercising, to compensate for the forces being imposed onto it. If the equipment were to be stable, things like pedalling the bike would cause the entire structure of the space station to move, entailing unwanted consequences.

Even though the space station is as high-tech as it can get, the extreme temperature changes on its outer surface means members of the team must carry out repairs far too often. Daylighting, an issue that Earth architects must constantly battle with, can be ignored in space; the Sun is only seen as a source of energy to get the spacecraft heated and going. In fact the main windows all give views towards Earth rather than towards the Sun, ironically. This partly links to the fact that the astronauts cannot help but miss the blue planet, and despite enjoying a surreal experience there is a definite aspect of homesickness. The high-tech beast, built by engineers, is purely functional and resembles the inside of a computer; understandable for a space laboratory, but a weak effort for a 6-month home. This is why NASA has now aimed to get architects and students across the US to start considering astronaut habitat design, to help them expand into the unknown with greater style and comfort.

The University of Houston has already introduced a Master of Science in Space Architecture in a bid to make it a reality for aspiring students, rather than just a one off quasi-fictional project. And with the recent rise of space tourism, space architecture must adapt a new language that both accommodates the needs of individuals who are not qualified astronauts and responds truly to the huge amount of money being spent for the once-in-a-lifetime trip. The Orbital Laboratory is the bare minimum one would expect in terms of comfort in space, and these new up and coming space tourists, or "astronots" as I like to call them, can give us a chance to somewhat reinvent space habitat (or at least enhance it). As futuristic as it already sounds, it is still in fact in its primitive stages, and will most probably evolve into something we don't have the capacity of imagining in this day and age. And as space architecture continues to mature as a discipline, we must not forget the broad range of science and technology fields that are developing at a rate too fast for us to digest, which will undoubtedly dictate these architectural changes. Give it a few more years and dialogue on architectural design values in space will open up to the same extent as it has for Earth.



Foster + Partners expanding into the cosmos

3D Printing on the Moon

Modern technology and 3D printing makes it possible to build a base on the moon in the near future. Two competing ideas have been published by NASA and ESA and both have been developed with the help of London-based architects. The architects and engineers have to deal with unusual problems, such as micro-meteoroids, lack of atmosphere and of course the cost of the created shelter for astronauts. This brief results in mind-blowing solutions, which also have the opportunity to be applied on Earth as well.

'Foster + Partners' designed a load bearing dome structure that can be built within a week, using 3D printer robots. The programme founded by the European Space Agency. The 3D printer mixes lunar dust with magnesium oxide and binding salt to print cellular blocks, inspired by birds' bones.

Another proposal, by London based 'Space Architects' uses NASA robots. Microwaves would melt and bond lunar dust together to use as a material for 3D printed houses. This process requires less resources from the Earth, so is less expensive and more sustainable.

Although both technologies were tested on Earth, it is unlikely that either project will take place in the near future for financial reasons. However, these high-tech systems have potential to be used on our planet. Their goal is to use local materials, therefore they are a sustainable and cost effective form of building. The possibilities are endless, it is only a question of investment in building high-quality 3D printed houses quickly from local resources. Furthermore, to apply 3D printers in countries and disaster zones would be very effect way of emergency housing.



A cheaper and more sustainable solution by Space Architects.

Immunity to Alien: The City of Bath

Bath is a city seemingly at odds with the modern. Is there any room left for contemporary architecture or will it forever be banished as alien and out-of-place?

By Jakub Ryng

It was an unfortunate pair of articles (if one can call them that) published in the Bath Chronicle in February that spurred me to examine the rather uncomfortable situation faced by modern architecture in the city of Bath. They were two 'Top 10' lists, the first listing the city's ugliest buildings, the second its most attractive. Unsurprisingly, the oldest edifices on the former were only in their fifties, while the latter contained only one representative of what one might call 'contemporary design'. Without going into the professional quandaries associated with this kind of 'journalism', it is evident that the two articles are symptomatic of a certain allergy, if not aversion of the people of Bath to modern architecture. Entrenched with grumpy organisations such as the Bath Heritage Watchdog, largely backed by the public, the city is viewed by many in our profession as a bastion of pastiche conservatism.

The squabble between traditionalist and modernists, as epitomised most famously in a series of skirmishes between the Prince of Wales and Lord Rogers, is by no means confined to Bath. But it is here that, owing to the city's distinctive architectural qualities, the antagonism of both sides is at its most bitter.

All this leaves one wondering: what is the place of contemporary architecture in the city? Why the great public mistrust of modern design? Why is it seen as alien against the traditional backdrop?

Part of the answer to the above questions must lie with the fate that befell Bath - and indeed most of England, during the post-war years. Following the unscrupulous bombings of the Luftwaffe, as a result of which over one thousand buildings were destroyed, the city was to undergo yet another dramatic change to its townscape; this time though, it was premeditated and intricately planned. In the now unfashionable spirit of Modernism, thousands of Georgian buildings were torn down to make place for new blocks of flats, car parks and various other infrastructure projects. The situation wasn't helped by the fact that the new architecture did not - to put it mildly - live up to its expectations. While the rest of England has seen many fantastic examples of Modern architecture, Bath's share was, for the most part, dull and mediocre, a kind of castrated brutalism of the suburbia, full of pathetic stylistic compromises.

All this was taking place against the backdrop of a city which, up until the beginning of World War Two, was largely unprecedented

in its architectural unity and stylistic coherency. The Bath that features on the postcards of today, that of Bath Stone and the sinuous crescents with their grand facades, was actually built over a relatively compact period of time, during the 18th century, driven by the success of the city's spa, its larger entertainment sector and most importantly the thriving speculative development. What followed soon enough was a gradual decline in the city's popularity, resulting in only a handful of semi-alien Regency, Victorian or neo-Gothic buildings being constructed.

It was therefore the memory (as well as the unfulfilled aspirations) of the Georgian town, coupled with the brutal (brutalist) lessons of the 1960s, that spurred the ongoing resentment of contemporary design amongst many of the city's dwellers.

Consequently, the great Pastiche Project certainly seems to be running ahead at full steam, with fuel provided mostly by the public and various pressure groups. Their passionate insistence on what they refer to as the quality of 'Bathness' in architecture, seems to be winning over developers, who now realise that in order to get their scheme through planning quickly, all it takes is to wrap their buildings in vaguely Georgian facades. And so, right at its doorstep, Bath has built itself the Southgate shopping mall, the flagship of the Pastiche, clad in wallpaper stone, topped with stage-set roofs, with a square adorned with Astroturf grass. While offering significant improvements over the Owen Lunden-designed mall, which preceded it, especially in urban-design terms, the project is certainly a missed opportunity in creating an exciting gateway into the city. In recent years, many housing developments followed suit, and restricted themselves to forming lazy arrays of neo-Palladian townhouses; there is Hershel Place on Bathwick Street, St Georges Place on Upper Bristol Road, Lime



The terraces of Lime Grove Gardens



Saw Close Casino scheme before planning



The approved Saw Close Casino scheme

Grove Gardens in Widcombe, with many more to come. But the pastiche is by no means confined to housing. The Saw Close Casino scheme by Aaron Evans Architects, recently approved by the council, provides the perfect example of sort of the compromises developers need to make, to win over the public. What started out as a pair of decently elegant, modernist cubes has, over the consultation period, turned into a pair of quasi-Georgian perforated boxes with a rusticated base and a couple of string courses. Surely, the result can satisfy neither side.

But all is not lost. The past decade has seen some good, albeit singular contemporary buildings sprouting up here and there across the city. There is the brilliant Thermae Bath Spa by Nicholas Grimshaw as well as Eric Parry's extension to the Holburne Museum, both of which offer creative solutions to the local quandary associated with building materials and the Bath palette. They also share a certain quality of self-consciousness or even bashfulness in terms of their city presence. Both are tucked away behind larger Georgian buildings, and reveal themselves only when viewed from specific angles. Other contemporary designs are, for better or worse, much more forthright. Wilkinson Eyre's new bus terminal certainly doesn't hold back when it comes to showcasing languid architectural cosmopolitanism, but is delightfully refreshing next to the heavy bulk of Southgate. The Bath Western Riverside development has sadly suffered from some severe value-engineering, but the often-heard comparisons to Eastern European concrete blocks are terribly unfair. One would also hope that having learned their lessons, the developers will be less miserly towards the Alison Brooks designed townhouses already under construction as part of the next phase.

What is potentially even more satisfying to behold than the brand new modern developments is how the element of alienness is oftentimes appropriated into Georgian and neo-Georgian projects. This can be the result of a deliberate action on the part of the architect or, in fact, a blunder. To the first category belongs the



A quartet of columns marking the corner by the Giraffe Restaurant



Structural and aesthetic ambiguity inside the Superdry store.

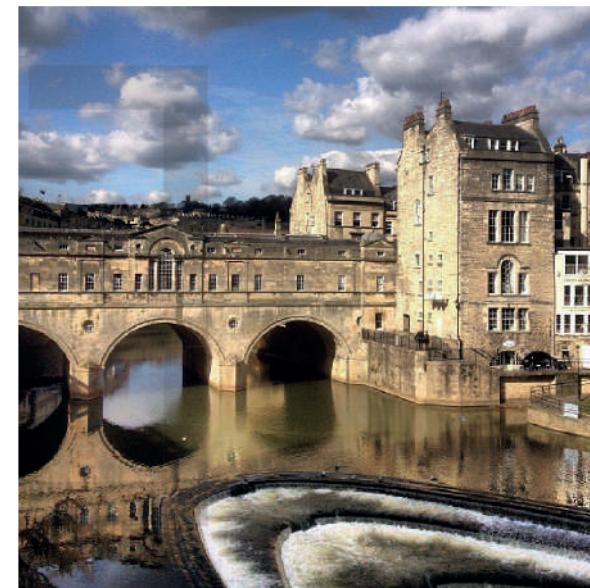
and the cheap blockwork. Superdry takes it to a level even more absurd by introducing, right next to the exposed concrete columns, bogus steel ones. The effect is mind-boggling: three potentially load bearing structures one behind the other. While this is clearly the product of the stores' branding strategies, it raises the question of just how capable the neo-Georgian is of dealing with modern commercial demands.

One would therefore hope, that the city would become more welcoming, with regards to true, unashamedly modern buildings - those which are already here, and those which are yet to be built. There are some indications that this is taking place. "Brutal Bath" was an exhibition combined with a series of talks staged at the Building of Bath Museum in 2013, organized by the Bath Preservation Trust. It put on display the prominent products of post-war architecture in Bath, in a way, which few would expect the 80 year old charity to do. In a telephone interview, the curator of the exhibition, Dr Amy Frost stressed the importance of looking at the entire built heritage of the city, while also suggesting that public acceptance of post-war architecture may only be a matter of enough time passing by. With a relatively buoyant economy and a growing population compounded by the yearly injections of students, the city can hardly afford to stay still. It may just be the case that amidst the hustle-bustle of new development taking place all across the city, the likes of the Hilton Hotel, Kingsmead House or the Police Station, will slowly fade into the background, giving way to an even more modern and more alien breed of architecture.

There is perhaps, one final issue that needs to be mentioned, regarding the very interpretation of the word 'alien', in the context of Bath. Up until now it has been used in reference to the stylistic differences between successive historical fashions and mannerisms. And yet it seems, that the only architecture which should be branded and swiftly banished as 'alien', is that, which fails or (even worse) makes no attempt to live up to the quality of the precedents provided by John Wood and his immediate successors. What is absent from the likes of Southgate, the Hilton or the new casino scheme is the complete lack of novelty, excitement and architectural delight - the very bedrock of this exceptional town in the valley. Bath seems to be crying out for an architecture that is grand and daring - possibly very alien on a purely stylistic level - but by virtue of being grand and daring, an architecture completely in line with the immense aspirations and optimism of the Georgian town.



Royal Crescent - Grade 1 listed Georgian Building in Bath



Pulteney Bridge and the weir below sets a picturesque scene in Bath.



Walking along the River Avon that flows through the city of Bath gives a lasting impression of an architectural style that never seems to age.

Of The Foreign and Unfamiliar: Diversity

While Alien lends itself to many out-of-this-world interpretations, let us explore the terrestrial definition of the word; aliens in architecture.

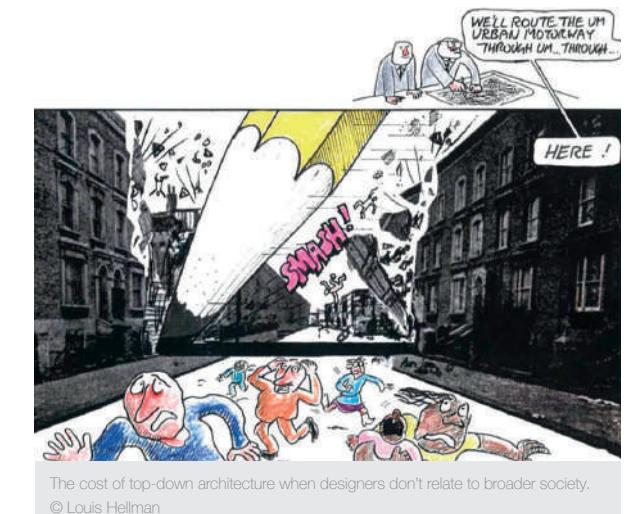
By Shemol Rahman

In a 2013 commencement speech by John Cary (founder of publicinterestdesign.org), he describes the "status-quo of design today [as] disproportionately white, economically privileged and unapologetically elite, even in the most fundamental area of gender, especially in architecture..." What a remarkable claim to make! Yet, despite what little insight I have in my brief time in architecture school, I couldn't help but agree.

Gender inequality is already in the spotlight with Denise Scott Brown and the Pritzker Prize controversy in 2013. Though the campaign was unsuccessful in attaining joint recognition, it raised the profile of women in architecture. At the end of Part 1, young women make up about half of undergraduates. Yet in practice only a quarter of working architects are female, and only 12% of equity partners and shareholder-directors in practice were women in 2012/13. Some point to motherhood and childcare, others to an intrinsic prejudice in the workplace. Men are clearly no better than women, and by reflecting this in areas like pay, paternity and maternity leave and studio culture, we can create a profession equally accessible to all.

Another area of inequality is race. In a 2005 study by CABE on minority ethnic representation in built environment professions, only 2% of UK architects at the time were non-white. The good news, however, is that the proportion of undergraduates from minority ethnic communities was at a healthy 18%. At this rate though, it will still take generations to see firm change in practice. Students from many communities and parts of the world are assets to departments like ours; however, there is a risk of our architecture schools becoming exporters of professionals while few of this diverse mix remain in the UK.

Lastly, there is socio-economic background to consider. In a recent online radio interview for Section D, Terry Farrell talks about the construction of social housing in his hometown of Newcastle in the 1950s and 60s. He describes the "top-down, elitist, upper-middle-class architects with bow ties designing for the working classes", referring to the many Victorian terraces flattened for new blocks of flats. Though these designers were happy to drive highways straight through dilapidated northern cities, their own leafy suburbs in London often remained untouched. With the best of intentions, designing without relating to users and clients is a recipe for bad architecture.



The cost of top-down architecture when designers don't relate to broader society.
© Louis Hellman

Einstein said: "We can't solve problems by using the same kind of thinking we used when we created them", which is exactly why we need fresh ideas by architects from all walks of life. With high tuition fees and an implausibly long period of training, students from less well-off backgrounds may easily be discouraged from architecture. Conclusion 1C.2 of the recently published Farrell Review specifically looks at our out-dated education system and encouraging access, and presses the "need [for] architects and design professionals who are able to relate to broader society."

Inequality goes beyond the architectural profession, but we should be champions of diversity rather than the last bastions of elitism. There are signs that things are improving. Recent RIBA presidents have included an Indian-British architect (Sunand Prasad) and a female architect (Ruth Reed). The Farrell Review is encouraging diversity and public engagement to make the profession open and accessible to all. Farrell's own journey from the working-class North East comes close to an architectural rags-to-riches story. Change in diversity happens slowly and it's likely to take a few generations. In the meantime let's enjoy the melting pot of university, let's embrace the diversity it brings and let it enrich our architecture.

A Unifying Language Interview: Grant Associates

Grant Associates is a Bath-based international landscape architecture and urban design practice that is building a reputation for contemporary landscape design.

By Joanna Burleigh and Arthur Chia

In this issue of Paperspace, we had the opportunity to interview Andrew Grant, the founding director of Grant Associates. It is our great pleasure to have this interview with Andrew about the work by Grant Associates as well as merging design principles that is widely used in both Architecture and Landscape Architecture.

This is the second edition and its theme is Alien. We think Grant Associates is very innovative and ingenious, so we are excited to talk to you. How would you characterise Grant Associates' style of work?

I wouldn't say we've got a style. Compare our work to, say, Kathryn Gustafson. She has a style, a certain geometry that she brings to her work. I'd like to think we have more of an attitude. It is about finding a language that links people with nature in a particular place. Sometimes, emphasising the environmental story, sometimes, the technological story. Personally, I like the idea of projecting the fact that, in the future, we will have to get along, and be more in tune with the natural world.

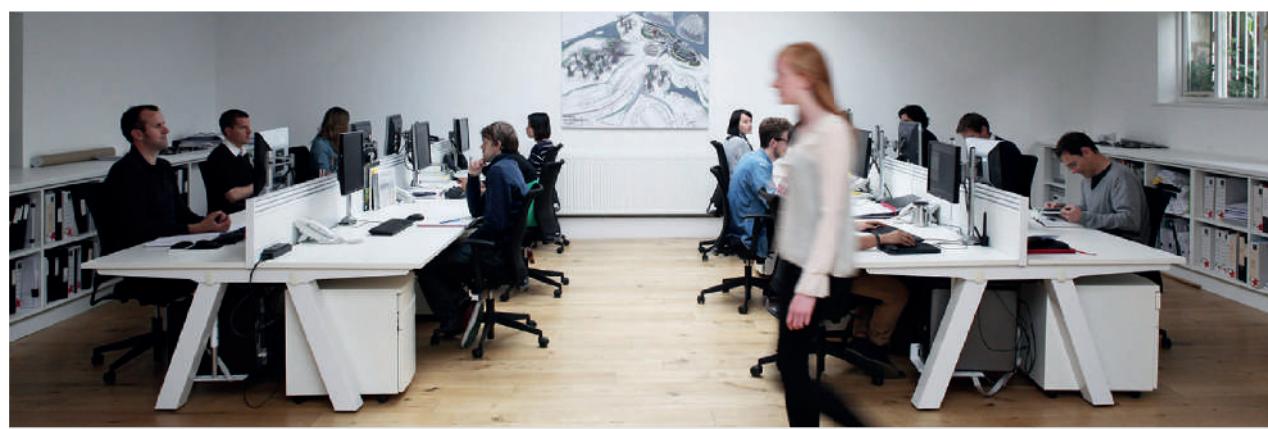
When it first came to the Gardens By The Bay, what was the key driver for that project and what made it an international success?

The government of Singapore had an idea. They wanted to make the project a global tourist attraction and a significant standout. From our perspective, we wanted to use the project to explore

how far we could push landscape and architecture in a city to create something really memorable and groundbreaking. The "Supertrees" were used as special elements around which the whole Garden was structured. They became centrepieces. At all stages of the project, we made sure there was an environmental story that linked all elements together, particularly the relationship between the landscape and the buildings. The aim was finding a rationale, making sense of the idea of air-conditioning the glasshouses in the tropics. The environmental language, the environmental story, the idea of projecting landscape structures as part of the high density, high impact city all contribute to create an environment everyone get something from. We didn't see it as a high art, piece of sculpture. The idea was always "Here's something for kids", "Here's something for people who wants to discover Chinese history", "Here's something for people who want to have a party".

Gardens By The Bay is in Singapore and you designed it here from Bath. Was that a difficult process? How did you work out the logistics for that type of work? How does it compare to other projects that you have designed in the UK?

We adapt to each project, that's the thing. At the beginning, the issue for us was not fully appreciating the culture and the environment of Singapore. There was a big learning curve. Dr Tam, the client, pointed out right from the start that we were coming at it from the streamline Scandinavian direction and he wanted it to be intricately Asian. That struck me as a key conversation.



The Bath office is naturally lit and offers a conducive working environment. (Photo: Grant Associates)



A photograph of the Supertrees and one of the two conservatories at Gardens By The Bay, Singapore. (Photo: Grant Associates)

"Making sure that all times there was an environmental story that linked it all together, particularly the relationship between the landscape and the buildings."

Wilkinson Eyre, the architects, were looking for streamline, modernist, cutback ideas and Dr Tam was always looking for that extra richness, the extra layers of things. So it wasn't too architectural. I think, at the end of the day, he would admit himself that it's a very good balance of the two; a strong architectural presence but balanced with extraordinary richness and detail.

Comparing it to other projects in the UK is quite hard: the scale, the budget and the management strategy that was put in place by the client was so different than what you would typically experience here. But in terms of design process, I suppose the closest we worked on was the Earth Centre; one of the first projects we did as a practice back in the late 90's. It had a similar agenda and very similar ambition. We wanted to put something on the map. The enthusiasm from the client for creative, innovative thinking was very much on par with the enthusiasm of the Gardens by the Bay client team. But that's rare; having commercial clients who really want to push the boundaries is quite unusual. Saying that, the Wessex Water headquarters here in Bath, with Bennetts Associates Architects, was actually at that time, a pretty radical proposal for an office building, in terms of the holistic environmental design. The managing director was absolutely determined that this was going to be the best environmentally-led office building in Europe.

And that obviously makes a massive difference, having someone absolutely passionate about what could be done.

Absolutely.

How important would you say landscape architecture is in our current design and construction industry?

It is incredibly important, and I think many of the mistakes that were made in planning cities, infrastructure and new developments have simply originated from a lack of appreciation of place and people's use of spaces. If you start from that basis, rather than thinking that landscape is about plants, trees and bugs and things; if you think it's about how people enjoy using the outdoor environment; then landscape is a fundamental piece of any built design. It hasn't always been, and still isn't regarded in that way by many people. Many architects consider that they are capable of designing everything and considering every aspect of the project; thus, diminishing the role of the landscape designer to doing a technical drawing of some paving or planting specifications. The situation is similar for engineers. Many engineers and landscape architects find themselves at the bottom in the pecking order of a typical design team for a major project. So we're fighting from a difficult location. Gardens By The Bay, for us, was an interesting opportunity where we could demonstrate that we can lead a significant project. It's opened up different opportunities in Asia, where we come forward as team leaders. Everything from parks to masterplanning major urban areas.



Wessex Water HQ, Bath. (Photo: Grant Associates)

How do you sum up the connection between landscape architecture and architecture? Do you see them as two totally different things? Or, I'm guessing, a total reverse of that; two things which consider space and have similar key points in the heart of their industries?

I think that's right. I think both of the disciplines are concerned with the articulation of experiences, often responding to the natural world. In my mind, the architects are working with light and air, materials, and, increasingly, living materials within buildings. I think it's the same for us. We're working from a slightly different perspective but we are working in the context of those same natural phenomena. We use water as a key driver, we think about vegetation and habitats, ecology, biodiversity, climate. So if you think about it in those terms, "phenomena", "natural elements", we are all working with the same ingredients. Then it's about how we use those to create a dwelling or a built enclosure. I think the whole way that we design is changing as well. The use of 3D modelling software is blending everything together into one process and output. It's getting harder and harder to pull things apart, and say "That's purely architecture," and "That's purely landscape." Particularly in more ambitious and environmentally-driven projects. I think that fusion is becoming quite extraordinary. In the UK pavilion that we did with Wilkinson Eyre, and Gardens by the Bay, it's very hard to decide, what is landscape, what is architecture and for us, that achievement is the ultimate reward.

"Rather than thinking landscape is about plants, trees and bugs and things, but if you think it's about how people enjoy using the outdoor environment, then landscape is a fundamental piece of any built design."

we're on the second wave of good quality landscape public realm projects. We're moving away from projects saying "this is the key space in London" or high profile projects only, through to more provincial projects, working in Birmingham or Southampton, working on quite significant public realm projects. It's an evolutionary journey.

Do you think architecture practices are moving forward in the right direction themselves in creating positive and useful spaces around the buildings?

We have obviously built up a relationship with a lot of fantastic architects over the years and the synergy exists because they all work with that idea. To make the whole project work, it needs a proper appreciation of the indoor and outdoor experiences. Particularly in housing schemes, masterplanning and regeneration of places. The balance of open space, the creation of proper addresses, proper streets, squares and parks are fundamental ingredients in making good places. That doesn't mean to say they need to be traditional, like you imagine a Victorian streetscape. You can still be inventive in the way you explore these ideas.

"There is a continuum of natural phenomena both inside and outside. Whether it's the light and the air, the seasons and the climate, they are fixed within your built envelope but part of the wider setting."



Public private interface - The front gardens of households in Accordia, a RIBA Stirling Prize Award winning scheme. (Photo: Grant Associates)

Could you give any words of advice to architecture students as to how we should approach design, considering the wider contextual spaces around us?

I think the main thing is to observe and appreciate the place. Literally, you have to visit the place, look at it. You have to feel it, you have to get a sense of the environment and the people who are using it. I think, too often, architects and architecture students, talk a great deal about how people use spaces but really, they haven't observed these people. They have predetermined ideas. Observation is a life skill, it's not just something you learn as a student. It must develop throughout your career. I would encourage architecture students to think about the idea we were talking about before; that there is a continuum of natural phenomena that are inside and outside, whatever that may be. Whether it's the light and the air, the seasons and the climate, they are not just fixed within your built envelope but part of the wider setting.

That's great. Thank you so much, it was really nice getting the chance to talk to you.

Victoria Bridge: An Inefficient Landmark?

If you happen to walk along the River Avon, just off Bath's town centre, you will surely notice what looks like an old bridge, but with a mess of steel parasitising through it:

By Konstantinos Vouliotis



Figure 1: The Victoria Bridge in 2014

This is the almost 180 year old Victoria Bridge. It opened in December 1836, engineered by James Dredge. It used to be an important toll link for transporting goods across the river, however after 1946 it has only been carrying pedestrians. In 2011, an engineering assessment deemed the bridge unsafe for use. The bridge was closed and a temporary steel truss was erected to provide some support to the suffering deck whilst allowing pedestrians to keep using the crossing.

Before 2011 one could admire the bridge at its original state. A beautifully slender deck is suspended from iron chains via those aesthetically intriguing inclined hangers. The slightly tapered Bath stone towers still enhance the Georgian look, whilst the green paint blends the structure in the surrounding environment, particularly the green river. Unfortunately the prison-like parapets ruin this otherwise magnificent looking structure.

Now we are left with the intruding view of this temporary truss spanning over, and hiding, Dredge's landmark. Why?

One needs to understand how this bridge works: it looks like a suspension bridge, however it is not. Victoria Bridge is a hybrid construction of a suspension and a cable stayed bridge; its inclined hanger pairs in their triangular arrangement have a much more special purpose other than being aesthetically pleasing: they create a double cantilever, which forms the bridge.

More notably, this Grade II listed structure is Dredge's first ever

bridge designed as such. He went on to build another 50 during his life, in the UK, India and Jamaica. Dredge was also the first engineer to realise that a suspended cable carried the least tension at its midspan and progressively more tension near the supports as it also carries its own weight; he therefore designed his bridges with cables which were thinning near the midspan, best known as the Taper Principle. This allowed Dredge to save a lot of material – and money – in his projects.



Figure 2: The Victoria Bridge in 2009

Structurally, the inclined hanger pairs put the deck into compression and enhance its stiffness; this is particularly important with wind loads, which is the greatest drawback of modern suspension bridges. Dredge's design was proved best when Victoria Bridge was hit by a hurricane force storm before it was even completed and survived with no damage at all.

However, what Dredge did not understand was that his design suffered from a fundamental flaw: his inclined hanger pairs are prone to fatigue. More force is required to lift a vertical load with an inclined hanger than with a vertical one. On the other hand, when only one half of the bridge is loaded (for example a group of students start crossing the bridge), the inclined hangers on the other half go slack. Although the triangular arrangement is structurally stable, their continuous cyclic loading has caused their deterioration and ultimate closure of the bridge in 2011.



Figure 3: A typical suspension bridge



Figure 4: The Victoria Bridge

Dredge's work has hugely contributed to our understanding of suspension and cable stayed bridges. Unfortunately, most of his bridges have collapsed: there are some remaining, like the Aberchalder Bridge in Fort Augustus, Scotland, but most are closed due to their poor condition.

Now that the Western Riverside Development is underway, the plan is to repair the bridge and fully integrate it to a higher quality surrounding environment. It has been decided to keep the elegant inclined hanger design. At an expected cost of £3.5million, this will bring back the bridge's old glory and continue its landmark history.

But Dredge's design is bound to fail again in the long term. A simple solution would be to disconnect one of the hangers in each pair and strengthen the other one so that the triangular form is avoided. What is the role of the Engineer and the Architect in this case? Do you keep spending money and resources on a flawed design in the grounds of aesthetics and history, or do you pursue new ways of satisfying both beauty and structural efficiency?

Do you change Victoria bridge or not?

The New Frontier

By Tom Gregory

The nature and faces of our cities are rapidly changing, through expansion and continual developments. A few years ago we surpassed a global population figure of 7 billion and just before that we reached the point in which the majority of us live in an urban environment. Although this recent urban growth has been mostly concentrated in Africa and Asia, we in the West have already been dominated by the city, to a point of saturation in many cases.

Through the densification of our cities, there is a great urge and pressure to create large developments at a quick pace. The funding of these structures are very often from larger bodies, with power and influence in developing their scheme. The very nature of the procurement process of these buildings and the pattern of their commission means that they are often purely icons; their only driver in the commissioning of them apart from cost is a marketable silhouette outline. These icons are by their very definition alien to the surroundings in which they sit, as they are referenced only by themselves.

Although the scale of these structures isn't necessarily a recent phenomenon, the rapid development and the perceived lack of control over them means that there is ultimately not a great deal of knowledge of their potential impact on their surroundings, both in a negative and positive way. The result of this is an urban landscape that often feels incredibly alien, detached in scale and materiality, even to residents living locally.

As we move forwards, we must readdress our relationship with the urban centres we have created, looking to re-engage with the inhabitants who occupy them on a more personal scale. We have created an alien urban landscape in many of our cities, but now is the time when we can reshape them. In creating an urban environment that is both sustainable ecologically and socially, we can use these cities to shape our future outlook, rather than be governed by a machine that has run out of control.

An Observation in Context (Or Without)

Is it a requirement for buildings to respond to their surroundings? Buildings require consideration and sometimes, consideration is ignored.

By Arthur Chia

There is a pile of ancient rocks, set within earthworks in Wiltshire, that is probably more popular than a lot of tourist attractions in the United Kingdom. This pile of rocks, sometimes referred to as a prehistoric monument, is widely known as Stonehenge. In 2013 alone, the monument has attracted 1,241,296 visitors, placing it in the Top 25 visitor attractions in the country.

The Stonehenge visitors centre opened to the public in December 2013. The £27m project aims to facilitate the visit to the monument and provide more insight to the visitors with exhibitions and more information. It is built roughly two kilometres away and now acts as the entrance building to the monument and its surrounding landscape.

The presence of a building that resonates with the intriguing nature of the monument presents itself as a companion and a friend. We willingly accept the nature of the emergence of the architecture that surrounds these monuments and embrace them as an addition to the landscape and usually not without doubt. However, the emergence of architecture surrounding fascinating monuments sometimes do require a certain level of consideration.

In the Islamic holy month of 2013, 1.6 million Muslims undertook a pilgrimage to Mecca. The Ka'aba is at the heart of Mecca, a cuboid building that sits within the sacred Muslim mosque, Masjid al-Haram. The monument is believed to have been built by the prophet Abraham and his son Ishmael, which is indeed then, a fascinating monument in the modern world. During the holy month of Hajj, the pilgrims would circumambulate the Ka'aba seven times, the ritual of which takes place in the mosque.



Stonehenge Visitor Centre (Flickr)

Masjid al-Haram is the largest mosque in the world. It covers a floor area of 356,800m² and has the capacity to allow up to four million worshippers to pray in its outdoor and indoor praying spaces.

With such a great number of visitors to the city every year, the need for accommodation has triggered a wide and large architectural response. In what seems like a callous planning exercise in Mecca, the second tallest structure in the world is built next to the sacred mosque. The clock tower, Abraj Al-Bait Towers complex, stands at a towering 601m, and is only second to the Burj Khalifa in height. Unsurprisingly, the complex dwarves the sacred mosque.

In the construction of the monstrosity of the towers, an Ottoman citadel which sat on a hill overlooking the sacred mosque was demolished. What is even more outrageous is the fact that the Saudi government made the decision to destroy the late 18th century citadel to make way for the complex. The decision was met with a global outcry that then stirred both domestic and international protest. The protests, as expected, fell on deaf ears; and the construction of the towers soon started.

"Always design a thing by considering it in its next larger context – a chair in a room, a room in a house, a house in an environment, an environment in a city plan." - Eero Saarinen

However "alien" an architecture is within its context, it is not without consideration of its mass, its scale and its purpose within the society that it serves. Architecture is shaped by the desires of the designer and informed by the context that it sits within. It may be a fascination to the eye or a wonder of the world but it will be duly appreciated if it is designed to be in harmony with or as an addition to its landscape.



The Abraj Al-Bait Towers completely dwarves the Masjid al-Haram. (Flickr)

Building Review: Selfridges Store, Birmingham

Selfridges in Birmingham showcases new technologies rarely seen in recent years, creating an unusual landmark.

By Akshay Nagar

Selfridges Birmingham is a story of immense budget, the biggest brands, major venture capitalists, developers, and for its time, very unconventional and interesting architecture. The Guardian described it as "computer-age geological outcrop". It is an attempt to completely defy contextual scales.

In terms of time schedule, the building did not perform well, taking four years longer than expected, similar to the smooth moulded pebble shape it resembles. A pebble by the sea would take years to form!

The facade is computer generated, flaunting 15,000 CNC aluminium discs, drawing on new fabrication techniques rarely seen in this country. Some critics have suggested it is an example of 'blob styled' architecture striving outside London. I believe Amanda Levete Architects are pioneers in this style of contemporary architecture. This can be seen in their other work, such as the Stirling prize winning Lord's Cricket Ground, and the Victoria and Albert Museum extension.

The firm's strong ideology and theory based thought process can be seen from product design to architecture. AL_A also demonstrates that women architects are more than just Zaha Hadid.

Selfridges Birmingham was destined to act as a landmark urban regeneration project and crowd puller. I think if one happens to wander in the evening around the Bull Ring area, where the building is located all the cameras flashing do prove that the architects AL_A have been successful in achieving what they headed to do.

It has been called an example of "futuristic design", or is informally dubbed as "out of space architecture". I think it relates to the term 'Alien' in two ways. It looks like the space ships portrayed in sci-fi art and movies, and it successfully translates such aesthetic

ideologies into a modern building. It more deeply relates to the term alien, by the manner in which it sits in the commercial district of Bull Ring, an area prominent since the Middle Ages. Until the Selfridges building arrived, the area did not showcase any organic or such futuristic architecture.

I think it might be an alien in terms of architectural style, yet it fits into its urban context. As an addition, it is only like sugar to milk, only making it better, that is what this Alien does, it boldly yet sensitively adds to this historic urban area and becomes an important destination for tourists and locals alike.



The completed Selfridges Store in Birmingham

A Sense of Order, A Sense of Alienation

A mere sense of disorientation and alienation. That is what the beholder can perceive while walking around a modern city.

By Sara Medas

The deep relationship between Architecture and Urbanism is the fundamental element that shapes the development of a city. Not only does it fulfil its purposes from a functional point of view, but it also reflects the cultural and historic setting of the time. Building a city is not just providing a simple frame for where to place buildings, it is also about giving its inhabitants the possibility to fully experience that frame in order to fulfil their potential. It is in fact possible to distinguish between the City of Doing and the City of Being. While the first one is functionalist in its approach, therefore stressing the importance of placing buildings within an urban frame, the second one looks at the urban development from a broader point of view as it includes different typologies suitable to fulfil different functions. Ancient classical cities (Greek, Roman and Byzantine) fully seemed to develop that kind of order in a spatial harmony, whereas modern ones seem to lack it completely.

The general feeling that the beholder can perceive while walking in a classical Greek city is that of order, cohesion, harmony, and balance. Everything seems not only to have found its perfect place in the grid of the urban frame but also to have established a deep relationship with the surrounding buildings². This was possible because the primary purpose of a classical city was to emphasise the power of the political and religious institutions.

The early stages of urban planning can be found in the organisation of the Cretan palazzo, which used to integrate perfectly with the surrounding environment. The courtyard became the pivotal point of the palazzo as other buildings, for political, religious and trade functions, were placed around it³. In another city, Malia, the urban arrangement shows how these principles were applied in order to fit not only the surrounding environment but also all the habits of its inhabitants. All the streets led from the palazzo to the sea, the meadows, the necropolis, and a big square gave people the possibility to carry out their daily activities.

With the emergence of Greek architecture, and the major emphasis given to both religious and political institutions, urban planning had to develop and change. The areas dedicated to political and religious buildings were strictly defined and separated from the rest of the city. The urban grid not only had to reflect the historical and cultural conditions but it also had to express the general principle of the ancient city-state that every single institution was autonomous and independent from the others.



Illustration by George Pickering

All this had a huge effect in the framing of the urban grid. Athens can be considered one of the best examples of how both the political and religious expressions of a civitas (of a civilisation) have been reflected in the urban grid of the city. At the beginning of the sixth century, the city of Athens was given a more democratic leaning and consequently new typologies of buildings started to appear in order to support the new political system. For example, the sanctuaries were considered as temenos, an isolated space dedicated to a god, while the agoras were considered public spaces with religious restrictions. After the victories over the Persians, the Athenians decided to focus on the Acropolis, leaving the old city as it was in the past. Hippodamus of Miletus decided to frame the urban grid through boundary stones whose purpose was to separate all the spaces dedicated to different functions: politics, religious, trade, daily life. In this way, the urban grid better fulfilled the needs of the citizens.

These examples of organisation of Greek urban grids express the importance of the interrelationship between architecture and urbanism. The cultural and historic changes occurring over time are directly reflected in the architectural design of buildings and consequently in the way they are placed within the city. A mature expression of these changes is possible with the relationship established between every building, as there is a hierarchy of meanings, which can be expressed through an organised urban

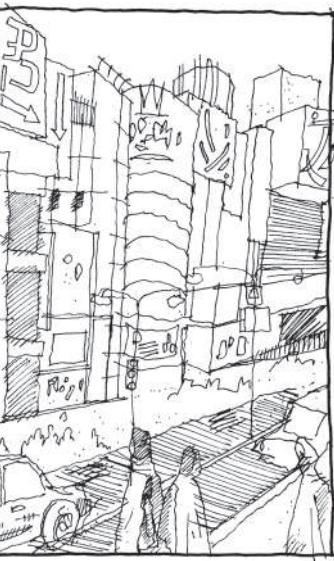


Illustration by George Pickering

grid. This organisation of the city was also possible because every building was in harmony with all the others that surrounded it. All the façades were related to one another through views and different heights which made possible the expressions of the meanings born by each of them.

In contrast to the organisation of classical cities, modern ones seem to have completely lost this deep relationship. While walking in a modern city, a beholder can perceive a sense of disorientation and alienation towards the buildings that surround him or her. This is partly due to a change in society and in particular to the value we are currently giving to public buildings, those buildings that were once the core of classical cities. Modern buildings seem, in fact, to have lost a strong relationship with the place they are going to be built in, and consequently the expression of the hierarchical meaning born can no longer be perceived. Most of the time the height of a building in classical architecture was a sign of the social power born within the city. For example in medieval times, the cathedral was the center of the village with all the other buildings being placed around it. In the old village of Chartres, northern France, this idea is expressed in its best way because the majestic Gothic cathedral stands in the middle of the village and the surrounding houses seem to disappear completely. For this reason the cathedral can be seen from miles away in the middle of the country, featuring a particular landscape where it gains a primary position within the village. This characteristic of the urban landscape is completely missing in Modern architecture. While in a classical city the beholder could walk through it following a journey dictated by the height of buildings, the position of squares, public and religious buildings, in a modern city this is almost impossible to achieve².

A slightly different case is the urban development in Japan after the Second World War. Many architects belonging to the Metabolism Movement proposed different urban planning developments, in order to rebuild the destroyed cities, and at the same time to provide enough space for people to live in. These new urban plans also tried to overcome the big problem of a lack of land to house an ever increasing Japanese population. The new planning scheme of Tokyo

Bay is possibly the best example to explain how architecture and urbanism collaborated in a particular historical moment of a country, not only to solve logistic problems, but also to fulfil all the needs of a growing population.

Kano's reconstruction proposal was to use two-thirds of Tokyo Bay for residential units, industrial areas and a forest. An atomic explosion inside a mountain nearby would have provided the needed material. Both Tange and Otaka approved the idea, as odd it may sound. Two other different proposals came from Tange and Kurokawa. Tange suggested to extend the city of Tokyo by 80 km into the bay. The new city would have been developed over piers, bridges and platforms: each system would have been composed by a 9 km unit of three decks with highways. A completely different approach for the development of Tokyo Bay was instead proposed by the young Kurokawa who approached the problem from a more philosophical point of view in a project called Human-Type Plan. His idea was to give the city of Tokyo a more human pattern in order to respond to the new desires and social needs of the population. The idea of leisure as part of human life was in fact becoming more and more urgent in his architecture and that is the reason why the focal and most important part of his urban design was an "urban navel" as historical core⁴. In a project later developed, he tried to develop a more intimate relationship with the sea instead. The cores of his project were mega structures with an helix shape that would have provided a liveable space to enjoy the sun, the sea, the breezes and the change of seasons.

These Tokyo Bay planning proposals are an example of how a new development of a city can be approached from different points of view always taking into account not only local geography but also the needs of its inhabitants. Many of these proposals included designs of buildings as well, those buildings that had to give the primary and most important footprint of the new design.

Urbanism is not just about the development of a grid to place buildings within. It is about the creation of an urban frame, which reflects the cultural and historic conditions of a particular time allowing its inhabitants to fully express themselves. Consequently, buildings can express their meanings and make the urban frame ever stronger, creating a subtle relationship between open and closed spaces. Modern architecture and modern urban planning are, at their current stage, lacking this kind of attention not only towards buildings but also towards citizens. The deep understanding of cultural and historical settings is fundamental in order to plan an urban development able to provide space to fulfil all the needs of a city. What classical urban planning achieved was the transposition of the value, meaning and power given to each building according to their function both in the architectural design and in the urban planning. Looking back at classical architecture cannot but help to re-establish both balance and order within modern cities.

Architecture Uplifting the Slums of Medellin

The slums in Medellin, Columbia's second largest city, have shown a massive drop in crime rates, due to redevelopments schemes, and the introduction of alien architecture.

By Emma Matthews

Poor quality houses, high crime rates, no infrastructure and poor sanitation, there is no argument that slums are inadequate places to live that no one should be subjected to. However, it is not the problems of the residents that are taken into account in large redevelopment schemes, but those of the local governments and capitalists, who impose alien residential blocks on the communities. This is one of the few schemes where redevelopment has focused on directly improving the lives of the residents in the slums, through the use of iconic community based architecture and infrastructure.

Medellin is the second largest city in Columbia, and once known as the murder capital of the world, with an estimated 6,500 people killed in just 1991. Small children used to be offered money to kill the police, whilst dead bodies were dumped in churches. The slums in Medellin, located high on the mountains, had poor access to the metro and rest of the city, they were rejected, discarded from the city and its society.

However, a new mayor with a background in architecture understood these problems and created a large redevelopment scheme which aimed to connect the slums to the rest of Medellin. This consisted of three main projects. The first of these was a series of cable cars, allowing a much quicker connection over the mountains to the nearest metro line. The nature of cable cars meant minimal disruption and demolition needed in their construction. They also are a safe and protected way to travel between destinations with minimal risk of crime.

The second, perhaps much more visually powerful solution, was



The iconic urban escalator

a 400m escalator that reduced the journey time from half an hour to just 8 minutes. This was made iconic by the orange roof, acting as a symbol of redevelopment and hope to the slums. As a landmark it also started to attract some tourists, helping to improve the local economy. However it was not without problems, the residents had no idea how to use an escalator, so practice trips to the local shopping centre had to first be carried out.

The third solution was a series of 5 library parks, providing somewhere for the poorest people to study, as well as a meeting point for the community. Bold contemporary architecture was used, to create a clear focus to the community and to again act as a landmark. In fact many consider the library parks to be some of the best architecture in the city. The Leon de Grief Library Park by Giancarlo Mazzanti consists of three square modules connected by a curved one, all with different uses, a community centre, library and culture centre. On the roof top a series of shaded plazas are created, acting as a meeting point and providing areas to watch sport events that take place on the pitches. The Spain Library park, also by Mazzanti, is less concerned with outside public meeting space, with the whole design focused on the creation of a monument. Three alien black boxes sit amongst the monotony of the slum. These library parks, created somewhere where the residents could be proud of, a place where education in all forms, could benefit the quality of life of the residents.

These three schemes have proved successful, with the murder rate estimated to have dropped by 80%. This can be attributed to the use of 'social architecture' where politicians and entrepreneurs understood, they had to make a future for everyone.



Leon De Grief Library Park

Afriteecture: Case Study of Marlboro South

Africa is a diverse and multi-cultural continent with many African countries undergoing rapid growth, how is the growth of architecture in Africa?

By Joanna Burleigh

Open up any prominent architectural publication here in Europe, and you're bound to be hit by a show dropping image of the next how-is-that-even-possible skyscraper in the middle east, a towering office block in America or a technological breakthrough Asian project. However, seldomly - if ever - do we hear of contemporary architecture in the African continent. Why? What image is conjured up in your head when you think of African architecture - historical or contemporary? Personally, I struggle to find one.

However, this is all starting to change. Many African countries in recent years have undergone rapid urban growth, after their economic boom. Seeping across the continent, a new ripening crop of architects and buildings with a wide variation of approaches and solutions as diverse as Africa itself, are blossoming. References and hallmarks of western historical architecture are visible, but the innovative use and creative design using local and often minimal resources are the pinnacle features.

This rapid urbanisation of Africa is creating a new set of social, economic and political conditions especially with regards to social building projects for all types of community and public buildings. However, the development of housing is producing a greater problem, with the majority of African urbanites living in informal and often self built environments i.e. 'slums' and 'townships'. This asks the question, how does modern day Africa engage with these informal, spontaneous structures, which function effectively outside the city planning and formal architecture modes?

One case study is Marlboro South, a community of almost five thousand residents who occupy 53 abandoned warehouses and open parcels of land that stretch across 28 square blocks of largely industrially zoned land. It acts as an industrial buffer strip between Alexandra Township and the City of Johannesburg, where we see one of the most uneven city divides in the world.

The right to housing is a central part, perhaps even the core of the struggle in South Africa. Housing involves not just the right to land, but also the right to settle it securely through time. In the northern margins of this fraught space, in buildings and land abandoned by business owners, some 1,500 households camp out in shacks of zinc, timber and plastic sheeting. The rights of this group were taken up in the mid 2000's by a coalition of NGO partners.

In 2003, the City of Johannesburg (CoJ) obtained an eviction notice and court order for 16 buildings illegally occupied by residents in Marlboro South. Two years later, in 2005, the Johannesburg Metropolitan Police Department (JMPD) began acting on the eviction orders by demolishing households in several of the buildings, leaving affected residents homeless and without access to alternative accommodation.

In the aftermath of evictions, the community gathered for a mass demonstration to protest the displacements. The demonstration was instrumental in the issuing of a public response by the CoJ who signed a moratorium on any further evictions by the JMPD until emergency shelter could be provided to affected residents. Prompted by the devastation caused by the 2005 evictions, the community began to organize a leadership committee, which was tasked with the responsibility of engaging with local ward councillors and Johannesburg Region E Housing officials around finding workable solutions to the housing crisis in their community.

Now, the ideology for south African housing is changing from eradication to upgrading. In 2012 the University of Johannesburg created a course on in-situ upgrading, developed by 2610 south architects in collaboration with the Goethe-Institut. During a seven-week period, fifty one architecture students and the entire staff moved into Marlboro south, just as the evictions of some shack began. They worked with community planners and the community itself, collating up-to-date information on the actual land uses which then formed the basis for strategies for the short, medium and long term.

Although Marlboro South undergoes severe deprivations such as inadequate daylight and ventilation, dangerous electrical supply and a lack of water and sanitation, the industrial area is slowly being transformed by churches, creches, traders and medical services etc. In actively working with the students the residents now have a plan as a tool for continued engagement with the city, and when their government finally comes round to addressing the issue properly, a new beginning will dawn for the Marlboro South residents, setting a precedent for South Africa itself.

"..almost five thousand residents occupy 53 abandoned warehouses.."

Building Communities: New Hong Kong Developments

More than just a place to eat and sleep, residential buildings are an opportunity for occupants to turn a space into their homes.

By Isaac Tam

The first image which come to mind when mentioning "Hong Kong" are probably skyscrapers and bustling streets. Yet, behind the curtain of such extravaganza, it is not hard to detect a sense of distance among citizens. If you pay attention to surrounding people while strolling through the urban landscape, you will notice indifferent faces rushing past. Everyone is either absorbed by their phones, or in a hurry to get to their next destination.

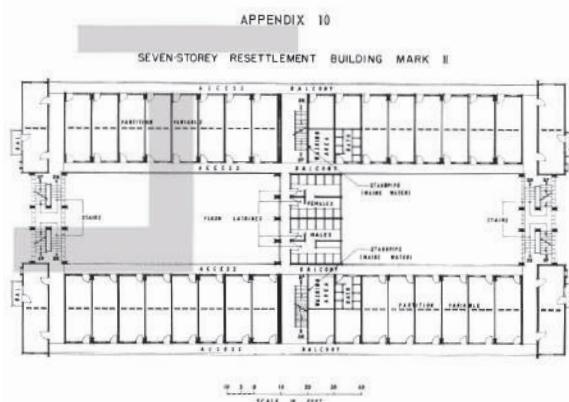
For as long as I can remember, my parents have been telling me stories of their childhood in the 60s. Overwhelmed with nostalgia, they would narrate how a whole family of 11 shared a small flat in public housing, with 2 or 3 people sleeping on each bed, and some on the floor; How they would help out the family business by making plastic flowers in the flat, or by knitting clothes. After school, they would roam through the long hallways on each level of the block with other kids in the estate, and hang out in the courtyards formed within a maze of more than 60 blocks. They



Corridors formed the main social space for residents in the 60s

would play self-made games like marbles in front of people's doorways, and since everyone kept their doors and gates opened, neighbours became very close and formed tightly-knit communities.

Today, these scenes have already become an exceptional rarity. The compact communities have all dispersed in newly developed districts, and a research in Hong Kong in the past decade further highlights separations among residents, suggesting that one in three people does not know the name of a single neighbour⁽¹⁾. Some might explain it by the arrival of individualist culture, while others might blame it on the popularisation of television and mobile phones. But it is also arguable that the whole urban design and development of new towns in the recent decades have had a huge responsibility in the alienation of human relationships.

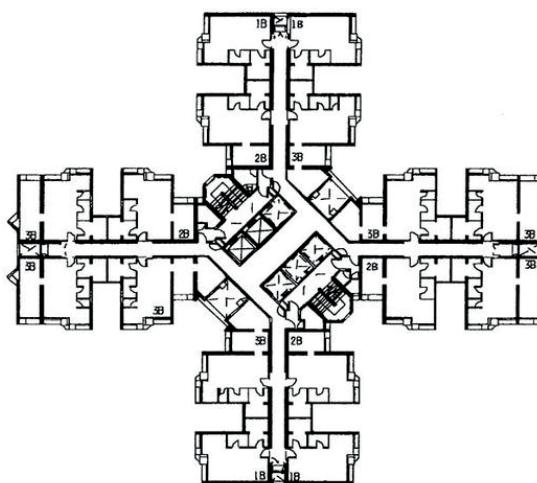


Housing blocks in the 60s were characterized by the long hallways and tightly-packed flats.



The design of public housing blocks in the 60s focused on providing the lower class with a better place to live. Therefore the buildings all adopted simple, modest designs aiming to provide comfortable spaces for each family. A typical design was the "H-shaped" plan, formed by stretches of interconnecting flats with corridors on the sides. Other block types also included the archetypical interconnecting corridors with rows of flats closely aligned. Together with the long open walkways in the air, these designs encouraged social interaction and dialogue between neighbours, building communities that form many of the sweet memories of an entire generation in Hong Kong.

As time passed the typical housing block grew thinner and taller to accommodate more people and improve individual living conditions. Now a common type of public housing design, the "Harmony Block", has around 40 floors, each consisting of



The private spaces in newly developed blocks enjoy greater privacy and more beautiful views. However the public hallways are sacrificed as a consequence.



16 flats. The lift lobby is at the centre of the floor which joins all 4 branches in the shape of a cross, with two flats on each side of the corridors. The doors of each flat look into the dimly lit indoor hallways, while the opposite flat is just at a short distance of 2 metres away. These dark, narrow indoor corridors deter people from hanging around, and the close proximity of lifts from flats, although aiding people in getting to the ground faster, prevent chances of neighbours meeting casually. . The alienation continues even after leaving the housing block, as the public spaces in between buildings are always shaded due to the tightly packed tower blocks. They block all possible natural views, and the lack of leisure facilities like children's playgrounds further prevents people from socialising. Moreover to solve traffic problems, the overreliance on footbridges isolates people from actual ground activities, reducing the amount of human interaction in the area.

Of course the new housing blocks have their own strengths over the old ones, in particular a better living standard and amount of living space. And one must appreciate the efforts made to improve people's lives. However, once we have solved the basic needs of shelter and safety, it is important to progress and tackle the next level of needs: human relationships and the forging of a sense of belonging. It is certainly a challenge to satisfy both the physical need for privacy, amount of living space, transport convenience, and the social need for a community. And it will be a challenge that architects of this generation must engage with.

(1) Hong Kong: city of strangers. Taipei Times, 06 Oct. 2006.
Web. 28 Mar. 2014.ww

Living Architecture: Biological Support

Research is currently being done into the use of microorganisms as an architectural material. Could this solve problems such as the sinking of Venice and desertification?

By Issy Spence

Problem: Desertification across the Sahara desert resulting in drought, famine and loss of land.

Proposal: The use of the bacteria found in sand to transform dunes into architecture and create an inhabitable wall across the Sahara

Sand is an abundant resource across the planet. 1 billion grains of sand are produced every second. When sand accumulates, dunes are produced. These travel across the Sahara up to a 600m a year and whole villages need to be relocated as the desert takes over. Can such a resource be harnessed and used in a constructive way?

Magnus Larsson proposes the use of bacteria within the sand to help tackle the problems around desertification. The bacteria, *bacillus pasteurii*, takes loose material and transforms it into a solid lattice, in the form of sandstone. Larsson suggests a balloon structure which can be 'popped' after the grains of sand bind to the surface, creating a structurally sound skeleton. These solid dunes create shade. Shade lowers the temperature resulting in condensation and the opportunity for plant growth. The dunes are a physical support structure for trees and the voids within the dunes offer a habitable dwelling space. From there, he ambitiously suggests a 6000km (the size of the Great Wall China) 'green wall' across the length of the Sahara.



Could the use of bacteria transform dunes into something like this?

Verdict: An anti-desertification solution which uses the sand (and bacteria) as a sand-stopping device is an aspiring attempt to solve the problem. But will the spaces created be liveable? And what will the effects of the great green wall be upon the ecosystems and climate of the desert?

Problem: Venice is sinking

Proposal: Use protocells to grow an artificial limestone reef below the city, which will stabilise the wooden piles the city is built on.

A protocell is the most basic and simple cell. It has no DNA. But acts like a chemical battery and harnesses the ability to move around and undergo chemical reactions. Protocells are in conversation with the environment and can extract carbon dioxide from the atmosphere.

How can this be used architecturally? Not dissimilar to limestone (made up of fossilised shells and skeletons), protocells' chemical processes cause them to solidify. This quality lends itself to ecological repair. Martin Hanczyc (Protocell researcher) and Rachel Armstrong (Co-Director of AVATAR (Advanced Virtual and Technological Architectural Research) take Venice as an example case study, where water damage over time has resulted in the degradation of the wooden piles and substructure of the city. By utilising protocells, deposits form a lattice structure around the wooden piles leading to the reclamation of the city.



Could protocells help stabilise Venice?

Verdict: This proposal adopts a solution, which responds to the environment and grows the structure from the ground up, rather than imposing one. It is a sustainable approach but how would it effect the Venice we know today?

Both concepts still require a lot of work but it is a thoughtful trigger into considering how to create sustainable architecture from within in the environment. The solutions use nature rather than insulating from its effects.

Listen to the TED talk here:

http://www.ted.com/talks/rachel_armstrong_architecture_that_repairs_itself
http://www.ted.com/talks/magnus_larsson_turning_dunes_into_architecture

The Movie, Alien: Who is the adversary?

Sometimes the things you come to know and love may not act in your favour. Do you choose to accept your misfortune or fight back against the odds?

By Funmbi Adeagbo

The 1979 Sci-Fi horror film 'Alien' is a masterpiece of its time, attaining a cult status in popular fiction. It, and the subsequent franchise, explores the theme of the clash between humanity and other invasive entities. In the original film, the plot follows a group of astronauts on their return journey to earth, when their ship detects an unknown distress signal and they are ordered to investigate. They inadvertently pick up an unwanted guest and bring it onto their ship. Soon after, a fight for survival begins on the ship as the spawn of this creature proves deadly.

Bio mechanical

There is some research that suggests humans instinctively find forms that are closely related to ourselves but different repulsive. It is for this reason one might find extremely life-like dolls creepy whereas the more abstract toys are regarded as cute. The film 'Alien' draws on similar principles to incite fear in its audience; the distortion of the familiar. The lead Concept Artist, H.R Giger uses human anatomy as precedence in creating the setting for the horror. Spines, ribs and genitalia form the bases of both the alien beings and their architecture.

By drawing on these principles, the artists and set designers are able play on the audience's primal emotions.



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The absence of light...

Throughout the entirety of the franchise, we are presented with the consistent scenario where our victims are trapped in sealed vessels at the onset of the epidemic. The claustrophobic nature of tight and confined spaces combined with hard mechanical finishes of the majority of the ship create an atmosphere akin to that of a cage. Historically, man enjoys spaces bathed in light and

warmth and the darker, colder areas are left for the lower beings. In the films, we are subjected to the contrary. Our self-made machines turn against us and become the dark cave where we meet our imminent demise by the 'Other'.



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Indifference of technology

On board the ship, there are much less apparent aliens; the ones we create. The ship's AI 'Mother' and the one of the crew members are synthetic entities. Although they are both created to protect and assist the team, they become 'instigators' who interfere and hamper the crews' chances of survival.

The irony within the plot is that, we as human beings are inadvertently destroyed by our own curiosity and creations.

We create spaces and systems to protect us. However, these may eventually set the scene for an unknown terror.

It begs the question; what is the purpose of our creations? We give up certain rights as we implement artificial intelligence into our environment but at what point are we submitting our very lives to these systems?

As we walk towards a future where more of our daily lives become automated in one form or the other, there are greater things at stake. This lack of manual operability may have catastrophic consequences for the users. The debate is how far do we go before an unforeseen situation arises and we loss control.

The value of Architectural writing

The success of the Paperspace Issue 1 got me thinking: why did we not have anything like this before? Perhaps we architects are underestimating the value of the written word.

By Shemol Rahman

Writing has become an alien discipline. Many of us arrive having written essays for most of our academic lives, only to be pushed into the Black Box* of architecture school and recalibrated to communicate exclusively in diagram and image form. Like other vocational professions, we have a strong publishing community supplementing our field, yet crucially we are not taught nor encouraged to read or write critically.

Writing in practice

As a creative industry, sharing our ideas is vital. Architectural journalism is arguably the lifeblood of the profession, circulating news, sharing information and providing forums for debate. Criticism from within and outside the vocation raises standards and encourages innovation. Though a picture may speak a thousand words, it is very difficult to comment critically on architecture without elaboration. Writing is therefore an essential form of communication, yet without it being formally taught, we are left to our own devices. Without any practice the Black Box* will continue churning out CAD proficient but otherwise illiterate apes.

Reading and writing are two sides of the same coin. Reading around the subject is an important part of an architect's development. Architectural literature is never short on opinions: buildings are firmly in the public domain and everyone is a critic. Architecture also has its own area of theory, ranging from the concrete to the conceptual. Wider reading is encouraged on any architecture course, but the wealth of rhetoric and theory out there may become overwhelming without the ability to critically evaluate it.

The value of writing is perhaps best seen in the development of Modernism. Manifestos like De Stijl (1918) were influential for masters like Mies, Gropius and Johnson. Frank Lloyd Wright's late publications (An Autobiography and The Disappearing City, 1932) inspired generations of younger architects and spread his ideas beyond America. Le Corbusier's prolific writing was instrumental in the spread of Modernism, and Louis Kahn's early writing brought him clients who would later patronise his greatest buildings. These architects used the written word to record and share their ideas,

and in architecture schools today we learn as much about their writing as we do about their buildings.

Critical reading and writing ultimately comes down to critical thinking. The act of writing forces one to slow their thoughts and reflect. Like drawing for design, writing is an iterative process at a much slower pace. Most of writing is rewriting. Even poetry, though it may feel visceral and free, is bound by structure and sound, always remoulded to give the intended expression. Writing allows the gathering of thoughts, formulation of concepts, and synthesis of ideas. When ideas are laid out in writing to the mercy of the reader, the author has no choice but to ensure his argument is sound and valid.

Clarity in writing, therefore, is an important skill for an author. In architectural practice, briefs and specifications are the backbone of projects, and ambiguity in either can be painful later on. Communication through drawing can be exquisitely elegant and efficient in the right context. However, drawings have their limits, and when they fail writing must fill the gaps. In the days when architectural journals provided supplements on detailing and technical innovations, clarity in writing was a necessity. Understanding how a septic tank is constructed is one thing, but being able to clearly instruct another architect on the matter tests ones own knowledge and fluency.

"Writing allows the gathering of thoughts, formulation of concepts, and synthesis of ideas"

The written word is also an important tool to communicate with the wider public. In 101 Thing I Learned in Architecture School by Matthew Frederick, no.48 states "If you can't explain your ideas to your grandmother in terms she understands, you don't know your subject well enough". The profession is increasingly considering its role in broader society, and effective public engagement cannot be achieved while hiding behind jargon.

Up to this point, writing has been discussed as a tool either side of the immediate design process, to inspire, criticise and inform. Its merits as a creative design tool are less clear though. Sketches and images are best suited to the visual nature of architecture, and drawing facilitates the quick, iterative thinking process we require. Writing is limited by its slower pace, appearing perhaps only in note form. The public may read text better than a plan, but sketches and visuals can be far more effective for architects and

clients alike (see The Shard: A Bold Beginning by Akshay Nagar in Issue 1, p.42).

The Knut Hamsun Centre in Norway, by Steve Holl Architects, is an interesting case study. The central concept was a quote taken from Hunger(1890) by Hamsun, while Holl's earliest watercolour is remarkably similar to the finished building. Here, we have a marriage of writing and drawing. Closer to home, Studio Weave in London has found a creative use of text in practice. Each of their schemes includes a written narrative that prompts or supplements their design. Rem Koolhaas, the influential architect and theorist, also has roots in writing. His father was a writer, Rem himself initially pursued journalism and screenwriting, and after finishing his architectural studies he wrote a book before ever building anything. In a recent Radio 4 interview, Koolhaas parallels the orchestration of "episodes" in scriptwriting with the arrangement of space in architecture. To this day, he confesses, almost all his buildings start with words, not visuals.

Writing in design education

To gauge the value of writing in our studies, it may be useful to briefly explore some design-education philosophy. Our very own Alexander Wright has written about the department's teaching approach, entitled Critical Method. This methodology encourages design evolution through an iterative spiral of problem definition ("explore the challenge"), tentative theories ("sketch, build and test ideas") and error elimination ("evaluate solutions"). Working in a similar framework, David Crismond from the City College of New York created a Design Strategies Rubric (Table 1) comparing the qualities of beginners and more informed designers at each of the three stages:

In the "testing ideas" stage of the process, Crismond suggests that more informed designers use a wider range of media like

"words, drawings and prototypes to explore ideas". Writing therefore may form part of the creative toolset of an architect. Finally, this may all be set in the wider context of long-term, personal development through Donald Schön's theory of Reflective Practice, summarised in diagram by Kolb (1975, Figure 1). Simply put, the idea is to continually learn from one's own mistakes. Crucially, it involves self-observation and reflection, for which writing is a vital tool. Compiling and reflecting on work during projects, perhaps through a project diary that includes sketches and text, may be a valuable exercise in record keeping and personal development.

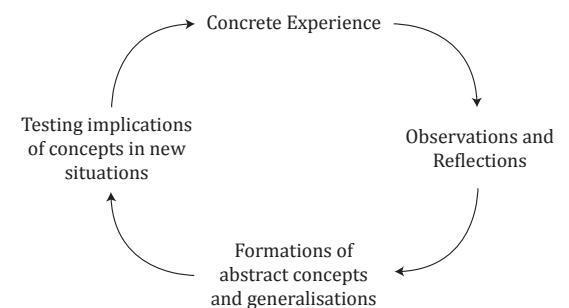


Figure 1: Adaption of Experimental Learning Model by David A. Kolb

Final Word

By no means do I suggest we stop drawing and adopt writing as our language. If buildings were based purely on writing, we'd have a lot more like House VI (Eisenman, 1975), interesting but ultimately impractical. The sketch and the image are irreplaceable to us, but I think writing has its own place too. Look no further than this magazine to see its power to reflect and share.

PHASE OF DESIGNING	A. WHAT BEGINNING DESIGNERS DO	B. WHAT INFORMED DESIGNERS DO
I. Explore the Challenge	<ul style="list-style-type: none"> 1. Make premature design decisions too soon, after reading the design brief. 2. Skip Research and instead start posing solutions immediately. 3. Idea fixation Get stuck on their first design ideas that they won't let go of. 	<ul style="list-style-type: none"> Delay decisions Hold off from making decisions until they explore the challenge. Do research and information searches about the problem. Practice idea fluency via sketching, brainstorming and rapid prototyping.
II. Sketch, Build, & Test Ideas	<ul style="list-style-type: none"> 4. Describe & sketch devices that would not work if built. 5. Do few or no investigations or conduct confounded experiments. 6. Have a generalized, unfocused way to troubleshoot ideas during testing. 	<ul style="list-style-type: none"> Use words, drawings and prototypes to explore ideas and show how things work. Do valid experimental tests to help designers learn about product features. Focus attention on key problems when troubleshooting ideas/devices
Evaluate Solutions & Practice Effective Design Habits	<ul style="list-style-type: none"> 7. Ignore or pay too much attention to pros or cons of ideas without also thinking of benefits and tradeoffs. 8. Designing is done haphazardly OR steps are done once in linear order. 9. Do tacit designing with little self-reflection & monitoring of actions. 	<ul style="list-style-type: none"> Consider benefits and tradeoffs of all ideas when making design decisions. Do design in a managed way, strategies are used in any order as needed, and ideas are improved iteratively via feedback. Practice reflective thinking by keeping tabs on design work metacognitively.

Table 1: Design Strategy Rubric by David Crismond

*(see Martin Gledhill's article, Paperspace Issue One, Jan 2014, p.18)

Threshold '14

By Emaad Damda

Each year, MArch students kick off their Part II course at Bath with the 'Threshold' project. The idea is to identify places on the university campus that evoke particular memories and experiences. Groups consisting of a mix of returning, new and Erasmus students then went on to create installations that responded to these stimuli in order to reveal, amplify and transform their nature as 'threshold' sites.

(Photos courtesy of Nic Delves-Broughton & MArch students)



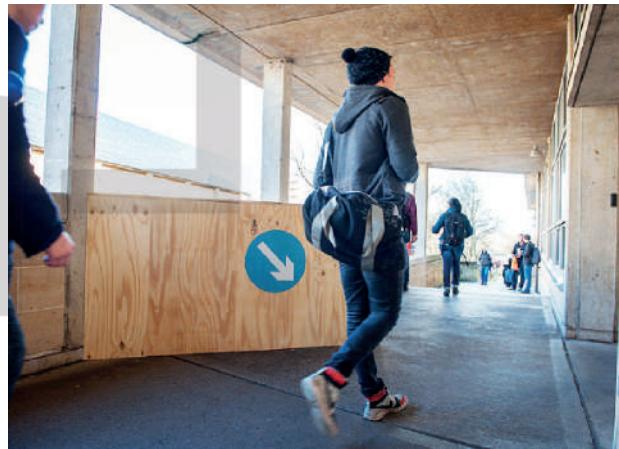
Claire Beard Soo-Jin Hwang Pauliina Kujala Anna Praulitis



Mike May Ben Munro Peter Wildor



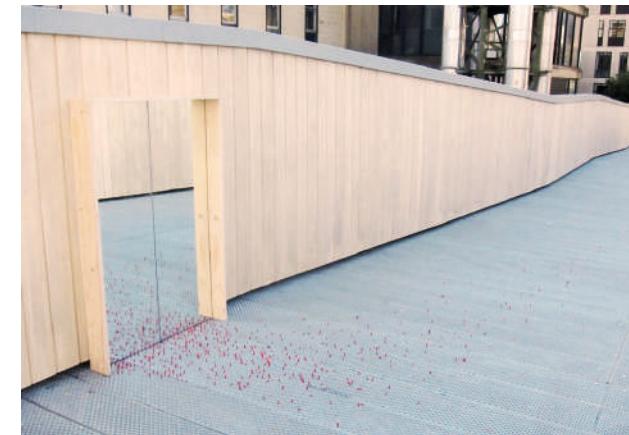
Sophie Griffiths Rita Martins Simon Murgatroyd Frederic Penent



Lauren Carpenter Elise Gendre Myriam La Halle Emily Jones



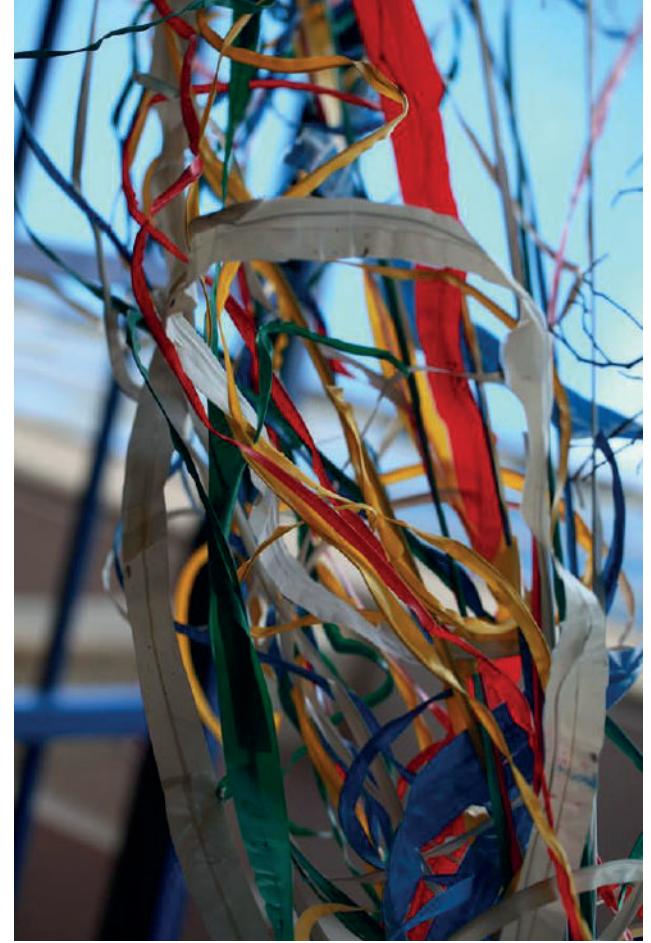
Charlotte Balmer Emaad Damda Craig Smith Jack Stephenson



Nadia Grudinina Caroline Rushton Alex Schneider Seb Walker



Alvin Cheng Holly Gare Sioned Holland Pruek Lertsrimongkol



Lucas Facer Qian Qian Sophie Yoell



Christodoulos Christodoulou Aman Kantaria Lucas Rieuf-Douillard Peter Spall

Grabbing Their Attention: The Portfolio

The portfolio. This calling card becomes our fundamental weapon when we begin our siege on the seemingly innocent and unsuspecting architecture practices of the world.

By Ben Norrish

Let's set the scene. It's a beautiful weekend and the sun is shining bright, somewhat a miracle of the British weather and the seagulls are certainly talking about it. Their harmonious choir atop the rooftops encourages you to push for the final touches to that scale model that will surely turn your critic's squawks into a delightful symphony of compliments.

Where are you? The studios of 6E of course, and your review is imminent. Obvious by the microwave meals stacking up like the infamous Bath tower by your desk, beginning to overshadow your graceful model. However, half a week has gone by and lack of sleep is already in full effect. The seagull orchestra is suddenly replaced by a similar sound of drunken screams, yet this time they do not have wings, unless a double vodka and red bull counts? Immediately you are sobered, although hopefully already, by the fact that you are stuck inside whilst the heedless masses continue their quest up the steps towards Score. Yes, that's right; we are hopeful Architects. Although we are certainly not aliens, we assuredly lead a unique lifestyle.

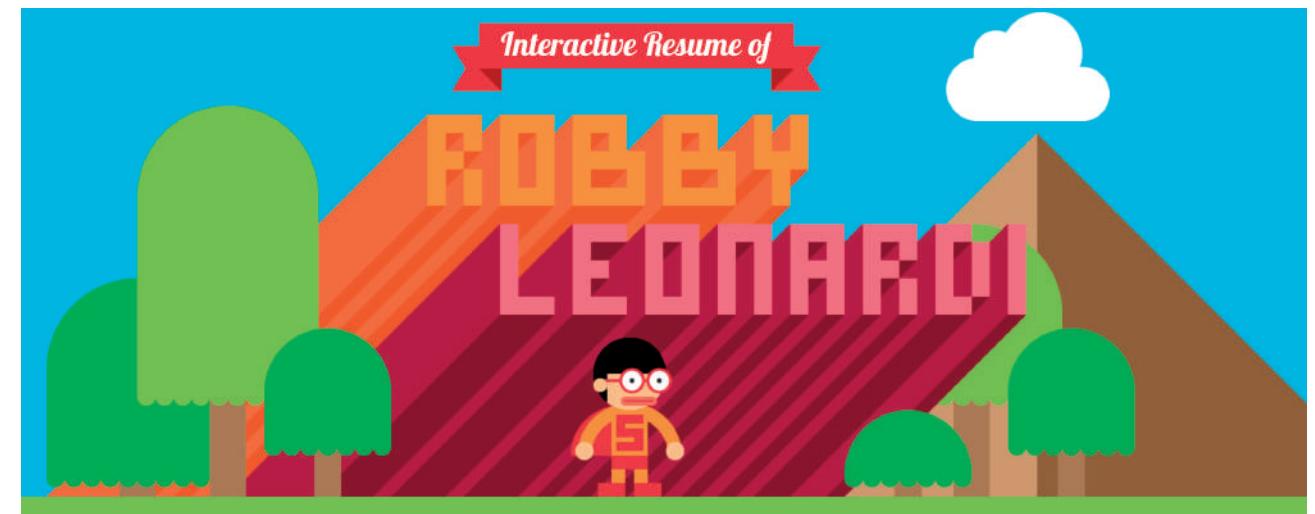


“..we are living in a digital age, with social media and sites such as LinkedIn at our disposal...”

Eventually that moment of sweet release arrives. Brochure hand in day and the culmination of your hard work and effort is epitomised by that beautifully laser cut front page that will set your design apart from the crowd. Unfortunately, the work has only just begun. The perfect reward for your endurance? Placement applications, cover letters and countless rejections. Oh yes, it's time to leave the safety of studios and find a job.

Consistent of our strange way of life, how we apply for these jobs is also different. The portfolio. This calling card becomes our fundamental weapon when we begin our siege on the seemingly innocent and unsuspecting architecture practices of the world. However, these practices are not as naïve as we assume, they also have their own miniature skyscraper sitting on their desk, but this time it's a mountain of student portfolios, quietly gathering dust. Thus the issue becomes a familiar one that echoes through all advice we receive. How do we make ourselves stand out?

There are several tactics that could be taken, the most common of all, that beautiful front page. Yet, as the saying goes, you should never judge a book by its cover. Another strategy is to take a leaf out of the seagull's book and make yourself heard; however persistent phone calls to the office receptionist may turn you into their enemy pretty quickly, not the desired effect. An extreme option would be to go to the office and hold them hostage until they meet your demands, but perhaps not the best first impression.



An example of how an online portfolio could help showcase your skills and in this example, an interactive game of his CV by a web developer, Robby Leonardi. (<http://www.leonardi.com>)

Whatever your approach, there are many solutions to this conundrum, some more subtle than others. Inevitably, the issue boils down to time. Architects are busy people with plenty of other things on their mind, we know that well. Hence, when sending in your portfolio the odds are it will be glanced upon quickly over a cup of coffee, and in the same amount of time, easily forgotten. The key here is then how to provoke their interest.

Needless to say, we are living in a digital age, with social media and sites such as LinkedIn at our disposal offering a plethora of tools to further support our job hunt. The root of success for these applications is that they are quick and accessible, allowing employers to easily analyse your suitability, somewhat worryingly. I hope you've untagged yourself from that awkward drunken photo! Yet, despite its usefulness, the distinct disadvantage of this format is one of individuality. Sure, you are well versed in a variety of CAD software and a well-motivated person willing to go that extra mile, or so says your description, however these empty statements are like flour to a cake recipe, it's in all of them.

So let's throw in a curve ball. Why not create an online portfolio? Taking precedents from our faithful LinkedIn, the power of the internet gives us the opportunity for your entire portfolio to be just a single click away, not too much effort for a coffee break right? Suddenly, we have something that will grab that architect's attention whilst he sips on that much needed coffee cup.

There are several ways to start creating an online portfolio. The easy way, or the hard way. Both have their own ups and downs, the most fundamental of which are time and money. The easy method - using a website builder, and there are plenty of them available on the internet, too many to specify. These website builders are brilliant for the coding illiterate amongst us. Quick and easy, you can setup your portfolio in the space of an afternoon. Although certainly, the simplest method to add your beautiful renders and concept sketches

to the depths of the internet, these websites can make you dig deep into your pockets to keep them running; money that could be better spent on that elusive brown card we all hold dear, or better yet to fund another drunken photo to add to your Facebook collection.

The hard way? Build it from scratch. This method however demands the learning of HTML and CSS, not a difficult challenge it turns out with the aid of the World Wide Web, however time consuming non-the-less. Yet despite this obstacle, it provides the icing on the cake of your LinkedIn profile description, showing that you truly can go that extra mile. After all, the proof is in the pudding.

So the difficult question is, which do you choose? Unfortunately, this article will not be guidance in answering this question, but merely to conceive the notion that there are alternative ways to that intricate front cover or last resort hostage situation. Whichever you choose, or not at all, an online portfolio can be a great asset in the search for a placement and perhaps spur your potential employers to fight over your portfolio like our beloved flock of seagulls at the beach, squabbling over a dropped chip.

“...an online portfolio can be a great asset in the search for a placement and perhaps spur your potential employers to fight over your portfolio...”

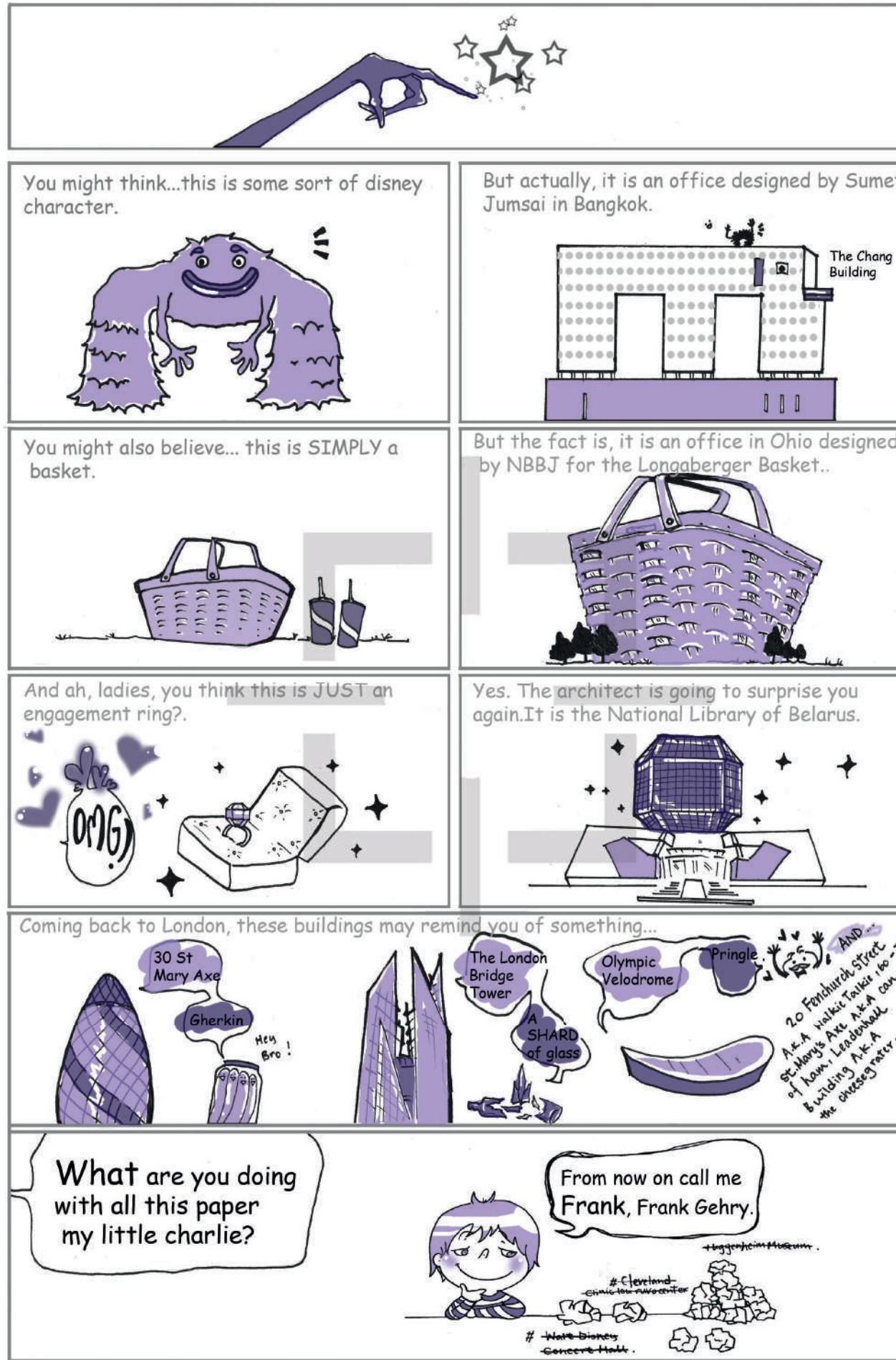


Coffee Break

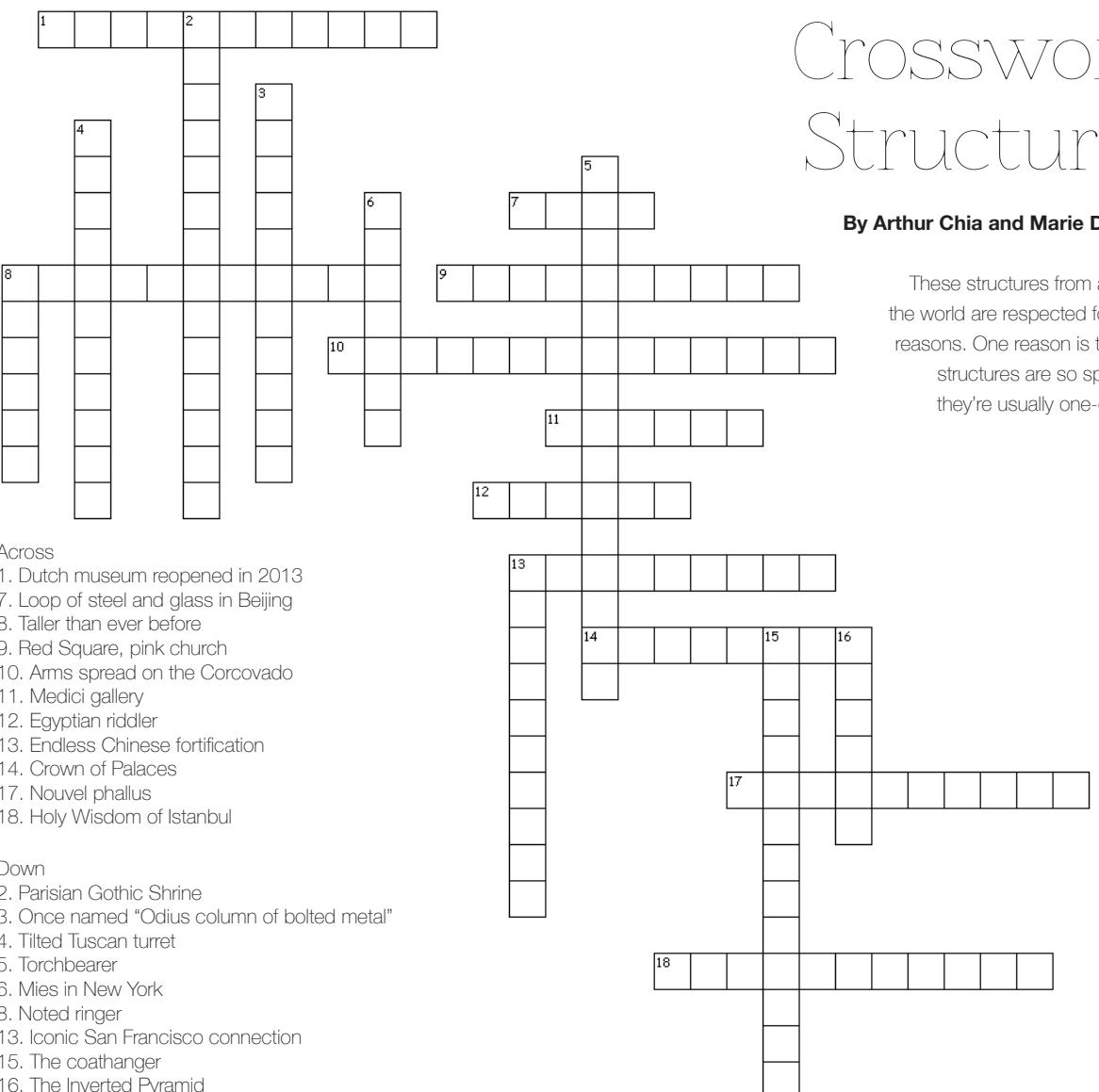
"Rest is not idleness, and to lie sometimes on the grass under trees on a summer's day, listening to the murmur of the water, or watching the clouds float across the sky, is by no means a waste of time."

Quote by **John Lubbock**

The Use of Life

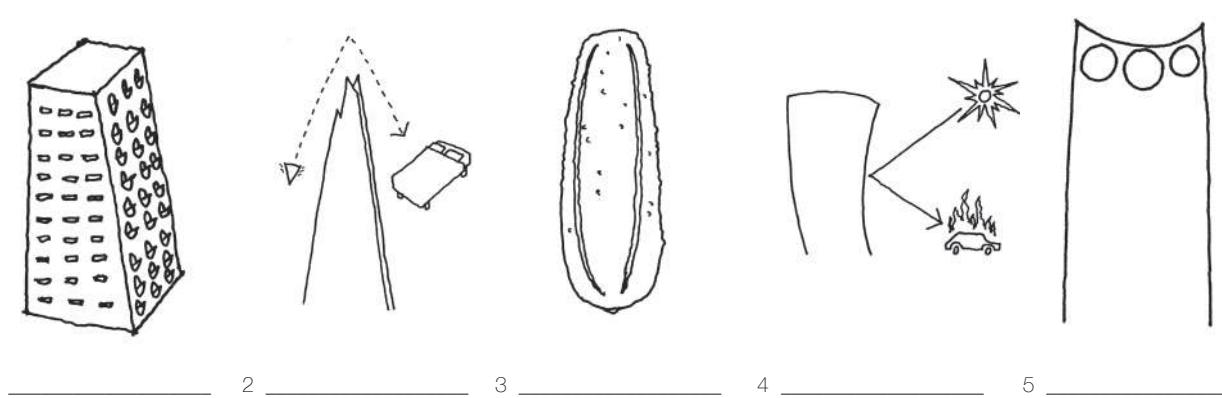


Comic by Lilian Lam



Partictionary: Towers of London

By George Pickering



1 _____ 2 _____ 3 _____ 4 _____ 5 _____

Crossword: Structures

By Arthur Chia and Marie D'Oncieu

These structures from all around the world are respected for various reasons. One reason is that these structures are so special that they're usually one-of-a-kind.

Horoscopes

Aries

Beware, with your moon in **Corbusier**, the gravitational pull of the Ronchamp Chapel will take you in unexpected directions. Be ready for a new movement in your life.

Taurus

Don't give up on love, **Vitruvius** transits through your sign to bring you a soulmate, someone who embodies three values: beauty, utility and strength

Gemini

Be warned, this month, your life is about to get very **Gehry**, so Gehry it's scary!

Cancer

Your moon is in **Gaudi** this month, foreshadowing dramatic events. Stay clear of moving vehicles

Leo

Kahn dominates your sign this month. Expect an unusual development of your family life.

Virgo

Zaha takes siege in your sign this month. Don't yield to your craziest dreams, they're probably outrageous.

Initials

VS by LC

Villa Savoye by Le Corbusier

FW by FLW

Frank Lloyd Wright by Frank Lloyd Wright

AM by FG

Antoni Gaudí by François Gernez

SOH by JU

Santa María del Sagrario by Jean Nouvel

KHM by SH

Kunstmuseum Basel by Sebastian Herkner

RM by TA

Rodin Museum by Torsten Albrecht

Libra

The light of **Loos** will guide you with the redecoration of your house. It'll probably be frugal in ornamentation.

Scorpio

Garnier is smiting you! You're doomed to work your whole life for something and never witness the results!

Sagittarius

It's time to take a good hard look at your relationships and bring back some straight lines. Invoke the spirit of **Rietveld** to guide you.

Capricorn

Your moon is in **Koolhaas** this month, and your love life is about to get as delirious as New York

Aquarius

Rogers transits through your sign this month, its time to express all those colorful feelings on the outside.

Pisces

Your money troubles will seem derisory with **Mies** settling on your sign this month. Remember, less is more.

Microwave Recipe: Omelette in a Mug

By Reshma Upadhyaya



When you just can't face another ready-made meal in studio and you feel like eating some instant, why not make an omelette in a mug?

Ingredients

- 1 Large egg
- 2 Egg whites
- 2 tbspsn Cheddar cheese
- Drop of oil
- Salt and pepper to taste
- Extras of your choice:
Ham/ Peppers/ Mushrooms

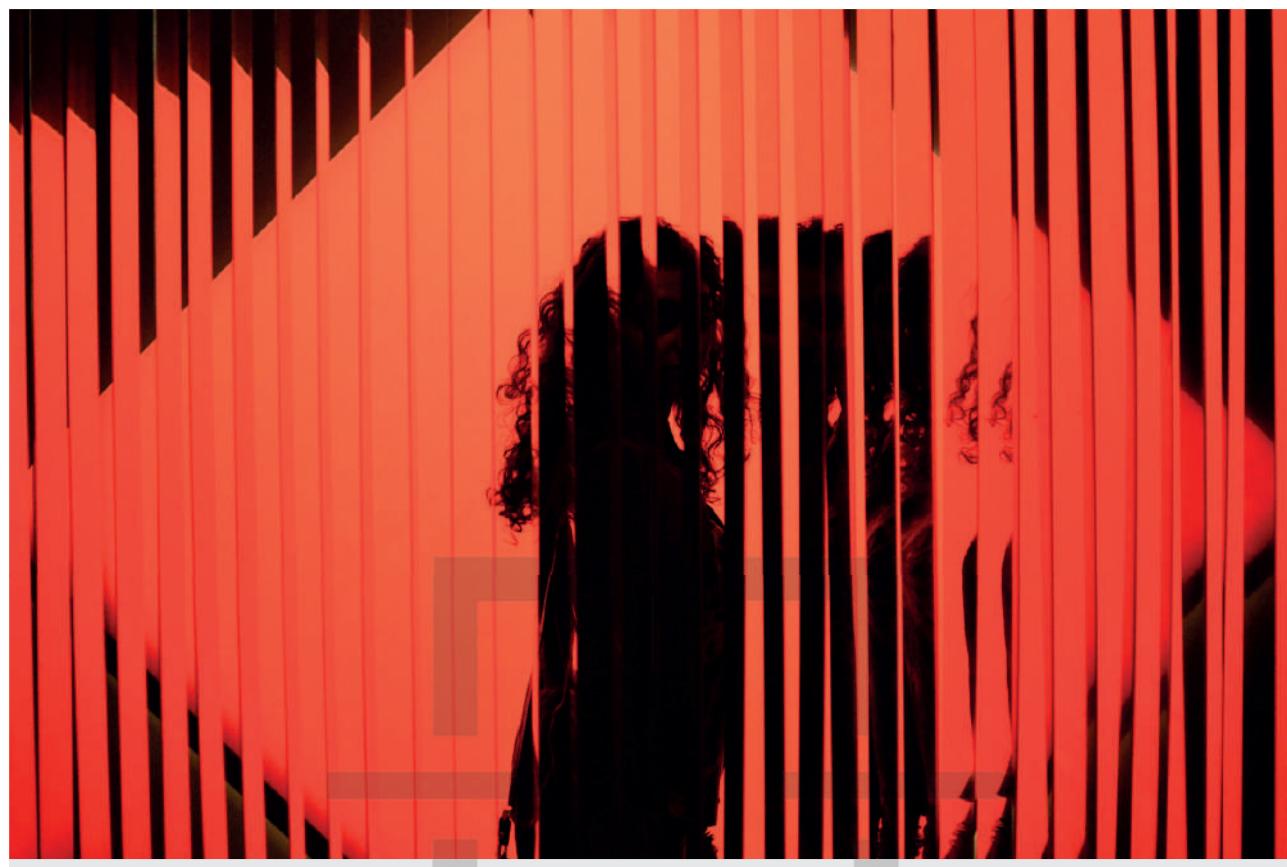


Method

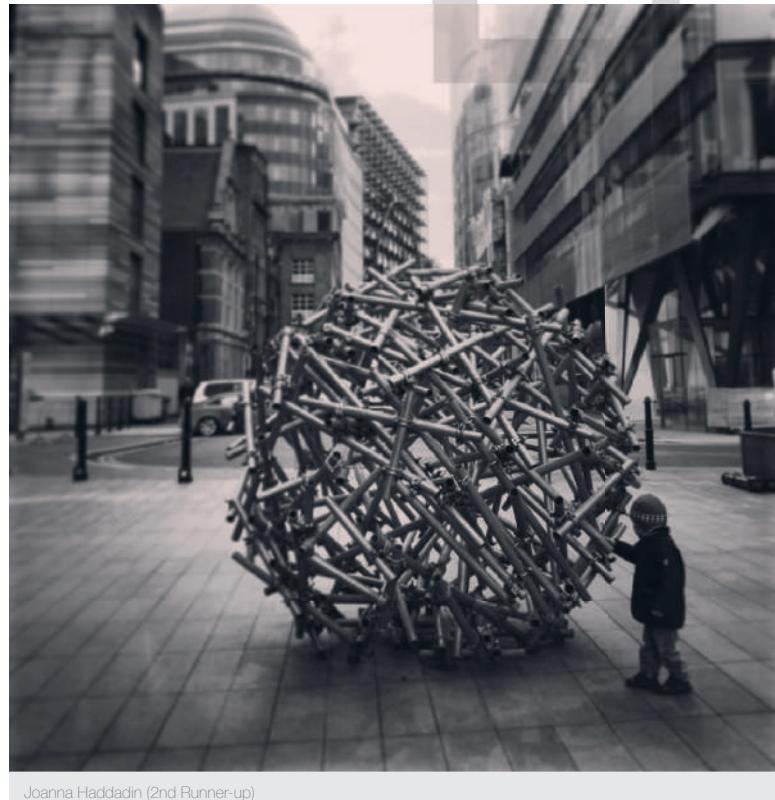
- 5 mins Prepare your ingredients
- 1 min Put all ingredients into your microwavable mug (with a coating of oil to prevent sticking)
- 1 min Microwave on high, then stir
- 1 1/2min Return to microwave and cook until set

Ready! Sit somewhere far from your studio desk, take a break and enjoy!

Photography Competition



Reshma Upadhyaya (1st Runner-up)



Joanna Haddadin (2nd Runner-up)



Yacine Abed (3rd Runner-up)

Inspiration: Websites

By Joanna Burleigh



Urban Workbench

ENGINEERING

URBAN WORKBENCH
<http://urbanworkbench.com/>

Urban Workbench represents the intersection between Civil Engineering, Urban Planning, and Design. The site is intended to act as a workbench, an area where ideas are hammered out, concepts are tried, discussed and debated, and new engineering, planning, environmental and urban technologies are reported on and reviewed.



Iconeye

DESIGN

ICONEYE
<http://www.iconeye.com/>

This is the online version of the Icon magazine, and provides an insight into what's happening in architecture and design today, and what it means for the future. There are constant uploads of interviews with the most exciting architects and designers in the world, visits to the best new buildings, analysis of the most interesting new cultural movements and technologies, and reviews on an eclectic range of exhibitions, books, products and films



Quintin Lake Architectural Photography

PHOTOGRAPHY

QUINTIN LAKE ARCHITECTURAL PHOTOGRAPHY
<http://blog.quintinlake.com/>

Author of 'Drawing Parallels', Quintin Lake's online blog showcases his emblematic structural images, highlighting elegant details and glowing dusk atmospheres. His blog is regularly updated and is full of visual delights to get your creative juices flowing, whilst making you question the language of photography and how to take the perfect photos.

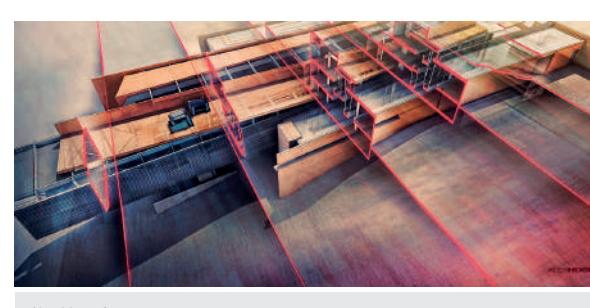


Federico Babina

PRESENTATION

FEDERICO BABINA
<http://federicobabina.com/>

Have a flick through the collections of Federico Babina, an Italian architect and illustrator. He depicts artists, film scenes and portraits into clean cut graphical architectural illustrations in an imaginative and colourful style.



Alex Hogrefe

TUTORIALS

ALEX HOGREFE BLOG
<http://www.alexhogrefe.com/>

Looking for some inspiration to boost your portfolio? Look no further than Alex Hogrefe's Blog to make you rethink how you present your diagrams, sections and renders, with some handy tutorials to talk you through the process.