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CREATURE COMFORT

Nature, real and imagined, elevates Melbourne's new Royal Children's Hospital

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Design &Health
International Academy for Design and Health

Volume 5, Issue 2

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WORLD HEALTH DESIGN
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Contributors

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Are we asking the right questions? Billions are spent on chasing the technologically possible, but are we achieving better health outcomes?

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Cover Image
The new Royal Children's Hospital in Melbourne, Australia, designed by Billard Leece, Bates Smart and HKS (see pp14-15)

Holistic perspectives

There are many reasons to suggest that we have already entered the age of Asia. The greatest evidence of this is the demographic shift in the world's population to the East, combined with the increasingly powerful economic might of China exercised globally as well as domestically (see pp30-37). However, there is a more subtle shift in human understanding that, whilst not rejecting traditional western scientific methodologies and the cultural focus on the individual, is giving greater philosophical credence to the more holistic, cultural and social understanding of the world around us that emanates from the East. The great landscape painter, David Hockney celebrates the natural environment of East Yorkshire in his new exhibition (see pp81-83), but has always rejected of the narrow Western single point perspective, and embraced multiple perceptions in his work. It is a lesson to all architects, designers and health professionals to consider what this means in relation to the concept of evidence, but also to business as Asia shapes the world and economy of the future in ways we may not yet be able to imagine. One way of learning would be to attend the 8th Design & Health World Congress in Kuala Lumpur, from 27 June-1 July (pp8-11). Organised with the Ministry of Health Malaysia, the event will bring together different interdisciplinary and cultural perspectives to enrich your experience, ideas, designs and business.

Marc Sansom
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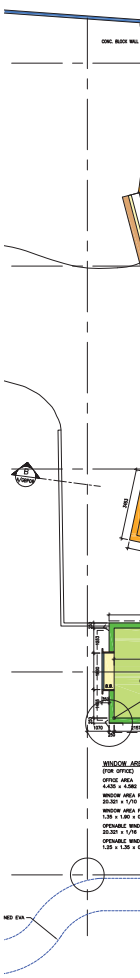

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Charette challenge

The Architects for Health 2012 Student Charette challenged students to design a new paediatric ambulatory care centre

The 2012 Architects for Health Student Design Prize has been awarded following a four-day charette to develop a brief and initial design for a paediatric ambulatory care centre for St Thomas' Hospital in London.

The awards were presented in January at the Architecture Studio of London South Bank University by the current president of the Royal Institute of British Architecture, Angela Brady, and David Rumsey, director for the public sector at MACE, the award's principal sponsors.

Sixteen students competed for the prize, following an international invitation to apply to attend the week-long residential event of site visits, studio work and seminars.

The winning team, comprising students Syndsey Ballet, Anthony Delleur, Tom McAviney and Anna Meredith, had prepared an exciting proposal for an awkward site at an extreme end of the hospital, which faces the Palace of Westminster across the Thames. The proposals were explored freely in refreshing drawings and models and offered a solution that blurred the boundary of the hospital and invited greater interaction with the river's South Bank.

The winning scheme in Architects for Health's student design challenge

The winning student team collecting their prize

Students receiving critical appraisal

"We are delighted with the outcome," commented Jaime Bishop, director of Fleet Architects and a member of Architects for Health's executive committee. "We set the students an impossibly tight programme of events and tasks. The work is refreshing and certainly challenges perceptions of healthcare design.

"In previous years the AfH student competition asked participants to submit work remotely, with a successful shortlist getting the opportunity to present to members at the RIBA. The new charette format grants AfH the opportunity to explore ideas and techniques in detail with the successful applicants within an academic design environment and, wherever possible, take advantage of the surrounding city including working with neighbours such as the Guy's and St Thomas' Trust."

Students were given a personal tour of the sites by Guy's and St Thomas' programme director of estate development, Alastair Gourlay, who commented: "We talked about what it feels like for children in hospital and how design can make a real difference to the experience of coming to hospital. The students were a lively group with lots of great questions and ideas."

Simon Davies, CEO of the Teenage Cancer Trust, who hosted the kickoff seminar and sat on the judging panel, added: "It helped to expand our horizons about 'the possible' whilst teaching students about the challenge of healthcare delivery in the modern age."

The student design charette event is the latest incarnation of the Architects for Health student award, which is now in its 5th year. AfH and partners plan to host the charette week again in 2013.

Asia is open for business

The 8th Design & Health World Congress provides a global stage for sponsors and exhibitors to build their corporate identity, and network with leading thinkers and health strategists and decision makers

Kuala Lumpur Convention Centre, site of 2012's World Congress

A successful partnership with the Ministry of Health in Malaysia has led to the formation of an unrivalled scientific programme for the 8th Design & Health World Congress & Exhibition in Kuala Lumpur, the second time it has been held in south-east Asia.

Up to 1,000 attendees are anticipated to participate from around the world. Corporate development director of the International Academy for Design & Health, Marc Sansom, says: "Providing a unique experience for delegates, exhibitors and corporate partners, Malaysia is one of Asia's most vibrant economies and an ideal gateway to rapidly developing markets in China and the Far East.

"Sponsors and exhibitors can learn and exchange knowledge, promote their business globally and locally, make new connections and extend the horizons and possibilities for their international marketing and global brand development."

Sponsorship opportunities

Sponsors are taking prestigious positions at different levels of participation and association alongside the Academy and its partners to demonstrate their capability, expertise, innovation and solutions-orientated approach.

"In return for their intellectual and financial support, sponsors enjoy opportunities to develop their knowledge of global markets, increase their exposure to the latest research, engage intellectually, network at the highest level and enhance their domestic, regional or global brand," adds Sansom.

A limited number of sponsorship and exhibition packages are still available to match the strategic and tactical marketing objectives of both international and local companies. All offer a unique combination of brand promotion, positioning, networking and business development across multiple platforms, including the congress, awards, the Academy's journal World Health Design, and online.

For more information, contact Marc Sansom at marc@designandhealth.com or on +44 (0)1277 634176

Corporate partners show support for Academy

Despite continuing global economic uncertainty, particularly in the Eurozone, private industry and business is showing its support for the International Academy for Design & Health's strategy to focus on the Asia Pacific market in 2012-2013.

In the Academy's recent round of corporate membership recruitment, corporate partners have recognised the opportunities for ever greater intellectual and marketing exposure as the Design & Health World Congress & Exhibition moves to an annual schedule in Kuala Lumpur in June 2012 and Brisbane in July 2013, while the Academy's regional international symposiums in Europe, Australasia and Asia also become more established (visit http://events.designandhealth.com).

Since last autumn, corporate partners that have signed either one or two year arrangements with the International Academy for Design & Health, often engaging their support across multiple research, event and media activities, include:

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Britplas (UK), Clark Nexsen (USA), Nightingale Associates (UK), Olympus (Germany and Australia), Montgomery Sisam (Canada), Primera Life (UK), HLM Architects (UK), Capita (UK), and Medical Architecture (UK/Australia)

A leading-edge scientific programme will bring researchers and practitioners from around the world together in Kuala Lumpur, Malaysia in June at the 8th Design & Health World Congress & Exhibition

Age of Asia

As the world undergoes a significant economic and demographic shift, Asia will be increasingly at the centre stage of world affairs – socially, economically and politically. Many Asian countries, such as Malaysia, recognise that progressive societies aiming to achieve strong and sustainable economic growth must also be healthy societies. A growing awareness of the importance of health promotion and the need to invest in healthy and sustainable public, social, institutional and domestic infrastructure is placing Asian countries at the forefront of opportunity and the leading edge of change.

Underpinning future professional practice in health promotion by design, the scientific programme of the 8th Design & Health World Congress, organised by the International Academy for Design & Health in partnership with the Ministry of Health Malaysia, will embrace the need for a "salutogenic approach" to health and public infrastructure investment. The salutogenic perspective, when embedded at the core of a preventative care strategy, changes the focus from risk factors and the treatment of disease to a more holistic understanding of the causes of health and the progression towards a healthier global society.

Presentations and networking

At the 8th Design & Health World Congress, delegates will enjoy presentations on innovative and stimulating topics with a broad range of plenary sessions, technical showcases, posters and an exhibition of the latest solutions in the field, providing a unique opportunity for organisations and delegates to network and present their work.

A spectacular opening ceremony enriched with dance, music and cultural entertainment is anticipated on the morning of Day 2 (Thursday 28 June) at which the Malaysian Health Minister is set to describe the government's vision to establish Malaysia on a path to become one of the healthier societies in the Asia region and the world.

Kuala Lumpur's distinctive skyline, with the Convention Centre at the heart of it all

The venue and hotel

Carefully chosen to reflect the values of Design & Health, the Kuala Lumpur Convention Centre will ensure the congress offers an enriching experience for participants.

Located near to the famous Petronas Towers in Kuala Lumpur City Centre (KLCC), delegates will be able to enjoy one of the world's most sophisticated urban centres with a range of hotels to suit all budgets and a selection of high quality restaurants, shops and bars.

The official conference hotel is the Traders Hotel, located in the heart of the KLCC. It offers an incredible location as well as direct access to the congress venue at the Kuala Lumpur Convention Centre, making the journey to the conference in the morning a short and convenient one for delegates.

Traders Hotel offers 571 stylishly appointed rooms and suites; complete 24-hour business services are available, including complimentary wifi throughout the hotel premises. A scheduled shuttle service to Suria KLCC Shopping Mall, video conferencing, ticketing and travel assistance and limousine services are also provided. The hotel also offers private meeting rooms and offices.

Registered delegates for WCDH2012 can book accommodation directly with the hotel at specially negotiated rates, making it convenient and affordable. To register online, visit www.designandhealth.com.

Explore, learn, network and share your knowledge

With many Asian architects now leading the drive towards sustainable built environments that address the challenges of climate change, the original and authentic Malaysian ecological designer, Ken Yeang, will headline on Day 3 (Friday 29 June) with a keynote address that will explore the intersection between ecological and salutogenic design, with a particular focus on healthy and sustainable cities.

Sessions will also include presentations by international physicians as well as psychologists, designers, architects, planners, artists, nursing professionals and economists to bring together as wide a range of perspectives on design and health as possible. The rich selection of conference sessions highlights the importance and value of the interdisciplinary approach.

Topics addressed at the congress will include the latest research findings in the field including health-promoting facilities; research-based design; mental health; quality standards and evaluation; medical technology; community health; and elderly care. In addition, the trends and influences on design and health will be considered in sessions covering different global locations, including Australia, the Middle East, China, India, south-east Asia, Africa, Europe and North America.

A pre-congress session on Wednesday 27 June, presented by the Construction Industry Development Board (CIDB) Malaysia and chaired by its CEO Dr Judin Karim, will address how the interaction of construction management and the design process can impact on the quality, efficiency and sustainability of healthcare provision.

On Sunday 1 July, the final day of the congress, study tours to benchmark public and private healthcare facilities will be arranged. Further details will be provided shortly at www.designandhealth.com.

The high quality of research presented, alongside a fascinating range of case studies, a trade show displaying the latest innovations and solutions in the field, a varied social and cultural programme, and study tours to Malaysian healthcare facilities, will ensure participants enjoy a unique knowledge-enhancing experience in Kuala Lumpur.

To register online and download the preliminary programme and registration form, visit www.designandhealth.

Gala Academy Awards Dinner

The Design & Health International Academy Awards 2012 will be presented at a prestigious ceremony and gala dinner on 30 June. The judging panel consists of experts from Europe, Asia, Africa, Oceania and the Americas. Recipients of the awards will be those who have contributed to the progress of knowledge and demonstrated vision and leadership in exemplary initiatives within the field.

There are ten award categories, plus the prestigious Lifetime Achievement Award. The categories include: Health Project (over 40,000sqm); Health Project (under 40,000sqm); Sustainable Design; Mental Health Design; Elderly Care Design; Use of Art in the Patient Environment; Interior Design; Future Health; Research Project; and Product Design for Healthcare Application.

Sponsorship and exhibition

More than 50 leading international and Asian brands will make up the exhibitors and sponsors within the Kuala Lumpur convention centre. These include architects, engineering firms, art and interior design consultants, as well as suppliers of furniture, furnishings and floor coverings, medical equipment, signage and safety products, and technology and communications. Delegates attending the exhibition only and not the congress may do so at no cost.

The congress is enriched by the support of its corporate partners, and the global expertise and knowledge that corporate industry and private entrepreneurship bring. For details on how to exhibit or sponsor, please e-mail: info@designandhealth.com.


Ray Pentecost III


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Ar Datin Norwina M Nawawi


Dato Dr Abd Rahim Mohamad


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Innocent Okpanum


Debajyoti Pati


Katie Wood


Tarek El-Khatib


Mike Nightingale


John Cole


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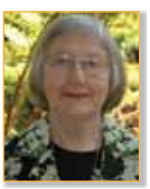
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Kuala Lumpur Convention Centre, Malaysia, 27 June – 1 July 2012

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Children's Hospital of Soochow University, Suzhou, China

"Could" versus "should"

For all the billions spent on hospitals, informed research and superior technology, health outcomes can still be improved. ***Ray Pentecost*** wants to know – are we even asking the right questions?

Over the past few months, I have noticed a growing chorus of members of the global healthcare design community who are expressing a similar sentiment. It comes to my ears as more of a sense of uneasiness shared by individuals who are unsettled in their professional role and contribution. Something seems to be missing in an industry spending more per capita every year on healthcare, yet with sometimes disappointing population health status indicators to show for it.

The message is profoundly simple: Are we, the design community, asking the right questions? A brief interrogatory, to be sure, yet with profound implications. And the corollary that I hear is equally noteworthy, and, frankly, even more disturbing: Are our clients asking the right questions?

Commonly cited in these conversations are references to billion-dollar hospitals, million square foot campuses and patient rooms with every feature, creature comfort and research-informed advance known to the literature. The design mantra is too often built around "would it be possible" instead of "would it be prudent"; around "could we do this" instead of "should we do this". Imagining, and then chasing, the technologically possible has obscured what would be appropriate, yielding results with a sometimes disappointing impact on health and health-system performance.

Imagining, and then chasing, the technologically possible has obscured what is appropriate

It is difficult to blame the client, when all they are trying to do is stay financially viable in a competitive marketplace and offer the best product they can: superior medical care. It is easy to understand their intensely focused view of a market in which the objective is to play by the rules and win: regulation and reimbursement guidelines make it so. Likewise it is difficult to blame the design community, which seeks to please the client, to respect their wishes, to be the best it can be, and provide a high-quality built environment. Design fees are important in a good economy, and even more so in a challenging economy, when big projects have the potential to offer financial viability to entire firms.

And it is this "understandable" marketplace that makes this uneasiness all the more noteworthy. When the design community begins to look the "gift horse" project (and large fee) in the mouth, and question the gift, and even to question the one offering the gift, therein one begins to see the troublesome disconnect in the performance of our healthcare systems. Is anyone asking the right question if what we are getting for our enquiry is more of the same, only newer, bigger, more expensive, and still disappointing in terms of health indicators?

The design community has a role to play in the future of the health of our world's peoples. Consider South Africa, which unveiled a national health plan in January that has a clear focus on health promotion and wellness, with a thoughtful and measured response to the inevitable need for top-quality medical care. The health-promoting lifestyle centres being developed around the country reflect a priority of sustaining and developing a nation of healthy people, as well as a willingness to invest in education, training and social resources to underwrite that emphasis. The medical facilities being developed as part of this new system will be first class, but will be used only for "restoring it [health] when it is impaired" (Hippocrates).

Somebody in South Africa asked the right question(s). We should all be doing the same, in each of our countries, with each of our clients, and quietly with ourselves. May we in the design community be found faithful in working diligently to ask the right questions, to challenge inappropriate momentum, to confront misplaced priorities, to question the shortsighted charges of clients and to speak faithfully and loudly for those who need and earnestly seek good health.

Dr Ray Pentecost III, DrPH, FAIA, FACHA, LEED AP, is president of the International Academy for Design & Health, and director of healthcare architecture at Clark Nexsen

Measured response: South Africa's health-promoting lifestyle centres

Creature comfort

Melbourne's Royal Children's Hospital has set new standards for paediatric healthcare design, with the opening of its state-of-the art facility, overrun with nature both real and imagined. Architects Billard Leece Partnership and Bates Smart took their cues from the hospital's setting in the city's Royal Park, with the intention to create the same sort of enriching and restorative environment that nature can provide. A six-storey Main Street at the heart of the building is more than just a thoroughfare, offering performance space, large-scale artworks, an aquarium and – in what must be a first for a clinical facility – a meerkat enclosure. Main Street faces on to new public gardens, while the inpatient building, designed in a star shape to the north, is woven into the fabric of the park, allowing a closer connection with the outdoors. Medical procedures are conducted away from the calm of the bedrooms, leaving these spaces to be a haven for rest and family time. The separation of clinical and support areas allows those sectors not used for 24 hours a day to shut down, saving energy; further efforts to reduce the building's carbon footprint include bio-mass heating and solar thermal panels, while blackwater treatment and rainwater recovery save water. However, for patients, staff and visitors, it is the hospital's landmark works of art that make the most lasting impression, from the 14-metre-high "Creature" by Melbourne artist Alexander Knox that dominates Main Street, to Jane Reiseger's childlike illustrated environments, teeming with wildlife, that assist with wayfinding.

The Royal Children's Hospital, Melbourne, Australia

Project completion date: 2011
Architects: Billard Leece Partnership / Bates Smart / HKS (US)
Client: State Government of Victoria Department of Health
Size: 165,000sqm
Cost AUS$1bn
PPP Consortium: Childrens Health Partnership
Contractor: Lend Lease
Building Services: Norman Disney & Young
Art consultant: Bronwen Colman

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Even clinical areas can be health-promoting: The Sunshine Radiation Therapy Centre (Silver Thomas Hanley)

All building typologies can promote health: South Australian Health and Medical Research Institute, Adelaide, designed by Woods Bagot

Disease prevention models no longer provide the answers to better health. The way hospitals are designed can help them to take a lead on health promotion. ***Marc Sansom*** reports

Paradigm **shift**

Health promotion and the potential of salutogenics to create a new paradigm in Australasian society that is focused on factors that support wellness and create health, rather than risk factors and the treatment of disease provided the framework for the 3rd Design & Health Australasia International Symposium.

Held last month at the University of Technology in Sydney, architects, designers, engineers, project managers, researchers and health professionals in government, academia and private industry from across the region engaged in a debate that furthered understanding of how the design of the built environment can help to address the modern day challenges of increasing healthcare costs, an ageing population and a rise in the level of lifestyle diseases, most notably diabetes and obesity.

Health policy

In line with a shift in health policy around the world, the Australian federal and state governments are starting to recognise the benefits that a healthy population can bring as a foundation for social development and economic growth. New organisations, such as the Australian National Preventive Health Agency, led by ceo Louise Sylvan, are helping to promote health reforms in Australasia that embed a preventive approach based on better education, evidence and research.

Opening the symposium, Sylvan explained how Australia is facing an 80% increase in healthcare expenditure (from AU$12.1 billion in 2002/3 to AU$21.8 billion in 2017/18) in just three conditions – cancer, cardiovascular disease and diabetes. With over seven million Australians suffering from at least one chronic condition, most of which are preventable, and 50% of hospitalisations in Australia associated with preventable chronic conditions, it is a fast developing crisis of health. The agency, explained Sylvan, would prioritise the top seven risk factors increasing the burden of disease, including tobacco smoking, high blood pressure, obesity, physical inactivity, blood cholesterol, alcohol and low levels of fruit and vegetables.

Recognising that these issues relate to the context of people's everyday lives through the design of cities and neighbourhoods, the development of safe and healthy open spaces, improved transport infrastructure, and better learning and eating environments, Sylvan appealed to designers and architects to engage their expertise in helping to meet the challenge.

Prof Tony Capon from the Faculty of Health at the University of Canberra, developed this theme within the context of climate change, promoting the opportunities for the development of health co-benefits made possible by action on climate change. Referencing the *Lancet Series on Health and Climate Change* (www.thelancet.com/series/health-and-climate-change), he explained how by addressing issues of energy generation, mobility, food choices and housing, we can develop a low carbon way of living that is also a healthy way of living. A new AU$1.5m joint initiative over five years between the University of New South Wales and the NSW Health Department led by Professor Susan Thompson at the City Futures Research Centre, Prof Capon explained, is looking at these issues, focusing on three components of policy-relevant research, workforce capacity and leadership and advocacy.

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Preventive health, as described by Sylvan, is of course just one side of the coin, and Professor Geir Arild Espnes, director, Research Centre for Health Promotion and Resources, HiST/NTNU, Norwegian University of Science and Technology, made a point of defining the differences between disease prevention, which is concerned with protecting the public from potential health threats (Mosby's Medical Dictionary) and health promotion, which enables people to increase their control over their health and its determinants (Ottawa Charter, 1986).

Referencing Aaron Antonovsky's work in 1988 on salutogenics, Prof Espnes described how health promotion, which is concerned with developing the resources to "promote movement toward the healthy end of the [disease-health] continuum", must be the focus because "we have now reached the limit for how much can be spent on disease treatment." He stressed: "It is 'finito'. In the future, we have to work smarter and with other means."

Louise Sylvan

Prof Tony Capon

Prof Geir Arild Espnes

Inge Fottland

Stéphane Vermeulen

Calling for global governments and societies to alter the way they measure success, Prof Espnes identified how three countries, Bhutan, Norway and the UK, have voted to calculate as an official national statistic the quality of life (QoL) of the population as well as the Gross National Product (GNP). Calling for a paradigm shift, Prof Espnes questioned if the disease research paradigm was the best guide to health research (prevent, treat, rehabilitate) or if a new health paradigm was needed. As Antonovsky said, "We spend so much time and money on preventing death, we loose track of what makes us live".

Health-promoting hospitals

The shift towards health promotion and the need to address how we design our urban infrastructure to facilitate opportunities to improve health through more physical exercise, better diet, social and cultural engagement, community interaction and development, does not of course mean that hospitals which are traditionally are places of illness do not have a role to play. To the contrary, hospitals should be taking a leadership role in health promotion, embedding themselves at the heart of the community as places of education and support, as well as medical care.

Presenting St Olavs Hospital, Trondhiem University Hospital, Inge Fottland, former project director for the hospital's development, and now at the Norwegian University of Science and Technology, Norway, described how the facility came to be recognised as one of the most innovative designs in the world. "The main aim of the hospital," he said, "was to develop the university hospital as an organisation of high quality, efficiency and professionalism." Adopting the Planetree model, "where services and treatments came to the patient", Fottland described how the hospital was designed to accommodate decentralised patient care, thereby "providing all round care and treatment, meaningful information and an opportunity to share in decisions".

Recognising the need to develop architecture for the "eyes of the skin", Fottland also described the importance given to the humanity of place, delivered through "meaningful integration with surrounding environments, contact with nature, variations in scale, form and expression, pleasant daylight, views and contact between private, semi-private and indoor and outdoor public spaces."

Similarly, international hospital designs such as VK Studio's award winning 1,000 bed Pediatric Hospital in Ho Chi Minh City, Vietnam, are focusing on wellness. Despite its huge scale, the hospital design has been created as a visual metaphor for the healing environment, with curvaceous, organic forms that are also highly sustainable. "The building's design offers an abundance of natural light and fresh air, and a strong connection between inside and out: the wards are organised around an internal void, so all the rooms have a view of nature," explained Stéphane Vermeulen.

In Australasia, where despite the development of many large hospital developments in recent years, there continues to be a commitment to ongoing capital investment in new projects and a parallel opportunity to learn from international best practice in healthy and sustainable healthcare facilities that promotes wellness in the community. With a proliferation of high quality Australian architects and engineers, such as BVN, Woods Bagot, Silver Thomas Hanley, Hassell and Norman Disney Young, and an increasing presence of international firms such as Medical Architecture, HDR and Arup, there is no shortage of competition or expertise, but only those with a vision that challenges governments and clients to be different, and embrace wellness, will prosper.

Marc Sansom is editorial director of the International Academy for Design & Health

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Brisbane Convention Centre, in the capital of Australia's "Sunshine State", will host 2013's World Congress & Exhibition

Brisbane in Australia is one of the world's most livable cities, and provides the ideal setting for the 9th Design & Health World Congress & Exhibition, which will take place in July 2013

Sunshine and science

Following Australia's successful bid for the 9th Design & Health World Congress & Exhibition 2013 in Brisbane, preparations for the event at the Brisbane Convention Centre from 10-14 July 2013, are underway with many partners and sponsors already committing time and funding to ensure its success.

As the capital of Queensland, Australia's "Sunshine State", Brisbane is considered to be one of the most livable cities in the world, and offers a new and exciting perspective for delegates on the design of a healthy city. With deserts, hills and mountains, tropical rainforests, beaches and coral reefs, Australia's natural environment offers multiple health-promoting qualities.

Healthy challenges

The health status of people living in Australasia is one of the highest in the world, but the region's healthcare systems face similar challenges to the rest of the developed world, characterised by the pressure of increasing costs, an ageing population and a rise in lifestyle diseases. Australasian Governments are starting to implement health reforms that embrace health promotion and embed a preventative approach based on better education, evidence and research.

As the region continues to progress through one of its most prolific health capital investment periods, many new benchmark facilities have also either been completed or are due for completion before the event. As part of the 9th Design & Health World Congress, pre- and post-event tours to all the major Australian states, incorporating study visits and social and cultural attractions, will ensure an experience for delegates that will always be remembered.

Such an environment will make for a vibrant economic and intellectual backdrop to the event. With partner support in place from Queensland Health, the Australasian College of Health Service Management, Events Queensland and Brisbane Marketing, many of the major Australian architecture and engineering firms have agreed their sponsorship support as they seek to exploit the close relationship Australia shares with Malaysia to help ensure that both the 8th World Congress in Kuala Lumpur and 9th World Congress in Brisbane push new boundaries of success.

"The Congress will provide an opportunity to bring together interested people from a wide range of professional backgrounds to share their experience and knowledge," says Kate Copeland, president of the Australasian College of Health Service Management. "A focus on health and wellbeing provides new insights into planning, procurement, design and operation of buildings, neighbourhoods, towns and cities." Gunther de Graeve, managing director of Destravis, adds that "Australia is looking forward to hosting a series of workshops, study tours and pre- and post- congress events, including the Australian Health and Research facilities tour from Cairns to the Gold Coast, Brisbane, Sydney, Melbourne, Adelaide and Perth."

The Call for Papers will be published this October. To make sure you receive a copy and to register interest in participating, exhibiting or sponsoring the 9th Design & Health World Congress & Exhibition, e-mail info@designandhealth.com.

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Small is beautiful

Kaiser Permanente's Small Hospital, Big Idea competition invited design teams to design a top-class facility that works on a local, community scale – and the winners have just been announced

Kaiser Permanente, best known for running large medical campuses in the US, is downsizing – sort of. Last year it sought global expertise in the form of a design competition to create a small, eco-conscious, patient- and family-friendly hospital, the first such competition it has held in its 60-plus years. Nearly a year after the first call for submissions, and after more than 100 entries from around the world, the winners of Small Hospital, Big Idea have been announced.

Why go smaller?

Smaller hospitals present particular challenges, such as scarce resources and a shrinking pool of skilled clinical staff, and Kaiser Permanente added to the tough brief by requesting that the winning facility not only delivers exceptional care, but uses the best in emerging medical technology and makes a "near zero" impact on the environment.

Kaiser Permanente's rationale for the competition is that it now faces a need for smaller hospitals to serve its members in outlying, suburban communities. In the US, smaller independent hospitals, which lack the buying power of larger organisations (for new technology, for example) are feeling the squeeze economically, so the future is more likely to see smaller facilities that are part of a larger umbrella organisation. And small has advantages too, particularly in the light of a broader philosophy of promoting wellness, rather than treating disease: local hospitals can become beacons of the community, a "total health environment". In addition, smaller-scale buildings are less intimidating, with a less institutional feel – and because they don't require such a large footprint, they can be located more centrally, at the heart of the communities they serve.

Winning ideas

Following a rigorous evaluation process, three finalists were chosen last May to work up their initial concepts into modified schematic design packages, with detailed drawings, cost projections and thorough analyses to support their ideas. Their designs were then judged on factors such as efficiency (including their sustainability features), innovation, life-cycle costs, incorporation of methods to improve health outcomes, flexibility, and environment of care (including how successfully the design integrates the hospital into the local community).

Two winners were announced, Aditazz, and Mazzetti Nash Lipsey Burch with Perkins+Will; Gresham, Smith and Partners' scheme was pronounced runner-up. The winning schemes:

- Create spaces to inspire human-to-human connection and collaboration
- Include civic spaces that blur the boundaries between the community and the traditional hospital setting
- Bring nature inside with light-wells and rooms that are oriented around a large central courtyard, building on research that shows a positive correlation between exposure to nature and healing
- Move beyond carbon neutrality to restore ecosystems and biodiversity, and improve the conditions for community health
- Make use of a unique tool that applies silicon-chip technology to the building and design process, enabling designers and frontline professionals to quickly explore an almost unlimited number of operational and space scenarios.

The lobby area in Aditazz's joint-winning scheme

The winning teams are now eligible to contract with Kaiser Permanente for a small hospital project, tentatively planned for southern California (entrants were asked to imagine a 100-bed hospital on a semi-rural site in Lancaster, Antelope Valley, CA) and the model will be adapted for use in other markets as well.

"Kaiser Permanente is enormously grateful for the hard work and thought that Aditazz, and Mazzetti Nash Lipsey Burch and Perkins+Will put into their designs," said Benjamin Chu, MD, MPH, group president of Kaiser Permanente Southern California and Hawaii regions. "Together, they offer us a fresh new approach to delivering care in a way that reinforces our commitment to providing exceptional and convenient care to our members and to building healthy communities. For Kaiser Permanente, sustainability is a health issue. We aspire to provide healthcare in a way that protects and enhances the environment, now and for future generations. This is an important step in that direction."

Joint Winner

Mazzetti Nash Lipsey Burch with Perkins+Will

A "total health environment" – and a new paradigm for civic architecture

M+NLB and Perkins+Will's scheme recognises the small hospital's changing role, from one of sick care to "a central community resource that catalyses a focus on health management and care". A multi-purpose environment, it is a setting where partnerships are formed and develop, increasing social and cultural exchanges on the site, which in turn seeds new economic growth within the community.

The hospital is economical with its space, making sure that no functions are unnecessarily duplicated, but it is also flexible, with modular room sizes, and allows for future expansion by including some distributed shell space. Innovative communication technology features include RFID real-time monitoring of equipment and people; smart-bed technology notifies staff when patients leave the bed, for example.

The building expects to achieve drastically reduced energy consumption as a result of optimised solar orientation and a high-performance envelope, coupled with system innovations. Ground source heat pumps eliminate the need for boilers and a geo-coupled well-field replaces a cooling tower. Controlled natural ventilation systems coupled with displacement delivery and direct outside air fan systems deliver ventilation air. All lighting is LED. A radical approach sees power generation by fuel cells that capture the methane emanating from a local landfill site.

The team saw the small hospital typology as nothing short of "the new civic architecture" with all that this description implies – high-quality, long-lasting, and fostering a sense of ownership for the people that use it, whether they are patients, family members or staff.

Joint Winner

Aditazz

A "healthy village" concept – because supportive communities are more likely to be healthier communities

"The vision of integration across boundaries remains at the core of our proposal, as we anticipate a redefinition of the hospital experience, synchronised with medicine's own transformation from curative to the preemptive, participatory and personalised." Aditazz's "vision of integration" is a three-storey, 118-bed building that envisions everything under one roof, from clinical functions to wellness-related retail, education programmes, events and entertainment.

The hospital sits under an overarching roof canopy, simultaneously providing shelter, and, through the use of photovoltaic solar panels, generating energy from the Californian sunshine. The roof sails over an outdoor plaza – renamed an agora after the Greek to emphasise its civic function and role as an important, active central meeting place. This multi-use outdoor room invites the local community in, and is a place for farmers' markets, art shows, performances and fitness activities.

Operational innovations include a chief nursing officer's "command centre"; an integrated diagnostics centre and adjacent "collaboration hub" that acts as a catalyst for integration between diagnosticians, clinicians, and other practitioners, encouraging improved clinical outcomes; and the use of robots for automated transport.

The "Big Idea" at the heart of the project is the Aditazz Realization Platform, or ARP, a simulation tool that enables designers and other professionals to quickly explore infinite operational and space options.

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Runner up

Gresham, Smith and Partners

Flexible and adaptable, a component-based small hospital that can be adapted to any environment

Flexibility is the key philosophy at work in Gresham, Smith and Partners' scheme. A component-based design means that it can adapt to a rural, urban or semi-rural setting, and can also be sized up or down (in 48, 96 and 192-bed increments).

Like Aditazz, the firm envisaged a "medical village" in which clinical and support services sit alongside education, retail and wellness programmes. A central green area provides a public exterior space, which supports organic farmers' markets, aerobic classes and community concerts.

Gresham, Smith and Partners envisages just seven primary room types – Interventional, Large Imaging, Small Imaging, Universal Care, Large Patient Room, Small Patient Room and Office. This standardisation of the built environment will aid the building's ability to adapt to changing technology and clinical practices in the future.

Energy efficiency is inherent in the site design. The hospital and medical office buildings are oriented with their long axes to the north and south, reducing exposure to harsh morning and afternoon light. An angled building facade reduces solar gain in the summer months. The parking areas will support 28,000sqm of solar photovoltaic panels, providing 75% of the campus's energy needs, plus one or two wind turbines elsewhere on the site. The desert location permits the use of solar hot water collection during the day and chilled water collection at night.

The use of new technology will drive up quality of care – from an "intelligent headwall" that quickly updates patients' records to a micro-pneumatic tube system that can speedily transport meds through the building. An easily navigable site, natural light, views and larger patient rooms to welcome families are all intended to create a positive experience for patients that makes them feel they are in safe hands, and speed recovery time.

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HDR's Beijing International Medical Center, which, when finished, will be the largest medical centre in the world

Rapid **evolution**

Asia's healthcare building boom may need global expertise to create the most innovative, progressive facilities, but traditional medicine's holistic approach to health is relevant to all of us, writes ***Emily Brooks***

China's current building boom has seen the creation of some fearless and innovative buildings that are naked expressions of the country's power and ambition. And, from OMA's Central Chinese Television Building, a stalking giant amid the streets of Beijing, to Kohn Pederson Fox's super-skyscraper, the Shanghai World Financial Center, it is foreign architectural practices that are the creative force behind the boom. "Today's China has both money and mind for probably the largest urban construction movement in human history, a major motivation for first-class architects overseas," wrote China Daily's Liu Yujie last year[1], in an editorial that questioned whether in fact these buildings were too experimental – products of a relatively open brief, too much money and not enough sensitivity to China's traditions and customs.

The same dangers might present themselves in the healthcare building programme that China is currently undergoing. As part of huge investment and reform (in 2009, central government unveiled an 850 billion yuan/£85 billion three-year plan for medical reform), 80% of hospitals have been identified as needing to be rebuilt. Many major global firms have at least one mega-project on the table, from RTKL's 2,200-bed Shanghai Changzheng New Pudong Hospital to HMC Architects' First People's Hospital Foshan (see case study). These facilities must deliver world-class healthcare, in a very short space of time, blending forward-thinking ideas about flexibility, sustainability and a patient-centric approach with China's specific needs.

"China's architectural scene is evolving quite rapidly," says Raymond Pan, design principal and director of Asia at HMC Architects. "There's more need than ever before for architects and designers to understand and adapt to its unique culture and construction practice. In particular, the Chinese healthcare market

Jae Moon Lim

The Catholic University of Korea, Seoul St Mary's Hospital

Project completion date: 2009
Number of beds: 1,200
Size: 175,000sqm
Client: Catholic Medical Center
Cost: $800m (construction cost only)
Architect of record: SAMOO Architects & Engineers
Design adviser: RTKL
Interior design: RTKL (services provided via a separate contract)

This facility is the largest Catholic hospital in the world. A collaboration between RTKL and SAMOO Architects and Engineers, the project saw changes made at construction stage to improve both the building's look and its operational efficiency. Wards were reworked from a five-bed layout to a more flexible design enabling five-, two- or one-bed wards; family waiting areas were added to provide patients with extra privacy. In the OR, facilities were consolidated, with a single clean core, and staff, support services and supplies available to all operating rooms equally. The exterior skin was also redesigned to give a more contemporary appearance.

requires designers to understand how its healthcare systems are delivered and operated. We had to adjust and even reinvent our design approaches and medical planning philosophy to adapt to local medical practices."

"There is huge demand placed on the public hospital system," says Harold Nesland, director of development for the Asia Pacific region at HDR, which is masterplanning a medical campus in Beijing that, when finished, will be the largest medical centre in the world. "And day hospitals don't have an appointments system, so huge queues occur every morning." Alexander Ling, HKS's director of healthcare in China, cites up to 15,000 outpatients a day, "and that's pretty overwhelming. It means we have to make sure the circulation works really, really well."

Nesland also says that "there's much more of an inpatient model than an outpatient model – for cancer it's 80%-plus inpatient and the rest outpatient, whereas in the US it's the other way around. In China, they think that it is more appropriate to care for patients in hospital, rather than going outside and coming in to contact with germs and air pollution – and they would see our system as kind of archaic."

HKS's competition entry for a new children's hospital at Suzhou, inspired by soaring, colourful kites, and the city's waterways

Patient rooms are required to have a certain amount of sunlight a day, says Kevin Kim, senior design principal at Gresham Smith and Partners, "and that dictates the layout of the patient areas, creating long, linear areas all facing south." Kim is lead architect on the 3,000-bed Shanghai Medical City: as part of Shanghai's development plans to topple Hong Kong as Asia's financial centre, it needs a world-class campus that's good enough to attract a wealthy ex-pat population. Kim mentions a further feature of Chinese design guidelines: "They tend to use hard materials in those waiting areas, mainly for ease of maintenance, but that creates a lot of noise. So that's a design challenge – how to you create these really large patient areas that are also comfortable and quiet?"

Millennia-old traditions

China demands respect for its 6,000-year-old medical traditions, and Chinese medicine has its own design requirements, such as providing adequate ventilation for burning herbal remedies. Caroline Sim, senior consultant for medical planning at Mediconsult, a Kuala Lumpur-based planning and consultancy firm, is currently working on a traditional medicine hospital in Hanoi (Vietnamese traditional

First People's Hospital, Shunde District, Foshan, China

Project completion date: Estimated summer 2012
Client: Shunde district government
Cost: US$180m
Number of beds: 2,000
Size: 220,000sqm
Architect/interior design: HMC Architects
Architect of record/executive architect: Shunde Architectural Design Institute (SDADI)
Landscape architect: HMC Architects and SDADI
General contractor: Foshan Department of Public Works

HMC's first major project in the region, this major regional tertiary hospital is the result of a design competition held by the Chinese government in 2009. Oversees architects without a licence to practice in China have to partner with a local firm to serve as Architect of Record, in this case the Shunde Architectural Design Institute, whose responsibilities include completing construction documentation drawing and building approval. Integrating Eastern medicine and culture with Western innovation in healthcare planning and design, First People's Hospital will serve 6,000 outpatients a day. "Innovation is seen as a virtue in China," says Raymond Pan, design principal and director of Asia at HMC Architects. "Our client is very interested in building a hospital that meets the international standard while adapting to some of the unique local medical practices." The hospital's design combines a series of organised buildings linked by a curved spine that creates an impressive interior promenade; a naturally ventilated "eco-atrium" at the heart of the campus is where visitors will spend most of their waiting time. Creating a sustainable building was a major part of the brief, and measures such as solar optimisation and chilled beams mean that overall, the building's performance will exceed local energy regulation by more than 60%.

medicine is similar to Chinese). She explains the integrative approach that is more common now in traditional medicine hospitals across Asia: "They use western diagnostic technology, but the treatment will be mainly using traditional methods. The doctor will take a patient's pulse, look at his features, his tongue, his eyes, and if further verification is needed they will be sent for diagnostic imaging tests, such as a CT scan or X-ray. The doctor will then design a specific treatment method using a traditional system, such as acupuncture, massage or cupping." Traditional medicine's less interventional methods may mean a less equipment-intense hospital, but as Sim notes, "we still try and keep the efficiency flow. That's very important."

HKS's design concept for Suzhou Children's Hospital in China, a 120,000sqm replacement facility in the "Venice of the East", Suzhou, takes a fluid form that mimics the water of the nearby canals, and is also inspired by a colourful soaring kite. All patient rooms face south, and can be naturally ventilated; courtyard gardens also provide light and air.

A natural fit

With its more holistic approach to healing, traditional medicine seems like a natural fit for the progressive design ideas that have already put places like Singapore and Malaysia on the map for its healthcare design. Natural light and ventilation, access to green spaces, and making hospitals more high-quality, pleasant places to be are in line with the Chinese philosophy of overall healing, not just targeted cure. Singapore and Malaysia are now exporting such design expertise elsewhere in Asia, such as Mediconsult's expansion into Vietnam. Demand is also very high for foreign operators to come in to still-developing countries such as Indonesia, Thailand and Cambodia. "There's a shortage of nurses and doctors in these areas, and when you get into areas like cardiology and neurology, there's an expertise gap too," says Harold Nesland. "So there's a huge interest in foreign operators that can help to build a better healthcare model."

There's a huge interest in foreign operators that can build a better healthcare model

Dieter Nassler, director at Mediconsult, says that the real issues lie with strategic reform in these countries: "On the one hand, demand for quality care – and especially curative care – is increasing, and technology is getting better. But countries cannot really afford it without a proper financing system, and the poor will be much more affected." As far as design goes, he says that "in places like Vietnam, Cambodia and China they still have very little experience in how a hospital should be designed – what the proper flows are, and the philosophies or messages you might want to provide to patients."

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Gleneagles Medini Hospital, Johore, Malaysia
Project completion date: Expected December 2014
Client: Parkway Pantai Limited
No of beds: 300
Cost: Undisclosed
Architects: B+H and Silver Thomas Hanley
Mechanical/electrical engineer J Roger Preston (Singapore)
Civil/structural engineer: Leng Consultants
Quantity surveyor: Davies Langdon & Seah, (Malaysia)

Strategically sited just an hour from Singapore's Changi International Airport, Gleneagles Medini in Johor, Malaysia, intends to attract international patients as well as Singaporeans, who can now use Medi-save to pay for health services in selected hospitals in Malaysia (which could cut their bills by half). Client Parkway Pantai is south-east Asia's biggest healthcare provider, and this facility follows on from HOK/CIAP's Parkway Mount Elizabeth Novena Hospital in the region, due for completion in spring 2012. B+H and STH's design for Gleneagles Medini incorporates a street that acts as a central axis for the development, linking a commercial zone to the east, through the phases of the hospital development to the "wellness zone" and a new shopping mall beyond to the west. Off this street, landscaped courtyards overlooked by patient areas have been carved out of the building providing light, aspect and respite. Flexibility has been built in to the masterplan, to take into account the progressive expansion of medical offices suites and a tertiary hospital to meet expanding patient demand, as well as allow for the evolution of cutting-edge diagnostics and treatment.

Fledgling ideas

South Korea is a good example of a well-developed Asian country that in places has more work to do, although outstanding schemes do exist, such as The Catholic University of Korea Seoul St Mary's Hospital, a joint initiative between RTKL and SAMOO Architects & Engineers (see case study). Young-ran Tak, professor of the College of Nursing at Hanyang University's College of Medicine, says that the concept of "healing architecture" in South Korea is "still in its fledgling state. Little, if any, pre- and post-occupancy evaluations are applied, and research-based designs are yet to be introduced." She cites Seoul Asan Medical Centre as having a meaningful healing environment, with its therapeutic gardens available to staff and patients alike; both here and Seoul St Mary's Hospital also make good use of borrowed landscape, she says, with views of Korea's hills, mountains and streams.

Hospital building in Seoul has to accommodate the realities of a rapidly growing urban population, such as providing easy access to public transportation. An unbuilt medical mall by Gresham, Smith and Partners at Seoul National University offers an antidote to the high-rise buildings that have become synonymous with Asian cities, digging down instead (in this case, local restrictions prevented any new above-ground building). The scheme replaces a former parking area with a sunken six-storey arc (three levels of clinics, retail and support space, and three levels of parking), with a park at ground level.

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Gresham, Smith and Partners' subterranean design for a medical mall at Seoul National University is an antidote to high-rise solutions for urban hospitals

Climate resilience

Asia is at the sharp end of climate change, and managing climate change in urban areas is critical. The Asia Development Bank's latest briefing on climate change and health[2] points some of the potential health risks, including poor air quality prompting increased respiratory problems, and rising temperatures leading to more waterborne infectious diseases. It recommends measures that architects and designers can directly affect – some that are specific to healthcare facilities, such as making hospitals and clinics more climate resilient through appropriate use of materials, others that are more broadly concerned with urban planning, such as including more green spaces in urban areas to prevent heat islands.

The creation of healthier Asian communities may have some unlikely inspiration. For example, Katie Wood, leader of Australasia healthcare business for Arup, will speak at this year's Design & Health World Congress (see p8) about how the firm's work with Australia's remote indigenous communities also has relevance to the Asian Cities Climate Change Resilience Network (ACCCRN), for which Arup donates its time and expertise. Wood identifies the importance of appropriate design, but also involving the community in any programme, to ensure long-term engagement. "It's not about just coming in, doing something and going away again. With the climate change programme, it's about being a facilitator and assisting the various different bodies in these cities to work out what they need, and then coming up with something specifically for them – rather than just deciding, 'Right, we're going to intervene and do that.'"

Cross-fertilisation of ideas can promote a new spirit of understanding, and, if international healthcare designers are to be ever-more in demand in Asia, they in turn can absorb the best Asian ideas and accomplishments. From the millennia-old traditions of Feng Shui, where greenery and fresh air are perceived to be essential to good health, to more recent advancements, such as South Korea's state-of-the-art IT, there is much to be gained from looking east.

Emily Brooks is an architectural writer

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Joining **the dots**

A growing body of research is slowly leading to a more nuanced understanding of what does and doesn't work in mental healthcare architecture. ***Veronica Simpson*** explores common emerging themes

Stratheden Hospital's new dementia and mental health unit (see case study, opposite) is informed by extensive research

A review of recent mental healthcare facilities indicates an extreme diversity of approach around the globe. Last year, patient safety and mental health specialist Paul Barach expressed to WHD his fear that Australia and Europe are retrenching into closed-off patient communities. A recent British scheme by Oxford Architects would appear to bear out this fear: William Wake House looks every inch the modern version of the Victorian asylum, complete with neoclassical, country-house stylings and secure parkland setting. On the other hand, there is a slow but steady proliferation of highly tailored, deeply humane spaces for smaller and illness-specific communities, as well as spaces designed to help prevent mental illness (see Sydenham Gardens case study, p45). With ten years' experience of designing mental health facilities, Alice Liang, principal at Canada's Montgomery Sisam Architects, says: "If we speak of global trends, I've come to the conclusion that there is no single trend."

Martha McSweeney, mental health lead for Nightingale Associates, suggests that a growing diversity reflects the fact that health providers are, where possible, trying to create facilities to suit both environmental and urban settings and specific patient groups. This development must, at least in part, be due to the progress that has been made in recent years in demonstrating the efficacy of specific design principles for particular mental health issues, such as dementia.

A choice of social spaces

At Stratheden Hospital in Scotland, Richard Murphy Architects (RMA) has now completed both phases of a facility for dementia and adult mental health patients (see case study). The layout, features and aesthetics of both units have been greatly informed by the pioneering research from the Dementia Services Development Centre at Stirling University and also MAAP's award-winning and humane mental health projects, such as Highcroft in Birmingham. Consequently, Stratheden's patient rooms are oriented around secure courtyard gardens, which are completely accessible. These welcoming units combine the other "must-have" features now proposed in any enlightened healthcare design setting – clarity of wayfinding, natural daylighting, welcoming social spaces, generous fenestration – adding a genuinely domestic, homely quality to patient rooms and a hierarchy of patient socialisation options.

This formula appears to have had a significant impact on patient behaviour, according to Dennis O'Keeffe, projects director and design champion for NHS Fife. He has been conducting post-occupancy research into the impact of the first building, which was finished two years ago. So far, he has charted a reduction in incidents of challenging behaviour by as much as 80%. The statistics are all the more telling in light of the fact that the staff and patient population is almost identical to that in the previous 1960s institutional block.

The apparent effectiveness of these new units is also thanks to a fresh approach taken by O'Keeffe and RMA, along with stakeholders, in brainstorming the design brief. O'Keeffe says: "We put all the prescriptive deterministic NHS tools to one side. We did a literature review of evidence-based

design and got together with charge nurses and other stakeholders and worked back from the perspective that if you had a perfect solution, what would it look like, and how would that translate into a set of requirements for the building?

"Dementia, does not equal inactivity. And we made sure that all of the circulation space had various hierarchies of socialisation. For example, residential bedrooms are 100% en suite. Each has its own pitched roof and seating area. So in their own private space, they have the ability to invite people – friends and family and visitors – in to this space. None of this you will find in the normal NHS memorandums. In the corridors there are alcoves so you can stop and look out or engage; and finally, there is a social space where you can sit down and commune with the group."

The second, more recent, facility is now being reviewed. O'Keeffe says: "In focus groups with staff, one of the key things we got back was just how much the staff enjoy working in the facility and how much the carers are saying they see very positive signs that they [patients] seem to be in better spirits. We are now monitoring to see if there have been reductions in use of psychoactive drugs."

An informal post-occupancy review of Antelope House an adult mental health facility in Southampton, UK by architects Murphy Phillips, revealed some similarly positive behavioural and experiential impacts

Richard Murphy Architects' welcoming accommodation for Fife's elderly dementia sufferers and adult mental health patients replaces dreary accommodation within a 1960s facility declared no longer fit for purpose. Constructed in two phases on a greenfield site at the southern edge of NHS Fife Stratheden Hospital, phase one saw the construction of an 18-bed dementia unit for patients over 65, to be seen as an "end of life" or "last home" building. Overscaled pitched roofs articulate each generous, 16sqm room's position, while creating intimate seating areas in patient rooms, for viewing the south-facing landscape and the hills beyond. A clear circulation route around a secure but highly accessible sensory garden ensures patients always know where they are. The second phase, recently completed, is a 24-bed unit for dementia and adult short-stay patients; these rooms also enjoy generous glazing and views out, with 12 rooms arranged either side of a central circulation spine. A curved rotunda, clad in wood, sits to the entrance's east, serving as staff meeting, rest, and consulting rooms. Post-occupancy research reveals that incidents of challenging behaviour have reduced by around 80%.

Stratheden Dementia and Mental Health Unit, Fife, UK

Completion date: 2010-2011
Client: NHS Fife
Cost: £2.6m (phase 1); £4.2m (phase 2)
Size: 1,145sqm (phase 1); 1,189sqm (phase 2)
Contract type: NEC3 Contract/Procure 21
Architect: Richard Murphy Architects
Structural engineering: URS Corporation Ltd
Contractor: Interserve Building Scotland

from creating a wider range of autonomously accessible – and, more importantly, inviting – spaces for patients. These include social activity rooms, an airy and welcoming central cafe (now popular with staff, patients and visitors), plus interior and exterior gardens. A year into its occupancy, interviews with staff revealed that incidences of aggression had not necessarily reduced, but the impact on surrounding patients had been considerably alleviated. As one member of staff said: "It's made a major difference; if someone was having a bad day before, there was nowhere else for the other patients to go."

Referencing the real world

Although large facilities continue to be vilified in some quarters – for fear of replicating the old asylum model – they appear to be an economic inevitability, especially in North America. However, Francis Pitts, principal at Architecture+, insists that scaling up can lead to a far richer and more "normal" range of activities for patients. The practice is just completing a 320-bed facility in Massachusetts, Worcester Recovery Center and Hospital, for the treatment of long-term adult, adolescent and forensic patients. Eight-bed houses are organised so that patients can emerge from their bedroom into an open and therapeutic living space, then a neighbourhood shared by two to four other "households", then a "downtown" area with vibrant public squares that offer a library, gym, salon, bowling alley and cafe, all within a relatively realistic "streetscape". The ambition is to present a range of choices for patients that borders on normal urban life as much as possible to aid recovery and transition, and to free up movement of patients without the need for direct assistance. Says Pitts: "You can do more things, you can offer more treatment modalities in a bigger hospital than you can in the smaller ones."

The aforementioned William Wake House, by Oxford Architects, may be a large facility – for 132 patients – but it offers a swimming pool,

Sister Margaret Smith Addictions Treatment Centre, Ontario, Canada

Completion date: 2009
Client: St Joseph's Care Group
Cost: Undisclosed
Size: 4,800sqm
Architects: Montgomery Sisam Architects, in association with Form Architecture

Providing residential and non-residential services for sufferers of drug and alcohol addictions, as well as gambling and eating disorders, the Sister Margaret Smith centre has been arranged around two landscaped courtyards, which play a critical part in providing views through to the outdoors as well as tranquil open air spaces, to maximise reassurance for the centre's users. The facility comprises offices, classrooms, research facilities, residential units and a multi-denominational sacred space for clients and the community at large. Simple, robust building shapes, clarity of layout and thoughtful, often natural textures – wood predominates – and colours help create a non-institutional feeling which reinforces both safety and inclusivity.

Ballarat Acute Mental Health Facility, Victoria, Australia

Winner of the International Academy for Design and Health's Mental Health Facility award in 2011, Billard Leece Partnership's project has transformed a formerly forbidding and unwelcoming mental health unit in Victoria, Australia, into a far more humane space. The refurbishment and extension saw the accommodation broken down into two "pods", with independent lounge areas and access to courtyards, giving a more domestic feel. Bedrooms have been extended and refurbished, each now with desk workspace and bench seating for retreat or quiet socialising with family and/or friends. A high, solid fence fronting onto Ballarat's main street has been replaced with a more porous yet secure fence and gate.

Completion date: 2010
Client: Ballarat Health Services
Cost: AUS $4m
Size: 1,800sqm
Architect: Billard Leece Partnership

activity hall, a wide range of workshops including those offering vocational training, a library, medical suite and cafe. All wards have their own courtyards and gardens, and there's a dedicated child and family visitor room. The latter feature is one that many care staff feel would be highly beneficial for patients, as well as encouraging more family visits.

The role of carers, family and friends is one that Nightingale Associates' Martha McSweeney is looking to capitalise on in a new mental health facility they have been commissioned to design for older adults in Kettering. Says McSweeney: "With older adults, carers such as friends and family can have a crucial role. They are part of this recovery. We need to design in spaces for those little conversations you have while walking down the corridor to make a cup of tea. Little informal seating areas can really help – even corridor space, if it is used more purposefully, with really good quality views out."

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The degree of openness to these ideas varies hugely, however, from one country to another and from one client and clinician group to another. As Alice Liang notes: "In an acute inpatient setting, some clients have reservations with words such as 'homelike'. They are more comfortable with phrases like 'less intimidating', 'less institutional'. Although the intent is to create a more normalised and therapeutic treatment setting, sometimes this gives way to concerns for staff and patient safety and security."

There are challenges in Canada, as in Europe, says Liang, with encouraging clinical staff to prioritise patient spaces. She says: "While recognising and acknowledging the now widely proven therapeutic benefits of natural light and outdoor gardens, the clinical staff often face the dilemma of balancing the needs for staff work spaces and provision of these healing spaces for patients. The task for the design team to rationalise space and cost for courtyard gardens is often a major challenge."

Dennis O'Keeffe, however, has plans that may help boost the case for patient space. He says: "Challenging behaviour is a big hidden cost within the NHS. Normal observation (if someone is considered at risk) is one on one, patient to NHS nurse, for 24 hours. If it's a very challenging incident, it's two on one.

"We need a national figure for the cost of each challenging behaviour incident. Extrapolate that over the life of the building as a percentage of the capital cost of the building, and it's a significant amount. By looking at the design features we are building in to prevent challenging behaviours, we can then present it as a case for cost avoidance. When we say it could save up to

Phase 6B, Mental Health Unit, Princess Elizabeth Hospital, Guernsey, UK

Completion date: 2014
Client: Guernsey Health and Social Services Department
Cost: Undisclosed
Size: 5,350sqm
Contract type: JCT SBC05
Architect: Nightingale Associates
Project management: Gleeds Management Services
Structural engineers: WSP Group
Landscaping: Davies Landscape Architects

Nightingale Associates is currently working on a visionary scheme that will unite all of Guernsey's currently disparate mental health units into one coherent site. Adjoining an existing Georgian villa, which will become a separate Child and Adolescent Mental Health Services (CAMHS) outpatient unit, extensive facilities are being added, all of which pivot out from one welcoming reception area. Here the more able patients will run a cafe for residents, visitors and the local community. The facility has to be able to serve the diverse mental health needs of the island's 65,000 population. There are two wards, a ten-bed older adult ward and 16-bed acute ward. Each ward has a central service core, allowing separation of female and male patient bedrooms, but room allocations can be changed according to needs. A flexible extra-care ward can be used as a unit to care for mother and baby patients, those with eating disorders, or short-term medium-secure patients. Each ward opens out to the west to secure courtyards, with views to rural landscapes. Small nooks and a variety of seating areas around the wards plus workshops and meeting rooms facilitate autonomous social, therapeutic and leisure activities.

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10% off the capital cost of the building over its lifespan, then I think they'll sit up and take notice."

The need for really convincing collaborative research of this kind is urgent, if the advances demonstrated in the best of mental health facilities are to be built upon. As Alice Liang points out: "With mental health, the pendulum swings every five years. All this talking about learning from the past, consulting with staff and patients, and yet as soon as someone comes up with a new vision, that pendulum will swing again. Everyone involved in the mental healthcare sector, facility owners and designers, can all benefit from sharing the knowledge of rigorous metrics for measuring best outcome in patients' recovery."

Veronica Simpson is an architectural writer

Sydenham Garden Resource Centre, London, UK

Sydenham Garden is a local charity providing services that complement statutory mental health services, with an innovative approach to therapeutic gardening and creative activities – the idea is to offset or alleviate stress-induced mental ill-health before situations become critical, while giving residents opportunities to train in areas of horticulture, conservation, and arts and crafts. "Treatments" are weekly, for up to 18 months. Architype's new resource centre for the charity comprises office space, a meeting room, flexible training room, one-to-one space, a kitchen and a boot room. The fully accessible building is designed to Passivhaus principles, with super-insulation and triple-glazed windows and doors. An MVHR system provides fresh air while recovering 90% of the heat from the stale air. Lighting is low energy, and external lighting is solar powered. Rainwater is routed into an existing well.

Completion date: 2010
Client: Sydenham Garden
Cost: £300,000
Size: 130sqm
Architect: Architype
Structural engineer: Built Engineers
Main contractor: John Brown
Quantity surveyor: Gordon Hutchinson

Post-occupancy evaluation, such as was undertaken at Maggie's Dundee in 2008, feeds into successive design briefs

Its high-profile projects and unique remit – to create welcoming, non-clinical environments for cancer patients – make Maggie's a compelling cause. ***John Wells-Thorpe*** appraises the charity's recent activities

Momentum at Maggie's

Since the first Maggie's Centre was opened at the Western General Hospital in Edinburgh in November 1996, some 20 projects have been launched, many already commissioned and working and others at various stages of development. In addition, an online support centre has been introduced recently to help people who find it difficult to attend physical centres. As a further development and building on its conspicuous success, Maggie's is currently expanding its presence internationally, evolving and delivering an effective way of supporting cancer sufferers outside of the hospital environment.

Reassessing need

Much of the present success has only been achieved by undertaking constant reassessment at clinical, managerial and architectural levels. Significant among these reappraisals has been a detailed analysis of why and when people attend Maggie's, which can feed into future design briefs, and lead to further improvement. Results of *why* people attend show almost equal emphasis placed on psychological support, state benefits advice, relaxation and stress management, whereas the *when* study shows that the major emphasis centres on help during the time users are undergoing treatment or at post-treatment stage.

In 2008, a post-occupancy appraisal of the Dundee Maggie's Centre, designed by Frank Gehry, was undertaken by Dundee University with the aim of evaluating visitor and staff responses to the building, its physical performance, and the design and construction process. The conclusions identified both successfully attained objectives and those regarded as less successful. This helped to refine the design briefs for future projects. If only more design

Integrated landscaping can convey deep symbolic significance and acute awareness of holistic design

commissioning bodies would follow this example, it would minimise repeated mistakes and limit entirely avoidable expense and frustration.

More recently, in January 2012, a space-use analysis prepared by the Cyril Sweett consultancy studied the London Maggie's Centre adjacent to Charing Cross Hospital London, designed by Rogers Stirk Harbour + Partners (the project won the RIBA's highest accolade, the Stirling Prize, in 2009). It aimed to measure "the impact and functionality of the Maggie's Centre to inform the development of future centres". The study's title does scant justice to its contents, which, very creatively and necessarily, embrace subjective responses from users alongside more measurable observations. For instance, in comparing London with an earlier centre in Edinburgh, it asks users, "Has your impression of the Maggie's building changed over time?" and records the possible characteristics that most accurately reflect the feelings of people using the centre. Simple descriptions like "welcoming", "bright", "friendly" and "relaxing" occur in both locations and are of immeasurable benefit for future application. The study does, of course, also deal with the hard-edged topics like critical adjacencies, pattern and intensity of space use and availability of computers, and taken as a whole is a model document.

Another of the distinguishing features of the Maggie's Centres that is constantly being refined is the emphasis placed on integrated landscaping, which can convey deep symbolic significance and acute awareness of holistic design.

Recent interpretations

Among the latest centres are those in Swansea (officially known as Maggie's South West Wales) and Cheltenham, both of which opened towards the end of 2011. The Swansea centre, which sits with the campus of Singleton Hospital, is the first purpose-built Maggie's in Wales. The region currently sees more than 3,000 new cancer cases each year and the new centre replaces earlier temporary accommodation. It was designed by the Japanese architect Kisho Kurokawa, who sadly died before the scheme was completed, but was further developed by architects Garbers & James, who met him before his demise. The building has a landscaped setting designed by Kim Wilkie.

Kurokawa, who was a great friend of Maggie's founder Maggie Keswick Jencks, based his design on the concept of a cosmic whirlpool, representing a strong symbol of life, with everlasting forces swirling around a still centre. The spiral segments of the building conceptually engage alternate segments of earth and water, separated by shafts of warm light. Hence the concept provides a figure for the configuration of both the interior and the exterior of the building. The central elliptical drum provides a calm, warm social heart to the building, with the wings and associated external terraces providing more personal and focused space from which to contemplate the landscape. The whole composition sits in an elevated position next to woodland. On completing the original design concept, Kurokawa observed that "the connection to the cosmos and contacts between East and West – two motives that Maggie and I shared – are in the design. I hope she would have liked it".

The late Kisho Kurokawa's "cosmic whirlpool", Maggie's South West Wales; the centre opened at the end of 2011

MJP Architects' Cheltenham centre, with its warm timber interior

Cheltenham has private curved "pods" attached to the main space

Maggie's Cheltenham is the seventh Maggie's Centre to open and the second in England. Sir Richard MacCormack of MJP Architects, former president of the Royal Institute of British Architects, produced a sensitive design that restores and extends a Grade II-listed Victorian lodge adjacent to the River Cheltenham and the nearby NHS Cancer Centre at the General Hospital. In common with other Maggie's Centres it mixes sociable space with quieter, more private areas. Users enter the centre through an enclosed landscaped garden with discreet sitting areas. The ground-floor rooms offer private one-to-one spaces whereas the kitchen aims to facilitate communal interaction. The large table, inglenook and stove, comfortable seating, bookcases and fresh flowers make it feel homely and comforting. The garden landscape design is by Dr Christine Facer Hoffman who, interestingly, is a former medical scientist, and who says: "With the knowledge that stimulating landscapes create a healing environment, Maggie's Cheltenham's design is inspired by the mathematically derived sigmoid curve, a tilted S-shape motif, which is a visual metaphor for life and living; aspects so relevant to the Centre."

Influence overseas

It was predictable that the success of the Maggie's programme would eventually be noticed by a wider world, so it isn't surprising that approaches have been made from organisations outside the UK. Plans are advanced for a new building at Tuen Mun Hospital, Hong Kong, designed by Frank Gehry, which is due to open in late 2013 and will replace an existing interim facility. The design comprises a series of pavilions in a garden, so arranged as to permit space to flow naturally between the outside and inside.

Appropriately, the landscape design here is by Lily Jencks, daughter of Maggie, who introduces her design concept thus: "The building itself acts as a bridge over a pond, with four distinct gardens on each side. Sharp orange bodies of carp twist under the water on the two ponds. One pond is orientated towards the lawn, reflecting the view of distant mountains. The consulting rooms overlook this pond, each with a private view. On the other side of the building, the pond is a quiet internal garden surrounding a library 'quiet room', accessible by a short bridge. The path over the bridge takes you through the garden, weaving through many places to sit with native flowering plants and trees: habitats for birds and people alike. This side of the garden – away from the lawn – is walled to provide some protection from a busy road, but also to create an intimate feel.

"The sensations to be found at Maggie's are not extravagant but of a quiet dignity. The building and garden, the plants and the materials, have all been designed to give heart and strength; it is a place to find beauty in your surroundings and the 'joy of living'."

Lastly, the very latest proposal is for a new centre at Sant Pau Hospital, Barcelona. It is being designed by Benedetta Tagliabue who, together with her late husband Enric Miralles, also designed the Scottish Parliament building.

Differing perceptions

So much for facts. There are however one or two outstanding aspects of the programme which merit discussion. Firstly, there are some who say that by hiring famous "signature" architects with international reputations, you get what they are minded to give you at the time, which is often a variant of their current leitmotif by which they are universally recognised, even if sometimes the result is more in-your-face than pastoral. If this was merely a matter of aesthetics it wouldn't much matter, but if the "shock of the new" may cause would-be users to hesitate or feel

alienated (eg. because, say a jagged facade in one is coloured in anthracite grey) then should one pause and reconsider what the design "says" to the viewer? On the other hand, there are those who maintain that unfamiliarity deliberately sets the scheme apart from run-of-the-mill design and the user is more likely to ask, "Is this really just for me?" In other words, by being distinctive, it can constructively underscore the uniqueness of the service offered.

Coincidentally, this very issue was raised by the authors of the space-use analysis mentioned earlier. They devoted a section of their study to analysing answers to the question: "If the Maggie's Centre was in a more conventional building, would it have the same impact for you?" Between 60% and 70% in both London and Edinburgh said that no, it wouldn't. When asked why users said no, the overwhelming majority said that a more conventional design "would be clinical or like a hospital". Although this doesn't answer the real question – because there are plenty of good architects capable of designing a warm, sympathetic non-clinical building that didn't aim to be show-stopping – the enthusiasm for something avant-garde still prevails. Perhaps Maggie herself got the balance right when she said that we want the building to feel like a home people wouldn't have dared build themselves, and which makes them feel that there is at least one positive aspect about their visit to the site that they may look forward to. She added that, in such cases, "Life was more interesting when you left the room than when you walked in."

It was predictable that the success of the Maggie's programme would eventually be noticed by a wider world

The second topic concerns landscaping. As is evident from architectural models, computer-generated images and perspectives all viewed from above, the symbolic complementarity and special affinity of the building and its setting is immediately obvious and reflects both sensitivity and interpretive skill of a very high order. However, when some of the completed schemes are approached at a realistic eye-level, the linkage isn't always obvious. It is sometimes thought that potential users, often worried and hesitant about visiting the centre in the first place, are more likely to be concentrating on where the entrance door is than standing back and calmly admiring the correlation between architecture and landscape. This is not a reason for diminishing the significance of landscaping, but a plea for remembering that the eye's angle of acceptance is very different from a view obtained from a tethered balloon.

Plans for the Hong Kong facility, a series of pavilions in a garden

Where next?

As global recognition of the Maggie's programme gathers momentum, it is probably time to look at additional ways of encouraging patronage and disseminating good practice. This might include the Commonwealth, for instance, which represents a quarter of the world's population and embraces 54 countries, all of whom are separate sovereign states in voluntary association. It is an excellent network, uses a common language (English), and shares a broadly similar governmental and judicial system, all of which makes collaboration easier. The Commonwealth Foundation assists numerous NGOs and may be an effective gateway for introducing the ideals and objectives of the Maggie's programme. Alternatively, the International Academy for Design and Health could offer mutually beneficial links, with the academy's international influence at governmental and academic levels giving it a unique opportunity to stimulate debate, establish partnerships, propagate good practice and encourage research.

So perhaps the thought of Maggie's Centres going truly global one day isn't as far-fetched as it may have seemed to its founders.

John Wells-Thorpe OBE is an architect, architectural historian, writer and former NHS trust chair

Compassion in Kuwait

As the design of children's healthcare facilities grows and develops, Bayt Abdullah Children's Hospice's approach is to put play and fantasy at the heart of palliative care, writes ***John Wells-Thorpe***

When Cicely Saunders founded the modern hospice movement at St Christopher's in south-east London nearly 40 years ago, she could not have visualised how the concept would develop, let alone where its design and organisational principles would be applied subsequently. Saunders had always maintained that "death is not a medical failure, but a natural part of living," and that its quality can be enhanced by sensitive nursing and effective symptom control: in short, dying with dignity. Had she lived longer she would have recognised that, particularly when dealing with children, the notion of "distraction as therapy" would become an equally essential consideration for the architect and clinician alike.

The design of children's healthcare facilities worldwide has developed in great depth recently and completed projects show a wide range of interpretation. An obvious parallel can be found in Maggie's Centres (see p46), whose role is partly to fill the gap between receiving a terminal cancer diagnosis in hospital and a final admission to a hospice.

Growth of the Gulf

Kuwait has a population of about 2.5 million, and since 1938, when oil was discovered, the development of the petro-chemical industry has transformed the country from one of the poorest in the world to one of the richest. After the more recent Iraq invasion had been repelled and the national border reasserted by the UN in 1994, a huge programme of infrastructure work and rebuilding had been undertaken. The entire state has been transformed through oil revenues and health expenditure (per capita) now runs at about US$950 and is rising.

Bayt Abdullah Children's Hospice in Kuwait was opened in January 2012 and is the first hospice in the Gulf region entirely dedicated to children. It was the inspiration of a small group of hospital volunteers led by Margaret Al Sayer and is named after four-year-old Abdullah, whose courage and determination in dealing with his terminal illness they had witnessed. Margaret Al Sayer emphasised that the architects had to be exceptionally responsive to the children's boundless imagination, but also be aware of their physical limitations and constraints. In addition, her group wanted an environmentally friendly scheme and, in view of the fact that funding was from private donations, the designers would need to work to a tight budget.

Specialised care

Initially, the design concept was devised by Alia Abdul Rahman Al-Ghunaim, who designed the facility for her thesis as a final-year architectural student at Kuwait University; she said they needed to

The light and colour of the hospice interiors, by NBBJ (above left), are reflected in Marks Barfield Architects' kaleidoscopic outdoor play zone (above and opposite)

deliver all the top class services of a hospital in a "home-from-home", child-friendly environment, providing specialised care, symptom control and vital psychosocial support to families. This evolved into a final design by Gulf Consult, with interiors by NBBJ.

Outside, the sinuous walkways and a kaleidoscopic ferris wheel were designed by Marks Barfield Architects. Best known as the creators of the hugely successful London Eye, the firm's projects embrace a rare breadth of designs including the celebrated Tree Top Walkway at Kew Gardens, award-winning cultural centre The Lightbox in Woking and a proposed mosque in the city of Cambridge. Such versatility made them an obvious choice for a new concept such as a children's hospice.

Playful and pragmatic

The play areas are seen as an essential component for long-term care rather than a peripheral diversion; alongside the ferris wheel, features include a "magic carpet" and a further observation platform overlooking a flamingo feeding site and nature reserve.

What distinguishes this scheme from others is the flair for reinterpretation by the design and clinical teams. The palliative aims of the hospice may sound familiar to Western ears, but when one factors in marked differences in social order, family structure, religion, climate and economy, a very different solution emerges. That is why we can expect ongoing originality in such projects worldwide, whose differing appearance isn't just the result of transient architectural fashion, but more the necessary refiguring peculiar to each location. And that is how building types have evolved throughout recorded history.

John Wells-Thorpe is an architect and former NHS trust chair

The play areas are seen as an essential component for long-term care rather than a peripheral diversion

The healthcare industry is failing to tap into the enormous benefits that Information and Communications Technology (ICT) could potentially bring to patients and practitioners, write ***Keith Davis*** and ***Richard Morrison***

Future imperfect

While healthcare delivery has benefited enormously from the implementation of modern technology, it is indisputable that there remains a vast untapped potential for health information and communications technology (ICT) to further enhance the quality, efficiency and efficacy of healthcare delivery. This then begs the question as to why the full potential of ICT in relation to healthcare remains undiscovered.

The issue quite simply appears to reside in the universal communications gap that exists between clinical stakeholders and their technical counterparts, created by the reticence of both clinical and ICT practitiones to engage in ongoing solution-based communication. Clinicians mostly feel they haven't been properly consulted on ICT solutions, while designers and suppliers apply precedent as the basis for their advice rather than true empathy.

Using the Apple iPhone platform, with its vast array of "apps", as a benchmark of a successful ICT model, one could easily argue that the healthcare industry has indeed failed to capitalise on the opportunities that the rapidly developing technologies could conceivably provide. What is needed now as a matter of urgency is greater engagement, on a project-by-project basis, between the clinicians and the technocrats.

Potential savings

In his book *Health Care will not Reform Itself* (Productivity Press, 2009), George C Halvorson presents a strong case for ICT and electronic patient records as a means for stemming the US's disproportionate national spending on chronic care. A report by the Milken Institute (2007) indicates that the economic cost of chronic diseases in the US is US$1 trillion, projected to increase to US$6 trillion by 2050. Apart from the obvious patient benefits of effectively managing chronic disease, the potential saving to the public purse of using ICT as a tool to manage chronic disease in patients is immense.

The Olympus ENDOALPHA operating room system provides live HD video imaging

A multiprofessional team using ICT to share knowledge (photo credit: Philips Healthcare)

In its ideal form, health ICT should enable stakeholders to create, access, store, transmit and manipulate patient information in an intuitive and convenient way. It is essential to safeguard patient privacy throughout, and to ensure that the right information is provided to the right clinician, at the right time, for the right patient, as well as supporting the statistical aspects of evidence-based treatment decisions.

Accepting that ICT solutions for individual healthcare facilities will vary significantly depending on the models of care and the array of services provided, it is the case that potential benefits include:

- Time saving for clinicians
- Intuitive ease of use for patients
- Improved quality of care
- Reduction in the incidence of patient treatment errors
- Improved productivity, increased revenue and a reduction in costs
- Accessibility to real-time information
- Secure electronic patient records, accessible nationally and ideally internationally
- Translational research support, and facilitating interaction between clinicians and researchers.

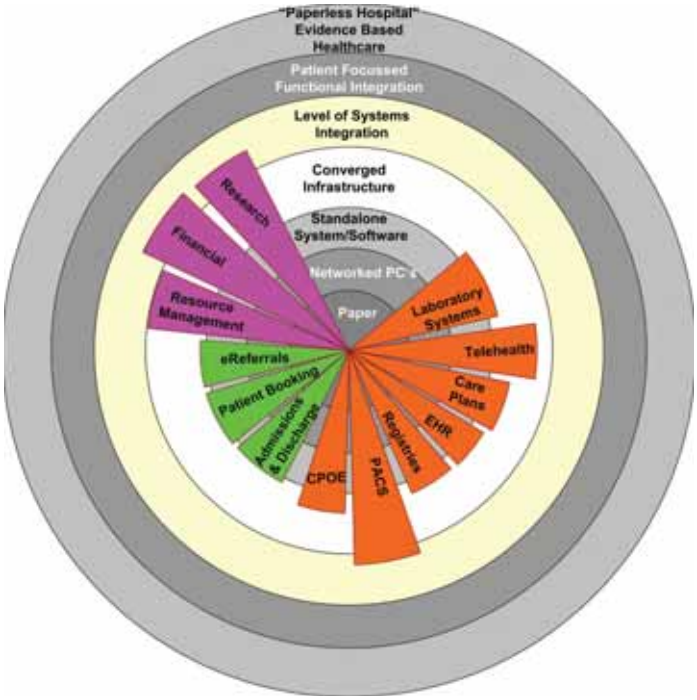
With vast numbers of people embracing hand-held technology such as the iPhone, social media networks are rapidly developing as a support tool for patients, where the sharing of symptomatic details and healthcare experiences can

often provide valuable reassurance to chronic and acute disease sufferers. Twitter, for example, has around 350 million users, Facebook 845 million, and PatientsLikeMe (www.patientslikeme.com) accounts for around 140,000 patients covering 1000+ conditions. Other examples of the role of social networking include Cure Together (www.curetogether.com) and MedHelp (www.medhelp.org).

Beyond feedback and marketing, social networks are beginning to provide a valuable source of information in the form of real-world data related to care, diagnosis and treatment. Other obvious healthcare applications for social networking include clinical trial recruitment, health professional training and public health announcements and campaigns to name a few. The key is giving control back to patients and providing support for a salutogenic healthcare based environment.

Curing information overload

The concept of Calm Technology opens up new opportunities to support a salutogenic patient environment. Calm Technology serves to buffer the effect of information overload by giving the user selective control over their information exposure. This is managed by differentiating the information at the centre of their attention, as opposed to the information that is peripheral. The term was first used by Mark Weiser, chief technologist, and John Seeley Brown, director of the Xerox Palo Alto Research Center. In essence, this concept is aligned with the founding principles of evidence-based design, one of whose key areas of focus relates to giving patients control over their environment, which serves to support relaxation and freedom from stress. In the context of ICT, therefore, this translates into giving patients the ability to check-in online (as they would for an airline) and to assist them with the planning of their hospital stay. Patients and their families can then familiarise themselves with the treatments or surgery they are about to undergo and to understand the nature of the processes they will be subjected to along the way, supported by the associated reasoning. The net effect is to restore a sense of control and calm and to reduce the level of stress often associated with the unknown.



ICT's far-reaching benefits stretch across multiple systems and disciplines

Everyone who has explored the internet has experienced the snail's-pace response associated with poor connectivity. Obviously in the scenario where the social network and internet sites have been referred by clinicians to patients for support, poor connectivity serves to reverse the positive effects of the initiative and to dramatically increase stress levels, which in turn are counter-productive. In Australia, the need for adequate bandwidth to avoid this scenario is largely addressed by the National Broadband Network (NBN), and the advent of Cloud Computing.

Social media networks are rapidly developing as a support tool for patients

NBN has given rise to new technologies such as Gigabit Passive Optic Technology (GPON) which is a proven, robust carrier-class technology. In essence, GPON involves optical splitting of the trunk fibre data feeds into multiple streams, thus replacing the cost and power consumption of powered splitters. There is no degradation in the delivery of data and GPON is being increasingly used on large-scale projects resulting in a significant reduction of on floor data rooms by around 75%, and yielding significant savings in both capital and operating costs.

Australia's NBN provides a platform that allows homes, doctors' surgeries, pharmacies, clinics, aged care facilities and allied health professionals to connect to affordable, reliable high speed and high capacity broadband networks. Specifically, NBN will underpin the growing use of telehealth to support healthcare delivery in regional areas, and to assist also in supporting informed decision making. Remotely operated robotic surgery becomes viable, providing remote country outposts with surgical access to the skill bases normally confined to city-based tertiary facilities.

While the technology is gradually being implemented it is also clear that a cultural shift is needed

Gleneagles Medini Hospital, Malaysia - in association with B+H Architects.

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among our healthcare providers to both share and connect with remote sites. On the face of it, linking service providers is a simple solution, but unfortunately it is fraught with issues. A connection agreement system developed in Denmark allows health firewall administrators to manage and standardise the processes and practices for the approval, implementation and revocation of connections across firewalls. The Danish system defines a standard set of procedures and practices which equates to a simple messaging system.

In Australia, a platform already exists that is able to support this function. AARNet (Australia's Academic and Research Network) is unique in that it is a data carrier created by Australian universities and the Commonwealth Scientific and Industrial Research Organisation (CSIRO) to serve Australian research, education and innovation. AARNet owns access rights to "dark fibre" (unused fibre-optic cable) covering all capital and most regional research and health education campuses around the country, and through its members, has fibre access to most Australian teaching hospitals.

Technology can allow patient-centred care to be realised more quickly and cheaply

Telehealth's multiple benefits

With the introduction of NBN in Australia well underway, Access Economics (May 2010) forecast that telehealth could provide $2 to $4 billion per annum benefit to Australia. In this context, the latest telehealth equipment (produced by Philips, for example) provides remote patient monitoring and home care visits and enables secure, two-way flow of information between remote caregivers and patient; its capability includes, for example, the diagnosis of medical imaging and video EEG monitoring tests (VEEG). Telehealth is clearly an important tool for health delivery to remote locations (in Australia, one in three people live outside of cities).

Another technological development in the form of cloud computing will obviate the need to include large data centres in healthcare facilities. In essence, cloud computing involves the delivery of computing as a service rather than as a product. Users pay as they go and have access to substantial computing ability as and when they require it, which in principle will be enhanced by the NBN. The real benefit is the removal of major data centres from prime hospital space, freeing up opportunities for future "churn" that would otherwise have been compromised by the blocking effect of an on-site data centre. This serviced approach also removes the need for constantly having to update on-site data equipment. Once again, a cultural shift is required from the implied patient safety associated with hosting on-site server equipment housing patient medical records, versus the alternative off-site scenario.

Conclusion

It is clear that ICT technology is constantly developing and connectivity is improving. This is opening up new frontiers for healthcare. The area for concern is whether or not we are able to motivate the formulation of innovative applications to pre-existing healthcare delivery issues in a self-perpetuating manner akin to the Apple model. A prerequisite is in promoting the exchange of ideas between clinicians and ICT technologists so that ICT-based solutions can be identified and customised to support increases in efficiency, productivity and quality of healthcare. As part of this cross-discipline interaction it is imperative that change management be judiciously applied to ensure that all stakeholders are taken on the developmental journey, and, as part of the process, that they are compelled to reassess their business practices before the ICT solutions are finally implemented.

Telehealth is clearly an important tool for health delivery to remote locations

Keith Davis is director of health services at Norman Disney & Young, and Richard Morrison is associate director Norman Disney & Young, Melbourne, Australia

Heart of Detroit

A new $78m heart hospital for midtown Detroit will act as a symbol of leadership, hope and regeneration for the area, say its builders. Part of the Detroit Medical Center (DMC), the five-storey hospital has broken ground, with an expected completion date in 2014: three floors will be dedicated to heart care while the others will serve other disciplines. Nurses, doctors and other clinical personnel had an input into the design, which led to changes such as replacing pod-based layouts with more linear ones, so that nurses can monitor a larger number of patients more effectively. Harley Ellis Devereaux provided design services, with Jones Lang LaSalle programme-managing the project.

Share the benefits

City of Coventry Health Centre (CoCHC) opened to the public in January, and expects to welcome around 350,000 patients a year to its multi-purpose space – a mixture of GPs' clinics, a walk-in clinic, and specialist services such as podiatry, physiotherapy and sexual health. The centre will reduce the need for patients to go to hospital, as well as offering an environment that gives people the tools to manage their own health and wellbeing. Sonnemann Toon Architects' scheme for the 10,000sqm building focuses on creating a welcoming and accessible facility. Externally, this has been realised by cantilevered floorplates that break up the volume to create a lively facade, with coloured panels to give the illusion of smaller scale. The inside, meanwhile, features logical, simplified layouts that are similar on every floor, and some more intimate waiting areas where patients can experience more privacy. The building makes extensive use of artwork, including a five-storey-high LED light installation at the entrance by MacKay Design Studio, and digitally printed wallpaper art in each floor's main waiting area, created in conjunction with Coventry University's School of Art & Design.

Community beacon

Specialist healthcare architect Taylor has completed a new public health building in south Los Angeles, part of the wider regeneration of the Martin Luther King Jr Medical Center campus. Situated in an area that suffers from some of the city's highest rates of sexually transmitted infections (STIs), obesity, coronary artery disease and diabetes, the Martin Luther King Jr Public Health Center's main remit is immunisation and the treatment of STIs and tuberculosis, but it also has a wider focus on community wellness and prevention. The 2,900sqm facility has a glazed facade leading to a double-height, glass-enclosed entry lobby; other areas feature clerestory and wide windows that provide pleasant, light-filled spaces and views to the outside for staff and visitors. A flexible plan means that the centre can achieve its goal of being a multi-use space that will act as a welcoming beacon to the community – classes, health fairs, public meetings and healthy cooking demonstrations can all be held here.

Healthy living scheme for Chester

Gorse Stacks is a new scheme for Chester's city centre that will unite health and social care facilities with residential apartments on a single site. The £30m, 12,000sqm development received planning permission in January, and will include a health centre, social care and local authority facilities alongside 42 residential apartments. Architect Nightingale Associates has been working for three years on the scheme, alongside developers the Watkin Jones Group. The project required special consideration, given that the site it is in a conservation area sitting adjacent to the city's historic walls; the consultation period saw the involvement of English Heritage, the Conservation Area Advisory Committee, the Design Council Design Review Panel, the Civic Trust and local residential groups. Gorse Stacks is due for completion by the end of 2013.

Skyline CG

Emergency department doubled

Steven Whalen Photography

Scripps Mercy Hospital San Diego has doubled the size of its emergency department and trauma centre with the addition of a 1,250sqm facility. Designed by HDR and built by McCarthy, the extension brings the number of beds up to 49, while an in-house lab allows patients to be diagnosed and treated more quickly, and a dedicated CT scanner adjacent to the trauma room bays eliminates the need to transport patients to the hospital's radiology department. The building, named the Conrad Prebys Emergency & Trauma Center, represents the second phase of a four-phase, $41.3m expansion and remodelling project for the campus.

UK to get first proton-beam facility

The world's most advanced form of radiotherapy will be available in the UK in 2017, thanks to £250m of government funding. Around 1,500 patients annually will be able to receive proton-beam therapy; the treatment is particularly suitable for complex childhood cancers, as well as brain, head and neck cancers. A new facility on the University College London Hospitals (UCLH) site will be built to deliver the treatment, although the project is a joint scheme with The Christie Hospital in Manchester. Scott Tallon Walker Architects with Edward Williams Architects and Tsoi Kobus & Associates will develop the building, which will require some highly specialist functionality. Sir Robert Naylor, UCLH's chief executive, said that the project "has the potential to make a significant difference to the lives of hundreds of patients every year. It provides an opportunity for the NHS to become a world-leader in paediatric radiotherapy, and gain an international profile in many complex adult cancers."

Sustainable Therapeutic Environments

Grafted into a mature landscape on the fringe of Northumberland's countryside, Medical Architecture's Ferndene brings together children's mental health and learning disability services for the first time in a design that offers a rich range of settings for care and therapy. The 40 bedroom residential and day centre is for children aged 10 to 18 years old.

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It's about time

Dr John Zeisel is chair of the international advisory board of the International Academy for Design & Health and president of Hearthstone Alzheimer Care

Good environments make us feel better and feeling better is healthier for all of us than suffering. How many times do we have to say this and in how many ways for the point to be accepted as true? This issue's three articles all make this argument employing different means of expression: theory building, systematic research, and poetic description of a bygone time. Golembiewski's ideal salutogenic mental health facility has a back porch with staff waiting to receive disturbed patients and make them feel at home in comfortable personalised rooms. Phillip Mead sees the model of a healthy environment in the sun, ski slopes, skating rinks and hot springs of a classic resort that also served as a military rehabilitation hospital in WW II – Sun Valley with Claudette Colbert dressed to the teeth and Ernest Hemmingway at the bar. Quality environments for people with living with dementia, according to Lee and Dilani, include gardens, living rooms and plants – among other characteristics – and their behavioural effects can be measured statistically.

Designers and environment-behaviour (E-B) researchers have been saying the same thing for at least four decades. Who are we trying to convince? Do policy makers need convincing that investment in quality environments pays off in better healthcare and improved health? Do designers need to be convinced that the quality of the healthcare and other environments they create are essential to user's wellbeing and health? Does the research community need reassurance that nearly half a century of E-B research is valid and reliable? Are we trying to convince others or are we really trying to convince ourselves?

Peter Westlund, a Swedish colleague, visited me recently in Massachusetts and calmly laid out Antonovsky's four basic salutogenic heath promoting life and environmental principles – a sense of coherence in life and environment based on being able to manage things, to understand them and to imbue them with meaning. Sun Valley, Korean and Swedish dementia residences, Australian mental health units – and most other environments – clearly meet their healing objectives when they hang together in our minds (are coherent), do not overwhelm us (are manageable), can be imaged as a whole (are understandable) and fit into our worldview and sense of ourselves (are meaningful.)

How many times does this need to be said? How much proof do we need to accept common sense? When can we move on? It's about time!

Salutogenic environments: **The use of culture, light and water for the promotion of health**

Sun Valley, Idaho, was the US's first European-style health-spa ski resort – a place of life-affirming architecture that used culture to promote wellbeing

Phillip Mead AIA M Arch

"A building is not an end in itself; it frames, articulates, structures [and] gives significance… Architecture reflects, materialises and eternalises ideas and images of ideal life." Juhani Paalasma, Eyes of the Skin

During the Great Depression, the Union Pacific Railroad sought to promote tourism and rail travel to the West by building Sun Valley resort, which aspired to be America's first European-style ski destination. Six years later, to serve the war effort, the resort offered its facilities to the navy as a convalescent hospital.

Before the war, Sun Valley relieved the ill-effects of winter, a season associated with colds, flu, pneumonia, winter blues and depression. It offered its patrons an escape from the long, cloudy, damp winters of New England and the midwest and proposed to medicate them in Idaho's abundant winter sunshine, hot water pools and powdery dry snow. After Sun Valley transformed into a navy convalescent hospital, it offered soldiers a similar treatment to a different set of maladies. The dry mountain air helped treat malaria acquired from the South Pacific;[1] serene mountain scenery calmed those suffering from combat fatigue, and warm water pools treated a host of maladies from injuries to mental illness.[2] The navy additionally used the resort's athletic facilities for sporting activities and visiting entertainers to mentally and physically engage the troops.

The transition from resort spa to convalescent hospital affirms the medical value of light, air and spring water environments. Because the transition also carried forward cultural ideals and activities associated with beauty that appear complementary to the healing process, questions arise from the medical efficacy of aesthetics as a medical agent. To this end, this study examines the neurological mechanisms triggered by light, water and beauty that have been brought to light by the past 30 years of cognitive and neuroscience research.

The area around Sun Valley, in the high desert mountain region of southern Idaho, first established its reputation as a health destination in the late 19th century through its sulfur-rich mountain hot springs.[3]

Phillip Mead

Figure 1: Sun Valley Lodge facing south

The popularity of stimulating vitamin D production by exposure to sunlight in the 1930s solidified its perception as a health destination. The high desert air produced light, powdery snow, ideal for skiing, which prompted Averell Harriman, then chairman of Union Pacific Railroad, and later US Ambassador to both the Soviet Union and Britain, and future Governor of New York, to locate the US's first world-class ski resort in the mountains of south-central Idaho.

Drawing on the area's health-spa legacy, the resort's lodge looked in part like a hot-springs spa and in part like a tuberculosis sanitarium. Building on these associations, the resort enriched the environment culturally by recruiting artistic luminaries and athletes from around the world. As a result, the resort's building programme and plan joined together sunlight, water and landscape to produce settings that served as a theatre for these celebrities and the regular patrons to engage in activities believed to promote beauty and youthful wellbeing. Here, the resort deviated from a typical ski resort and resembled more of an ancient Greek or Roman Asclepiad hospital and sanctuary which relied primarily on belief as a medical agent. According to the book *Healing Spaces*, belief appears to be harder to measure than stress reduction.[4]

The roles of light, water and beauty in the design of Sun Valley were cultivated by an interdisciplinary design team made up of an Austrian count, a resort publicity director, a national parks lodge architect and a railroad CEO. Of these, the most influential designer appears to have been Madison Avenue publicity promoter Steve Hannagan. Hannagan's "total design" effort included aesthetic decisions that ranged from building layout, to logo design, to building facades, and even the selection of the name Sun Valley.

Water and sunshine

Steve Hannagan's promotional instincts seized upon two factors that historically defined health resorts in Europe and America: water and sunshine. The mountain springs near Sun Valley gave the region a healthful reputation because, as regional historian Wallace Elliot wrote in 1884, [the water is] "extremely soft and pleasant to drink and highly beneficial to invalids suffering from different diseases".[5] Historically, mountain spring water has served as an agent for pain relief and healing and is considered an essential ingredient in ancient and modern health spas. The word spa is an acronym for *sanus per aquam,* meaning health through water.[6] Moreover, "sacred" springs are mentioned in all the 320 ancient Greek Asclepiad hospitals.[7]

Even without the minerals or radioactivity found in many renowned health spas, regular household bathing and showering has multiple health benefits. Besides ensuring basic hygiene, baths and showers stimulate the release of pain-relieving endorphins, aid in blood flow and provide relief from bodyweight through buoyancy.[8] Sun Valley resort was modelled after St Moritz in Switzerland, where since Roman times, the waters have been renowned for their healing qualities.[9] Spring water may have been on the mind of Austrian count Felix Schaffgotsch, who attempted to persuade Union Pacific's Averell Harriman of the benefits of the newly discovered Sun Valley. "I am having two swims a day every day in the [Bald Mountain] pool… and I think the question of making an open-air pool near the skating rink in the future ought to be seriously considered."[10] The resort's pools also played a critical role for the rehabilitation of injured marines and sailors in the navy hospital. As the navy weekly newspaper, the Sun Valley Sage, reported: "One of the finest methods of treatment in rehabilitation program is utilisation of two world-publicised open air hot water swimming pools… This treatment is recommended for all types of convalescent cases. This includes patients suffering from severe injuries, tropical diseases and various types of mental illness."[2]

Abundant sunshine was also considered essential to health resorts in coastal and mountainous areas of Europe and America.[11] As the name indicates, Sun Valley possessed copious amounts of it. St Moritz also built its reputation on abundant sunlight, advertised to shine 322 days a year.[9] At the turn of the last century, health spas embraced light and fresh air therapies, and hospital sanitariums built outdoor sunning decks to combat tuberculosis. The Davos Ski Resort just south of St Moritz actually combined both ski resort and sanatorium. In 1903, light treatment gained scientific credibility when Niels Finsen won the Nobel Prize for his research on light's curative effect on tuberculosis. Then,

Sun Valley Resort

Figure 2: Madison Avenue promoter Steve Hannagan (on right, with Union Pacific's CEO Averell Harriman) influenced important design decisions that gave Sun Valley a strong sense of health and vitality

in 1922, scientists found that exposure of the skin to sunshine produced vitamin D. This led to the synthesis of dietary vitamin D2 in the early 1930s, which resulted in its addition to food and drink such as fortified milk, bread, hotdogs and beer.[12]

Promoter Steve Hannagan capitalised on the location's abundant sunshine first by convincing Harriman to rename the resort from Ketchum (the neighbouring town) to Sun Valley.[13] Since Hannagan's target market resided in the East Coast, he realised the value of this name as a brand to those who, like himself, endured New England's long, damp, cloudy winters. Hannagan personally hated the winter cold and preferred to vacation in semi-tropical Miami Beach rather than the icy-cold Rocky Mountains. Since he had previously promoted Miami Beach as an exotic Art Deco resort, he carried forward the sunbathing imagery into Idaho's wintery landscape. He juxtaposed sunbathing pool scenes against snow-capped mountains and rooftops as an exotic image of good health and beauty. Architect Gilbert Stanley Underwood harvested the location's sunshine by installing multiple sunbathing areas around the lodge in strategic places, a design similar to tuberculosis sanitariums in the early 20th century. Programmatically, six public spaces were dedicated to direct sun exposure; three outdoor areas consisting of two large southern terraces and the widely advertised south-west-facing outdoor pool were used for sunbathing.[14]

Although these areas might be perceived as unbearably cold in winter, comfortable sunbathing was assured by harvesting the radiant heat of the warm afternoon south-western sun and by blocking winter wind and breezes with the building and glass

Phillip Mead

Figure 3: Sunbathing in the snow. Sunshine and water provides radiant warmth, while the glass wall and pine trees keep out stray breezes, so that 35°F (1.5°C) feels more like 80°F (26.5°C)

surrounds. In this way, a temperature of 35°F (1.5°C) feels more like 80°F (26.5°C) due to the fact that radiant heat from sunshine effectively counters the ambient temperature from the air.[15] The resorts' promotional literature could showcase sunbathing scenes of well-toned men and women lounging around the pool in an alpine setting. Some Sun Valley literature also promoted "ice igloo" sunbathing: "This health building feature will appeal to everyone. Most healthful too, as the sun's rays, intensified by refraction from the ice walls, are wonderfully stimulating. It is here that the ultraviolet rays works their magic toning-up tired bodies and replacing somber thoughts".[16]

The brochure's claims correlate with recent research, which found that ultraviolet B sunlight produces beta endorphins in the skin resulting a mild sense of euphoria.[17] They also resonate with nearly three decades of bright light therapy for depression, seasonal affective disorder and the regularisation of circadian rhythms for sleep.

Inside the main lodge, several places capture the southern sun. The centrepiece of the second floor is the two-storey Sun Room, which incorporated five south-facing windows, each seven by 14 feet, that harvested an abundance of sun and had views of Dollar Mountain. The white painted walls served to complement the sunlight that departed with Underwood's previous dark rustic national park lodge rooms. At the ends of the second and third floors, guest rooms, also known as Sun Rooms, fully embraced the low south-east and south-west arc of the sun and were sited adjacent to large sun terraces.

The staging of luminaries

Sun Valley's aspirations to be a world-class resort reached beyond the incorporation of mountain water, sunshine and excellent skiing by adding notable luminaries whose zest for life and ambitions enriched the resort's energy and vitality. Ernest Hemingway, Claudette Colbert and Gary Cooper numbered among the luminaries who mingled among the regular patrons. Promoter Steve Hannagan recruited personalities who resembled the three aesthetic gods common to the Greek Asclepiads: Apollo, Aphrodite and Dionysius. Throughout the history of Western art, these gods are strongly believed to be associated with the Western idea of beauty[18] and its qualities of ecstasy. Other than the healing god Asclepius, these three gods appeared frequently in the most popular Hellenistic Greco-Roman Asclepiads which served as sanctuaries and hospitals. Before comparing Sun Valley to the Asclepiads, the cultural "essences" of these gods will be reviewed.

Philosopher Martin Heidegger suggested that the Greek gods expressed animated "essences".[19] This claim correlates with cognitive psychology research that suggests that "essences" are perceived as something that possesses life-affirming qualities and are believed to positively influence those in their presence. These animating forces in different cultures are "chi", "ki", "élan vital", "manna" and "life force". Even the remnants of an essence, such as the relics of holy men or prized items once owned by famous people, can profoundly affect us.[20] These residual items retain an influence because they echo the power that sacred relics had over religious pilgrims who gave up most of their worldly possessions to travel thousands of miles to visit sacred places. This phenomenon is not unlike modern architecture students and professionals who sacrifice large sums of money to see notable buildings and cities. The writer Allen Ginsberg, who made a pilgrimage to Ezra Pound's birthplace in Hailey, south of Sun Valley, lent insight when he stated: "I've come to feel the vibes."[21] Some people, and the places with which they are associated, are believed to possess stronger "essences" than others and their effect is believed to be transmitted to people and vice versa.[20]

Although the patrons of Sun Valley did not use the resort in the same way that ancient Greeks patronised the Asclepiad gods, the charisma of Sun Valley's luminaries possibly transmitted a similar positive effect. The phenomenon known as "trait affective presence" describes the notion that charismatic people appear to animate others with similar positive emotions.[22] The neurological mechanism for this positive effect may lie in the brain's activation of "mirror neurons" (or "empathy neurons") of the pre-frontal cortex. Neuroscience research suggests that these neurons may be responsible for learning cultural norms through emulation and imitation.[23] Similarly, direct or indirect exposure to Ernest Hemingway, Gary Cooper and Claudette Colbert, who were no doubt emulated at Sun Valley, may have positively influenced the mental outlook of skiers escaping from the gloomy north east and soldiers recovering from trauma and injuries.

Additionally, the patrons of Sun Valley, who acquainted themselves with people whom they believed to be beautiful and life affirming, may have experienced something related to a placebo effect. Although the placebo effect is largely based on cultural beliefs and high expectations, the effect is real and estimated to account for a minimum of 30% of a medical curative effect.[4,24] Furthermore, research in the 1990s found that placebos yielded success rates of 60-90%.[25] Research suggests that expectation of receiving a healing agent (placebo or not) triggers dopamine reward pathways in the brain, and that

"the greater the expectation, the greater the release of quantity of nerve chemicals released."[26] In comparison, Ancient Greeks who attended Asclepiad hospitals in the presence of temples dedicated to Apollo, Aphrodite and Dionysius likely experienced high expectations, which may have acted like a placebo to accelerate healing. Likewise, a recovering marine who enjoyed Hemingway's residual presence through reading his books in the navy hospital library, or visiting room 206 in the lodge where he wrote For Whom the Bell Tolls, could have benefitted from this presence, be it neurologically, inspirationally or otherwise.

The celebrities recruited to stay in Sun Valley in its early years (as well as today) display traits of vitality and beauty similar to the Asclepiad gods Dionysius, Apollo and Aphrodite. Dionysius was associated with communal vitality, which leads people to seek out the company of others at public events, such as performances at Greek theatres. Dionysius is associated with wine, revelry, theatre, and raw, unregulated, natural phenomena. His brother Apollo evoked vitality and beauty in the arts through introspection. Apollo was symbolised by the sun and counted enlightenment, poetry, music, literature and the visual arts among the areas of his expertise. According to mythology professor Martin Nilsson, Apollo possessed the ability to harness and regulate the power of his brother Dionysus into something of artistic significance.[27] In a similar vein, the beauty of Aphrodite (and her Roman counterpart Venus) possessed a charming and graceful character capable of taming and civilizing Ares (or the Roman equivalent, Mars), the god of war. Furthermore, Aphrodite acted as a feminine complement to Dionysius and Apollo because she governed relationships and communal activities that lead to social bonding and a sense of community.[28]

The Community Library

Figure 4: Ice Igloo Sunbathing was promoted to revive "tired bodies and somber thoughts"

The luminaries who frequented Sun Valley embodied similar character traits. The architecture and promotional press played a significant role in heightening the character traits of these celebrities by framing and articulating their presence. The book *The Eyes of the Skin* suggests that architecture forms a type of stage setting where "[a] building is not an end in itself; it frames, articulates, structures [and] gives significance… Architecture reflects, materialises and eternalises ideas and images of ideal life."[29] The perception of architecture as the frame, articulation and structure of significant interactions underpins the idea that Sun Valley resort acted as a theatrical stage; one which framed and structured the interaction of its luminaries and patrons to enable life-affirming healing activities which are significant and positive in Western cultures and which may be traced back to Hellenistic Greek mythology.

Stages for revelry, social bonding and entertainment

Sun Valley's planning set the stage for youthful, Dionysian activities by providing places of celebration and entertainment (such as its theatre, dance halls and drinking establishments), as well as providing access to wild, untamed nature. Sun Valley's reputation in large part derived from its wild parties.[1] Asclepiad hospitals incorporated Dionysius in a similar way. For example, these hospitals possessed some of the ancient world's largest theatres dedicated to Dionysus. The largest of these stood at the Asclepiad in Epidaurus, where up to 14,000 patrons watched plays and participated in the Dionysian rites of communal chanting and drinking to the honour of the deity. The energy and ecstasy probably approximated that of high-spirited gospel singing in a church or the synchronised chants of an energised college football game.

Just as the Greek theatres hosted plays, Sun Valley's Opera House theatre served as the focal point for movies and plays at the resort. Other places such as the ice skating rink, the dining halls, ballrooms and bars provided venues where high-quality entertainers could perform and patrons could dance. When the resort transformed into a navy marine convalescent hospital in 1943, the Opera House played a central role in raising troop morale by staging USO shows and movies. Bing Crosby and other acts performed at other resort venues.

Sun Valley's taverns offered a place for Dionysian revelry. Here, singing and dancing, fuelled by alcohol, created a charged atmosphere that enhanced the reputation of its parties. Amid this revelry, Sun Valley claims to have invented the Hokey Pokey dance.[1] Mythology professor Martin Nilsson wrote that "most men are susceptible to ecstasy, especially as members of a great crowd which draws the individual to be filled with a sense of higher divine power. This is the literal Greek word 'enthusiasm', the state in which 'god is in man'."[30] At Sun Valley, the singing, dancing and toasting inside the resort's assortment of party places not only established its convivial reputation, but more significantly, drew patrons out of themselves and bonded them together. At the navy hospital, social bonding could take place in officer and enlisted clubs within the same resort rooms.

Soldiers were encouraged to engage in skiing, skating, tennis, skeet, archery, fishing and hunting. These sports were allowed individually and competitive baseball and basketball tournaments were organised. Basketball in the winter necessitated the construction of a large Quonset hut (similar to the British Nissen hut). These activities were intended to engage the soldiers physically and distract their attention from their infirmities. Because half of the recovering soldiers suffered from battle fatigue, the navy discouraged introspective brooding, which could slow recovery.[31]

Stages for the artist

Within or near the Asclepiad hospital, the healing god Apollo occupied temples and shrines. Like his brother Dionysius, Apollo is depicted as a young man (much younger than his son, the healing god Asclepius who is commonly depicted as bearded and middle-aged). As a healing god, Apollo's presence was staged in shrines or temples on Asclepiad grounds. Likewise, Ernest Hemingway filled the role of Sun Valley's most luminary presence. Recruited by Steve Hannagan in the late 1930s, Hemingway was given room and board in exchange for

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Figure 5: Sun Valley Opera House theatre

Sun Valley Resort

Figure 6: The Hokey Pokey may have been invented in Sun Valley. Photo taken in the Trail Creek Cabin

Sun Valley Resort

Figure 7: Ernest Hemingway tossing an olive to Gary Cooper at a party in the lodge's Sun Room

acting as the resort's artist in residence.[1] Upon arrival, Hemingway and his wife were given the most prominent suite in the lodge in exchange for being photographed while hunting and socialising with fellow celebrities like Gary Cooper, Ingrid Bergman and Jane Russell. To the American public, Hemingway fully embraced the life of an artist and of an adventurer in foreign expeditions and wars. The appeal of Sun Valley to his youthful attitude is clear in a later letter to then-his fiancee Mary Welsh, "I think you would love [Sun Valley] because … the people are young instead of old."[1]

Hemingway's presence is memorialised in room 206 of the Sun Valley Lodge, where he wrote the final draft of For Whom the Bell Tolls. One of four Sun Rooms, with windows on three sides and flanked by private decks, its commanding views of several landmarks including Dollar and Bald Mountain ski slopes, the ice rink and the pool makes it both a place from which to view and to be viewed. When the lodge turned into a hospital in WWII, soldiers were aware that room 206 was where Hemingway wrote *For Whom the Bell Tolls*.[32] Today the room is nicknamed the Harry Morgan Room, after the protagonist in the novel *To Have and Have Not*. The memory of the author's presence drives the popularity of the room to this day.

Gary Cooper was another luminary who frequented the resort before and after WWII. Cooper was hand-picked by Hemingway to play Robert Jordan the protagonist in the film version of *For Whom the Bell Tolls* and the two friends were often photographed together at parties and hunting trips. Other male regulars in the 1930s 40s, and 50s included Clarke Gable, Bing Crosby and Jimmy Stewart.

The staging of feminine beauty

Aphrodite (and her Roman counterpart Venus) also populated several Asclepiad sanctuaries. Like Apollo, she civilised the rage of her opposite Ares (or the Roman Mars), the god of war. As the goddess of love, Greek Aphrodite evokes sensuality, persuasion and harmony, whereas in Rome, Venus is associated with the sacred mother earth and even a Mother Mary figure.[28] According to the Roman writer Marcus Varro, the beauty of Venus is her quality of "Venustus", which he describes as a strong binding force, a force of coherence in the origin of all life which extends to the formation of community. According to the Roman Stoic view, beauty inspired love – which meant goodwill, friendship and fellow feeling more than erotic love. Love meant civic concord and strongly influenced the formation of cities. In the case of the Roman Empire, Venus was esteemed as the mother of Rome and both Caesar Augustus and Julius Caesar claimed her lineage.[28]

The women of Sun Valley also provided a binding civilising presence to the remote mountain resort. The most enduring female presence was Dorice Taylor, who served as Sun Valley's publicist for more than 40 years. In this persuasive role, she crafted a steady stream of press releases and ads that perpetuated the resort's glamorous mythology. Of Sun Valley's early patrons, she wrote "the ladies who gave Sun Valley its class in those days were truly lovely. They were glamorous to the last polished and perfumed toenail, and cultivated to the last well-modulated decibel of their speech…"[33]

Before the second world war, Hollywood women helped launch the resort by playing starring roles in films shot in the area. The first film starred Claudette Colbert in *I Met Him in Paris*, shot during the first winter season in 1937. The stage set further associated the resort with St Moritz by setting a part of the story in the St Moritz train station. Colbert regularly returned to Sun Valley and was described at parties as "the most looked at of all".[34] Colbert's film was followed by Margaret Sullavan's The Mortal Storm in 1940, and then Sonja Henie's *Sun Valley Serenade* in 1941. Henie represented the essence of youthful athleticism as both a world-champion ice skater and a nationally ranked tennis player. As a promotional film, *Sun Valley Serenade* showcased various activities of the resort from skiing and skating to dancing to the Glenn Miller orchestra in the Duchin Room.

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Figure 8: Hemingway's Lodge Room 206, where he wrote and edited *For Whom the Bell Tolls*

After the war, Marilyn Monroe's critically acclaimed Bus Stop was shot at Sun Valley in 1956, followed by Lucille Ball's 1958 TV premiere. Other women who contributed to the resort's sense of vitality were Ingrid Bergman, Jane Russell, Loretta Young and a host of models and New York socialites.[1]

If these women demonstrated an idealised feminine presence, the resort's architecture was able to complement their grace in the lodge formal dining room, the Duchin dance room, the skating rink, the swimming pool, the sun-tanning decks and the ski slopes. The ice rink, which aligned with the lodge entrance, was originally designed to provide an exhilarating first impression by framing the *élan* of figure skaters. Unfortunately, the full impact of the experience was compromised due to the utilitarian placement of the check-in desk.[35]

When the resort turned convalescent hospital, the feminine presence carried forward to navy nurses and the volunteer women in the nearby towns of Ketchum, Hailey and Bellevue. Nurses were seen to play an essential role in therapeutic recovery of soldiers suffering from post-traumatic stress syndrome. Although the doctor's gave the orders, "the nurse acts as a release for an individual's emotional tension."[36] Metaphorically, as Aphrodite tamed the rage of the war god Ares, Sun Valley's 26 officer nurses and 19 enlisted female staff[37] played a role in calming the emotions of those suffering from combat fatigue. Female entertainers also played leading roles in many USO shows, including dance musicals, ice follies and water carnivals. If convalescents wanted the companionship of women, they participated in USO dances in nearby Ketchum, Hailey and Bellevue.[38]

Conclusion

The value of sunlight, spring water, nature and exercise are established therapeutic agents in healthcare design, but the medicinal value of culture and its luminary figures remains less studied. Sun Valley's cultural resemblance to the Greek Asclepiads raises questions about the value of culture and beauty for healing and mental regeneration. Just as pain relievers increase quality of life, exposure to the best that culture can offer may provide a diversion that coaxes the mind to engage more fully with life.

From a salutogenic perspective, exposure to the best of culture may provide individuals a sense of coherence with themselves and society at large. Culture may act as preventative medicine. Just as Asclepiads exposed patrons to idealised versions of art, entertainment, beauty, athletics and celebration, which are also found in many notable cities, then places with enriched culture may be more amenable to healing and health prevention than lonely backwaters. For instance, a place like the Boston Back Bay, with its convenient access to playhouses, parks, athletic stadiums, museums, taverns, churches, libraries and universities, may be more therapeutic than the dilapidated sections of downtown Detroit. If places can offer an exemplary array of life-affirming and esteemed cultural activities and people, both which raise emotions and intellect to elevated, if not ecstatic, levels, then the best that cultures can offer might possess the same therapeutic value as some medications. Perhaps, at the very least, cultural elevation may make the pain and fatigue of illness more tolerable and may provide meaning while counterbalancing the dehumanising effects of many medical regimens.

Author

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Designing for dementia:
Effects of the physical environment on the behaviours in ageing residents with dementia

This study compares elderly facilities in Sweden and South Korea, and finds that the therapeutic environment can ameliorate some of the negative behavioural consequences of the elderly living with dementia

Sookyoung Lee, Alan Dilani

As the population ages, the incidence of dementia and related disease is gradually increasing. The total worldwide cost of dementia care is estimated to be $315.4 billion annually, according to Wimo and his colleagues.[1] This figure implies research into the field of dementia is of high relevance and has potentially affects the lives of a great number of people. In South Korea, elderly people with dementia numbered approximately 400,000 by 2007, increasing to 460,000 by 2010, projected to rise to 700,000 by 2020.[2] Korean medical expenditure on dementia and related disease was approximately KRW 1,700 billion ($1.7billion) during last year.[3] Because of the enormous impact of dementia on the healthcare system, the economy and society, as well as individuals and their family, dementia and its care system produces a massive issue on a worldwide level. One of its major consequences is the growing demand for residential care facilities for the elderly with dementia.

People living with dementia have a lower threshold for dealing with stress, resulting in anxiety and other behaviour disorders when their environment cannot meet their demands.[4,5] An assessment of behavioural problems is critical to develop a plan of care that addresses residents' health issues. For those who suffer from a dementia disorder, the immediate needs are for treatments to sustain their remaining ability and to reduce challenging behaviours such as verbal and behavioural agitation, depression and social withdrawal. For over a decade, researchers have discussed the effects of design and environmental characteristics on the behaviour of the elderly with dementia. It is being increasingly recognised that a person's environment (both interpersonal and physical) plays an important role in fostering or impeding how well an individual with dementia retains existing functioning.[6]

Countries in northern Europe have already experienced a demographic shift toward an ageing society. In Sweden, research found that large-scale nursing institutions had negative effects, with senile dementia sufferers becoming apathetic, depressive or over-demanding.[7] After years of study, they finally realised that a design strategy for the elderly with dementia is more effective than a staffing strategy. The observable therapeutic design features are: a small-group approach; a residential atmosphere; intimate connection with community; and a multi-sensory environment,[8,9,10] providing privacy and completeness, fostering independence, and mental stimulation.[11]

With this background, the purpose of this study is to explore the effect of the design of the physical environmental on the behavioural health of the elderly with dementia, through examining Swedish and Korean facilities. To achieve this purpose, this study will address the objectives as follows: 1) to explore the associations between physical environmental features of the elderly facility and the behavioural health among the elderly with dementia and related diseases 2) to suggest which design features play an important role as a therapeutic tool in a dementia care facility.

Literature reviews

The term "therapeutic environment" is referred to as both the physical design of the setting, and the social environment oriented toward enhancing therapeutic goals and activities. Its philosophy originates with Florence Nightingale, an outspoken advocate for the use of the environment for therapeutic purposes. Her book, *Notes on Nursing* (1860), emphasises the healing properties of the physical environment such as adequate ventilation, warmth, noise control, light, cleanliness, and variety in a sick room. But this knowledge was not applied to the setting required, and was largely ignored

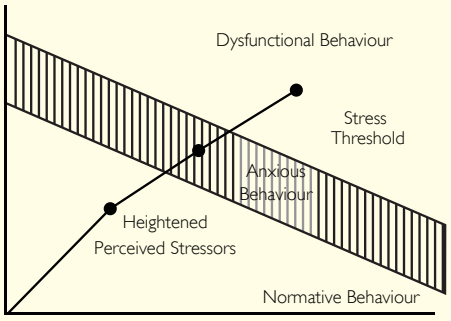


Figure 1: Progressively lowered stress threshold in adults with Alzheimer's and related disorders[15]

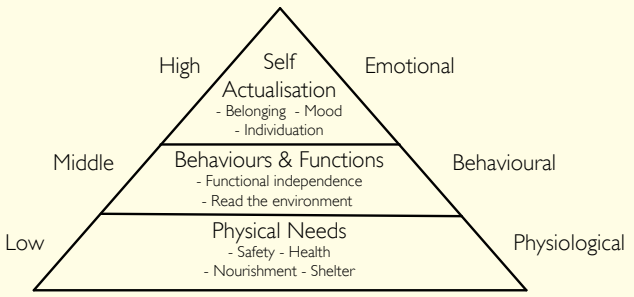


Figure 2: Components of life quality[16]

General Information		Name of Facilities	Do.(n=24)	Sil. (n=20)	Ho. (n=20)	Fle. (n=28)	Ber. (n=35)	Slo. (n=8)
Participating residents' characteristics	Age	Mean (SD)	80.3 (5.5)	81.0 (9.5)	77.7 (8.1)	74.6 (10.1)	84.7 (5.1)	84.0 (8.9)
	Stay Length	Average mnth. (SD)	27.3 (18.4)	12.2 (7.9)	33.9 (23.8)	22.3 (16.8)	34.3 (26.1)	58.4 (23.8)
	ADL*	Mean (SD)	57.2 (39.5)	41.9 (31.8)	31.5 (27.4)	60.9 (31.2)	35.8 (29.0)	15.1 (18.0)
		Range	6 - 100	5 - 96	2 - 74	6 - 100	2 - 86	2 - 57
	Gender	Male f (%)	6 (25.0)	7 (35.0)	5 (25.0)	15 (53.6)	7 (20.0)	0 (0.0)
		Female f (%)	18 (75.0)	13 (65.0)	15 (75.0)	13 (46.4)	28 (80.0)	8 (100.0)
	Spouse	Yes f (%)	12 (50.0)	5 (25.0)	4 (20.0)	11 (39.3)	11 (31.4)	2 (25.0)
		No f (%)	12 (50.0)	15 (75.0)	16 (80.0)	17 (60.7)	24 (68.6)	6 (75.0)
	Severity**	Mild f (%)	6 (25.0)	1 (5.0)	2 (10.0)	2 (7.1)	2 (5.7)	0 (0.0)
		Middle f (%)	13 (54.2)	15 (75.0)	13 (65.0)	17 (60.7)	17 (48.6)	2 (25.0)
		Last f (%)	5 (20.8)	4 (20.0)	5 (25.0)	9 (32.2)	16 (45.7)	6 (75.0)
Participating facilities' characteristics	Opened/Renovation		2005	2007	2003	1950/2000	1978/2009	1995
	Building		4-storey	6-storey	5-storey	2-storey	2-storey	single storey
	Location		capital city/ suburban	large city/ nearby community	large city/ nearby community	large city/ nearby community	large city/ nearby community	capital city/ suburban
	Total residents		100	241	84	46	82	41
	Bedroom Type		mixed two-, five-BR	mixed one, two-, six-BR	five-BR	one-BR	one- BR	one- BR
	Staff to resident ratio		1: 3.5	1: 9	1: 3.4	1: 2.3	1: 3	1: 1.4
	Working hour/day		8 hour	8 hour	9 hour	8 hour	8 hour	9 hour

* Activity of Daily Living: rating from 0 to 100; the higher the score, the more independent
** Mild Stage: a typically early sign is the impairment of recent memory; with the progression of memory disorder other aspects of cognitive deficits
Middle Stage: physical functions are relentlessly impaired, psychiatric symptoms may appear and previous social graces are lost
Last Stage: most patients lose the ability to perform activities of daily living independently

Table 1: Percentage distribution of general characteristics of residents and facilities

for many centuries. During the past several decades, special attention has been given to the pathogenic perspective, which implied that healthcare facilities' main requirement should be construed as the reduction of infection or disease risk exposure. Healthcare designers and administrators concentrated on creating buildings that succeeded as functionally efficient delivery platforms for new medical technology.[12] Emphasis was placed on functionalism, standardisation and rationalisation, resulting in stress, aggression, depression and increased pain medications.

Significant advancements have been made in the past decade in understanding how the environment can affect health and wellbeing. The initial theory to conceptualise person-environment transactions were Lewin's Field Theory (1951), which indicates that behaviour is a function of person and environment: $B = f(P,E)$. The Ecological Model[13] extended and specified terms in the Lewinian equation. It focuses on P competence to meet E demand.[14] Hall and Buckwalter[15] offered a progressively lowered stress threshold (PLST) model, in which baseline behaviour and maximum functional levels can be achieved by supporting losses and by controlling stressors. According to the PLST model, a patient with Alzheimer's or a related dementia disease becomes less able to receive and process environmental stimuli and information. This causes a progressive decline in the stress threshold (Figure 1).

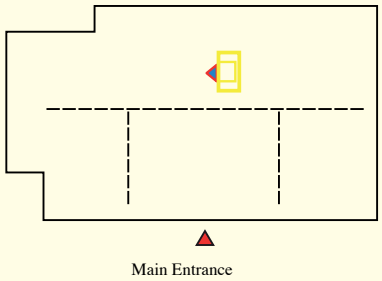
Zeisel[16] emphasised furthermore that residents with dementia have a right to pursue quality of life in the same way as cognitively intact people. On the basis of Maslow's hierarchy, he explains that three levels of need must be met for people with dementia to experience life quality (Figure 2). Researchers such as Lawton & Nahemow,[17] Carp & Carp[18], Calkins,[19] Zeisel,[20] Regnier,[21] Brawley,[22] Cohen-Mansfield & Werner,[23] Cohen and Moore,[24] Dilani[25] and Nord[26] suggest that the environment has a significant, perhaps central role and that it contributes to or enhances therapeutic processes directly. A significant amount of research has recently been compiled demonstrating that residents experience a positive outcome in an environment that incorporates safety, a sense of home, meaningful stimuli, a good programme and activities.

Methods

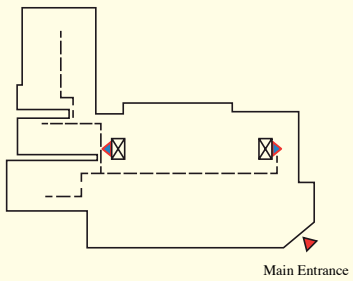
Participating facilities were purposefully selected to maximise variability among the features of the environmental variables with the following criteria: (i) being a special-care facility for people with dementia and related diseases ii) including a unit for residents who have been diagnosed dementia and related disease iii) having opened at least two years ago. Having contacted approximately 20 managers and administrators in Korea and Sweden by phone, email or in person, a total of six facilities agreed to take part in the study; Dobong, Silver and Hosan from Korea and Flemming, Berg and Slott from Sweden. To assess the behavioural health of the residents with dementia, a total of 135 subjects were selected with following criteria; i) moving into the facility at least one month ago ii) diagnosed as having a dementia disease and a related disease iii) permitted to join this study from appointed custodians. Demographic and functional status of the subjects and general features of the facilities are presented in Table 1.

The study used two assessment tools:
1) Physical Environment Assessment
The observation instrument used to evaluate the facilities was modified for the study based on the Therapeutic Environment Screening Survey for Residential Care (TESS-RC) by Sloane and associates (2001). The modified TESS-RC consisted of total 81 items with nine key dimensions:

Dobong in Seoul,Korea

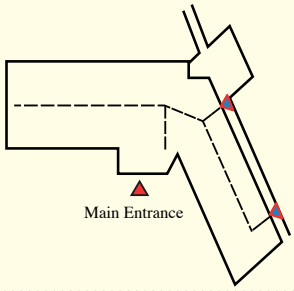


Silver in Pusan,Korea

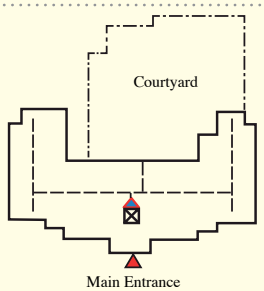


Hosan in Pusan, Korea

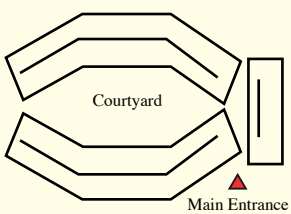
Flemming in Gälve, Sweden



Berg in Gälve, Sweden



Slott in Stockholm, Sweden



- Safety and security (22 items)
- Resident orientation (4 items)
- Stimulation without stress (16 items)
- Privacy and personal control (5 items)
- Facilitation of social interaction (7 items)
- Continuity with residents' past (9 items)
- Cleanliness and maintenance (9 items)
- Edenisation - conversion of an institutional nursing home into a community where patients can lead an active life (6 items)
- Remaining resources (4 items).

The rating scale used was from 1=positive to great degree to 3=negative to great degree.

2) Resident's Behaviour Assessment

Multidimensional observation scale for elderly subjects (MOSES) and Cohen-Mansfield Agitation Inventory (CMAI), short version, were used to assess the behavioural health among the participants. MOSES used in this study provides three behaviour dimensions: disoriented behaviour, depression, and withdrawn behaviour. Each is concerned with a different aspect of functioning and each is based on eight items. The rating scale used was from 1=positive to great degree to 5=negative to great degree. The Agitation Inventory consisted of physical and verbal agitated behaviour with a total of 17 items, rated from 0=positive to great degree to 6= negative to great degree.

Procedure

The main survey of the three Korean facilities was conducted in July and August 2009. In Sweden it was conducted during September and October 2009. The full inspection of each facility took approximately two and a half hours. To increase the reliability of the measurement, two researchers majoring in interior architecture conducted the assessment of each facility. To measure the behaviour of residents suffering from dementia, staff members who were well acquainted with the participants were asked to mark the items on the questionnaire after observing participant's behaviours for a week. Staff in each facility such as nurses, social workers or therapists observed between one and five residents depending on workload and capability. A follow-up mailing was supplemented to remind participants of the survey and to collect all the questionnaires by post. A total 135 of questionnaires was received, 64 of them from Korean facilities and 71 from Swedish facilities.

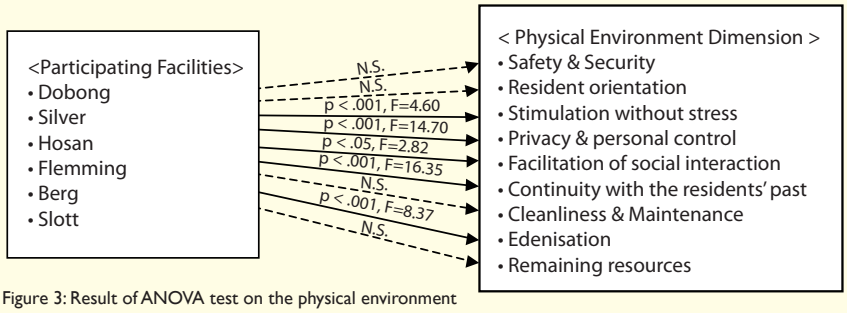


Figure 3: Result of ANOVA test on the physical environment

Analytic approach

The data collected was coded and analysed using Excel and Statistical Package for the Social Sciences (SPSS) for Windows. The main analysis of the data in the study primarily consisted of descriptive statistics, ANOVA tests and Multiple Regression Analysis. ANOVA was conducted to compare different residents' behaviour and physical environmental features of the facilities according to the F-value.

Results

To examine whether the means of physical environmental dimensions differed, ANOVA tests were conducted (Figure 3). There were statistically significant differences in the stimulation without stress, while the dimensions of safety, resident orientation, cleanliness, and remaining resources revealed no significant differences.

Figure 4 displays the means of stimulation without stress in each facility as 2.0, 2.4, 2.3, 1.4, 2.3, and 1.8. It means that the Flemming facility provided more adequate lighting and pleasant tactile/olfactory/visual stimuli in comparison with the other surveyed facilities. Figure 5 revealed the means of privacy and personal control for each facility as 2.8, 2.8, 2.8, 1.0, 1.4, and 1.2 respectively. It demonstrates a clear distinction between the three Korean places, where private rooms/bathrooms or private furniture are rare, and the three Swedish places, all of which house the majority of their residents in private rooms/bathrooms and furniture.

Figure 6 displays the means of facilitation of social interaction for each facility as 1.8, 2.3, 2.3, 1.2, 2.2, and 1.5 respectively. It means that the physical environments of Flemming, Slott and Dobong encouraged social interaction between residents and planned a variety of public spaces for groups. The other three places provided little opportunity for small social gatherings. Figure 7 reported the means of continuity with the residents' past for each facility as 2.7, 2.3, 2.9, 1.1, 1.9, and 1.4 respectively. It shows an obvious distinction between Korean and Swedish care homes. The appearance of Swedish care homes is kept as homelike as possible. The environmental associations with home may be explored through the small scale approach, open kitchen-dining floor plan, and choice of homelike exterior/interior materials.

The environmental dimension of edenisation represents the most considerable innovation. Figure 8 demonstrates the means of the dimension of endenisation for each facility as 2.7, 2.7, 3.0, 1.2, 2.0 and 2.0. The Flemming facility provided residents with living things such as plants and a pet, and gave ready access to the outdoors or to gardening activities. In the Korean facilities, however, poor plants (or an absence of plants) were observed, as well as difficult access to the outdoors, and unattractiveness of the outdoor area.

Concerning the continuity with the past, Korean settings had a lower mean on the dimension of continuity with the past, meaning an institutional-like setting with few personally meaningful mementoes.

The ANOVA test revealed statistically significant differences in disoriented behaviour ($F_{(5, 129)}$=2.76, p <.05), depressed/anxious mood ($F_{(5, 129)}$=2.97, p <.05), withdrawn behaviour ($F_{(5, 129)}$=4.47, p <.001), and agitated behaviour ($F_{(5, 129)}$=3.38, p <.01) between facilities (see Figure 10).

Figure 11 demonstrates the means of the disorientated behaviour in each facility as 21.8, 26.1, 24.0, 21.1, 26.2 and 27.6 respectively. Participants at the Flemming facility showed significantly lower scores – that is, they were the least disoriented and confused compared to other residents, staff, or recent events.

Meanwhile, there were significantly highest scores on the residents at Slott, with a mean score of 27.63. Participants here demonstrated the most disoriented and confused behaviour. Considering their oldest age, longest stay, and lowest ADL, these factors may have affected the disorientation and confusion of the subject suffering with dementia and related disease.

Figure 12 demonstrated the means of the depressed/anxious mood in each facility as 9.7, 14.4, 15.7, 15.4, 14.3 and 15.3 respectively. Participating residents in Dobong exhibited the lowest means of depressed/anxious mood. They seem to be happier and more optimistic than the other residents. Meanwhile, those in Hosan were revealed to be the most distressed and pessimistic as they had the lowest means.

Figure 13 demonstrated the means of the withdrawn behaviour in each facility as 21.7, 23.1, 26.9, 18.7, 23.0 and 24.5 respectively. Concerning withdrawn behaviour, residents in Flemming showed more interest in people, events and activities, and good social relationships, whereas in Hosan, residents demonstrated withdrawal and apathy regarding neighbours and outside events. Figure 14 demonstrates the means of the agitated behaviour in each facility as 4.0, 15.1, 11.8, 16.5, 7.6 and 9.8 respectively. In case of agitation, residents in Dobong showed the least agitated behaviour while in Flemming residents displayed more agitated behaviour.

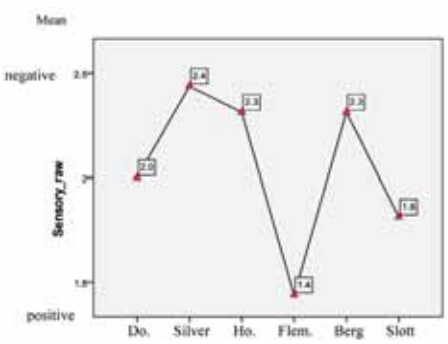


Figure 4: Means of stimulation without stress

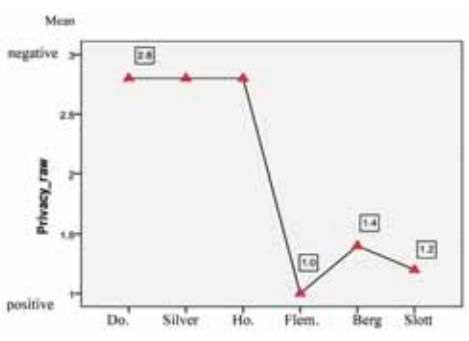


Figure 5: Means of privacy and personal control

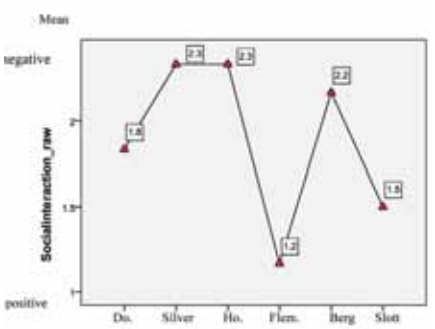


Figure 6: Means of facilitation of social interaction

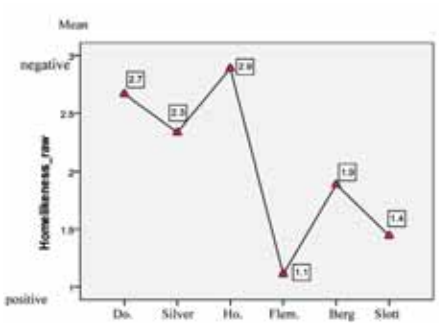


Figure 7: Means of continuity with the resident's past

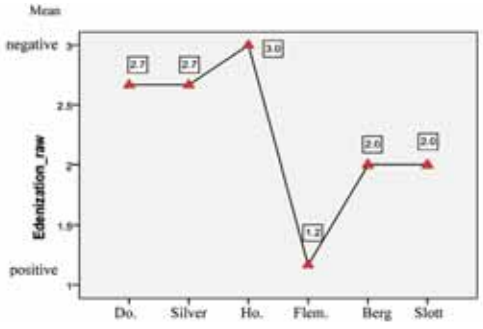


Figure 8: Means of endenisation

In Flemming the wandering and generally irritated behaviours among the agitated behaviours showed the lowest means.

Conclusions

This study examined the associations between the physical environment features and behavioural health of the elderly suffering with dementia. According to the result, the Flemming care home had scored high on environment features with relatively younger and independent residents. The participants communicated relatively well with others, were aware of time and place, and responded to social contacts. Meanwhile the Hosan setting with the lowest score on physical environment, showing a higher degree of depressed/ anxious mood and socially withdrawn behaviours among the residents. In the two facilities mentioned above, residents in Hosan showed no obvious difference in age and severity of disease compared with residents in Flemming. The noticeable differences, however, were observed in physical environmental features and residents' behaviour. Taking into account that the dimensions of stimulation, privacy, social interaction, continuity with the past, and edenisation were shown a marked difference in two facilities, these features may empower the residents and thus reduce their tendency to be depressed and withdraw. Cioffi et al[27] found similar findings.

The present study supports that the therapeutic environment can ameliorate some of the negative behavioural consequences of the elderly living with dementia. In case of Slott, with a comparatively pleasant atmosphere, its residents showed a lower memory ability and comprehension and looked frequently sad and depressed. Considering their oldest age, longest stay in the facility and severity of the disease, these factors may affect the disorientation and confusion of the residents with dementia. This may indicate that the effect of the physical environment on the oldest and severely dependent people with dementia has limitations. However, considering that the oldest residents have stayed for a longer period in the facility, their desirable physical environment seems to play a role of reducing the severity of the disease and sustaining their later time with a high quality of life.

There were clear distinctions between the surveyed facilities in Korea and Sweden on the dimensions of privacy and personal control, continuity with the residents' past,

Homelike atmosphere: conversations and relaxation in the living room

Multi-purpose room used for diverse activities with moveable, easy-to-stack chairs

Landmarks for orientation: a bench and small fountain

An alcove with sitting area in the corridor

A personalised private room with a low windowsill

Photos as reminder of residents' past

Figure 9: Features of some of the facilities with a high-scoring physical environment

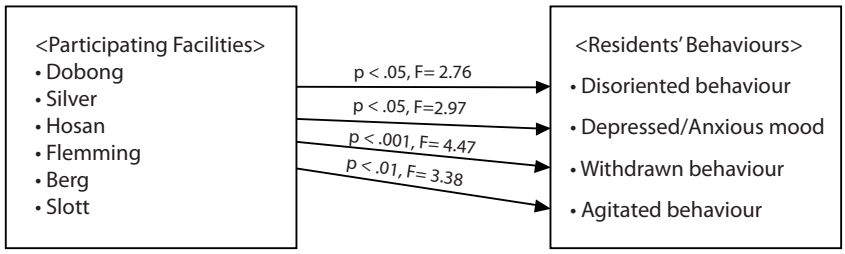


Figure 10: Result of ANOVA test on residents' behaviours

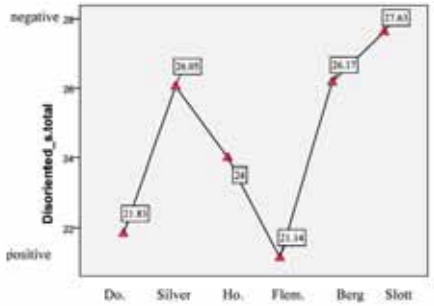


Figure 11: Means of disoriented behaviour

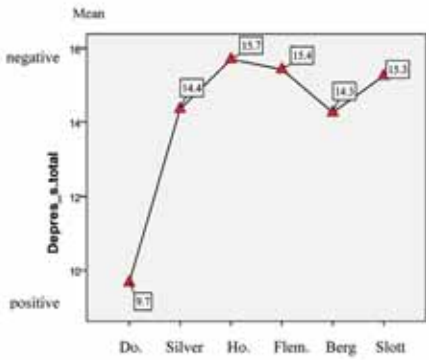


Figure 12: Means of depressed/anxious mood

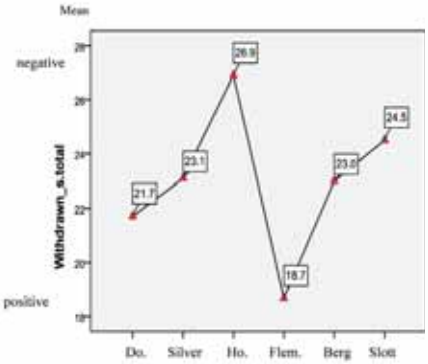


Figure 13: Means of socially withdrawn behaviour

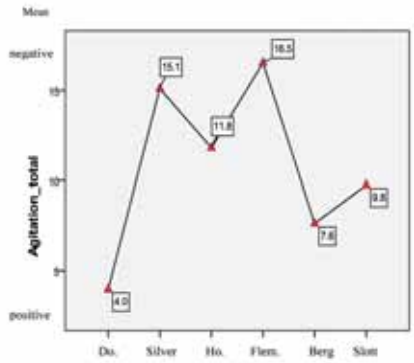


Figure 14: Means of agitated behaviour

and edenisation. It may be suggested that western society, more orientated towards the individual, values privacy more highly than eastern cultures as a factor of a high living standard. According to remarks from the managers in Korea, residents preferred sharing rooms with two or three beds rather than having a private room. The result can suggest that the dimension of continuity with the residents' past, social interaction and edenisation should be more considered in planning a facility for Korean old people.

Limitations in this study would be that the convenience sample and the insufficient sample size, especially in Slott, may limit the general relevance of the outputs. This study is also limited to the context of different care practices, philosophy, and regulation realities among the participating facilities.

Acknowledgements

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Psychiatric Design:
Using a salutogenic model for the development and management of mental health facilities

The prevailing model of psychiatric facility design does not fulfil its potential in supporting the healing process. A salutogenic approach can improve coherence and foster meaning, and will actually improve mental health outcomes, not only manage patient behaviour

Jan A Golembiewski BFA, BArch, MArch, PhD

The current paradigm of the design of psychiatric facilities has a long history, but many historical approaches to the treatment of mental illness were not supportive to healing process. Vestiges of the ancient traditions of imprisonment and punishment of psychiatric patients can still be found in the buildings that healthcare designers are presenting today. In many other healthcare typologies there is a lot of value to be retained in existing models of care, but the same cannot be said for mental healthcare. To move into the future, we have to escape the past.

It isn't necessary to be explicit about the shortfalls of current paradigms, because, to designers, facility managers and directors, magistrates, nursing staff, clinicians, politicians and local community groups, the problem areas are quite obvious and need no elaboration. Instead, this paper outlines a challenge and a methodology for designing a mental health facility that is appropriate for the task and supports the healing process.

The challenge is to bring humanity, aesthetics, love and meaning back into the psychiatric milieu to address the cause of mental illness, not just manage the symptoms.

The future of healthcare

The current escalation of healthcare costs is financially, socially and environmentally unsustainable. Even in places that are highly dependent on private health insurance, government subsidies to the healthcare industry are a major economic problem. It is very expensive to treat an illness once it has become critical; the cost of keeping a person alive when they are suffering from the failure of a major organ is enormous.

Researcher Aaron Antonovsky visualised health as a continuum and the progress of disease as *entropic*[1], meaning the fall from *a state of health* accelerates. The more entrenched illness becomes, the more energy is required to arrest that fall. For this reason 80% of a country's health budgets are spent trying to prevent the inevitable – the hospitalisation and treatment costs that arise in the last year of life from preventable disease.[2]

With limited resources we must reverse the entropy of disease much earlier, while it is still affordable. Early intervention is much cheaper, but the benefits are not only economic but social and environmental as well – worldwide vaccination programmes and similar massive scale interventions have already tested this approach and found them to be spectacularly successful.

Hundreds of studies show how minor and apparently non-causal interventions can improve health outcomes and shorten hospital stays. They identify views of nature, passive plants, hand-washing, appropriate lighting, single bedrooms and a number of other interventions.[3] Even in mental health, small things, like the decor of a unit, reduce stays by 25%.[4] But can such interventions occur before a patient ever gets sick, by preventing the risk factors that are embodied in the built environment? Antonovsky shows that they can. The principles he proposes are called salutogenics.

Salutogenics

The theory of salutogenics is critical of the current model of illness. An illness doesn't occur with the development of a distinct pathology, but well before, with any slippage from an idealised state of health. In this model the state of health is a continuum, with an idealised state of perfect health and wellbeing at one end, and illness at the other. The only point of definition is at the far end of illness, and it is death (see Figure 2).

This continuum has competing forces working in either direction. The forces

John Gollings

Figure 1: This facility, designed by Bates Smart and Irwin Alsop, make spaces look less institutional and avoids depersonalisation

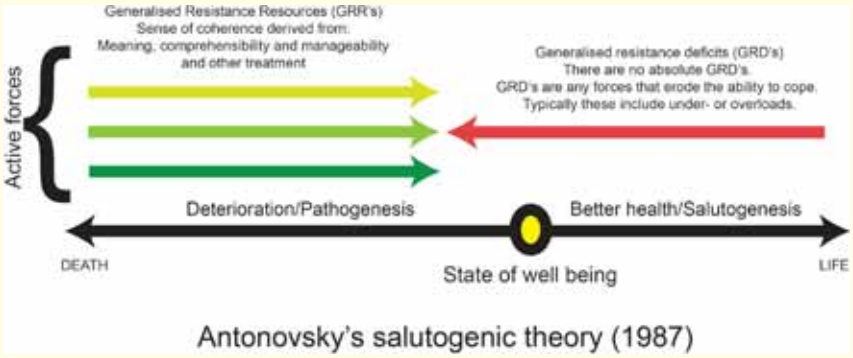

Figure 2: The principles of salutogenics, as visualised by Antonovsky[4,5]

driving a person toward health are called generalised resistance resources (GRRs) and those that drive toward illness and ultimately to death are generalised resistance deficits (GRDs). Both GRRs and GRDs are life events, but it is how they are dealt with that is important to designers and facility staff. A stressor may push one person over the edge, and another may not notice the stressor at all. The difference lies in what Antonovsky called the *sense of coherence* (SOC): "The confidence that, as in the past, things by and large, work out well."[6] The SOC is powered by three engines: *manageability, comprehensibility and meaning*. The GRDs, on the other hand, reflect inabilities in dealing with situations, paralysis in the face of life's continual challenges. These reflect deficits in manageability, comprehensibility and/or meaning.

A strong SOC provides motivation for action and an understanding of the situation at hand, but a weak SOC is paralysing. There is no impetus to act, nor knowledge of what's at stake or what action to take in any case. Thus very similar circumstances have very different effects on different people. In Antonovsky's time this was difficult to prove. Questionnaires like the ones used by Antonovsky could show no more than correlations, because individual circumstances are never the same and the variables in real life situations are impossible to control, even inside a lab. To get around this, some scientists created a virtual reality experiment where people were given a virtual experience of a trip on the London Underground.[7] In this way, the expressions and behaviours of every passing stranger could be guaranteed to be identical and strictly neutral. The experiment showed that even healthy people interpreted the same circumstances very differently and behaved differently accordingly. Where one subject said things like: "It was nice – much nicer than a real experience. I thought they [the virtual commuters] were pretty friendly," another subject said: "There was something dodgy about that guy. Like he was about to do something – assault someone, plant a bomb, say something not nice to me, be aggressive."[8] These reactions depend hugely on the SOC.

Differing design approaches

Recent reviews of all the mental health units in New South Wales, Australia, and the Australian Health Facilities Guidelines[9] found that the decisions embodied into existing units and even the guidelines themselves were based on little or no evidence *at all*. In many cases, the units and the guidelines contrasted starkly to existing evidence.[10] Importantly, Health Infrastructure, New South Wales Health, Australia recently made a statement that the guidelines are "only guidelines" and that the reliance on them is being "rolled back".[11] This will improve healthcare design, because it liberates design teams to employ a variety of design methodologies, such as research-based design, which adopts an instructive approach to research recommendations, and the more prescriptive evidence-based design (for a brief review see McCuskey Shepley, Pasha, and Huffcut's forthcoming survey in Facilities[12]).

An example of the former is the salutogenic approach for psychiatric healthcare design, a research-based methodology developed specifically for psychiatric unit design.[13]

Customisation

Most mental disorders don't have known pathologies, and for these there are no universally effective treatments. Psychotropics suppress some symptoms, cognitive behavioural therapy (CBT) and other therapies help patients to get themselves on their feet – but none offer a cure. This means that a lot is left for the environment to do; a big responsibility, but one that designers should embrace.

A very important starting point is to understand the treatment profile of the patients who are expected to use the

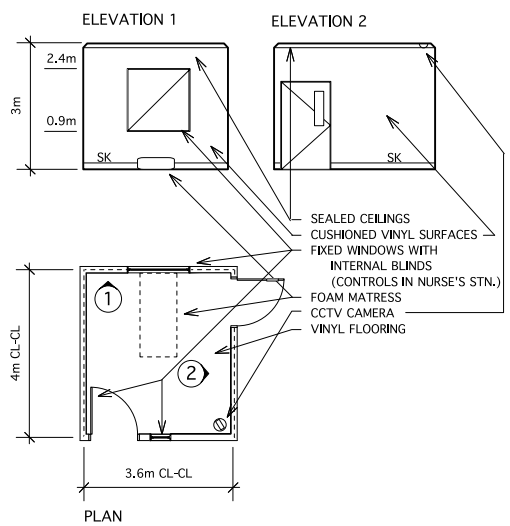

Figure 3: A seclusion room designed according to the Australian Health Facilities Guidelines. The onus on designers to comply with these guidelines is being "rolled back". This should be taken as permission to design more humane facilities

Figure 4: CCTV monitors a seclusion room in Kansas City. In order to manage patients, a sense of meaning for the patient is compromised. When patients emerge more demure, are they in better health?

Jan A Golembiewski, Victor Van Hee

facility. I recommend dedicated units for specific psychotic disorder spectra, which can be roughly classed into two: those who are depressed (with dementia and mood disorders); and those who are hyper-aroused (with psychosis and mania).

Institutional resistance

Institutional change is difficult to achieve because it carries the inertia of habit. But there's reason to be positive that change will be received well. In the years I have studied the design of mental health facilities, the only people who are happy are those who sell anti-ligature hardware, vandal-proof windows and other products that are customised for the current paradigm.[14] The list of those who know that structural changes are needed include everybody from patients, clinicians, nurses, ancillary staff, family and even politicians.

To some extent the fear that a new paradigm may be mistaken is mitigated by the reality that mistakes are already well entrenched, and short of a reversal to total barbarism, with a bit of common sense we could hardly do worse.

Positivity from the start

Negativity and positivity are both processed differently, and in different regions of the brain.[15] This is possibly why early judgements are very slow to reverse, so first perceptions are pivotal on how a new unit will be accepted. A positive initial experience will mean that users will be forgiving of a few mistakes. A bad start, on the other hand, will mean that a unit may never be loved – despite having brilliant vision and innovations.[16]

Although negativity and positivity are processed differently in the brain, they use the same neurotransmission system: the dopamine receptors in the mesolimbic dopamine pathways. Here we run into one of the hardest complications in predicting the experience of someone with mental illness. Dopamine dysfunction is central to the psychopathology of most mental illness – and the inhibition of dopamine transmission is the central task of all anti-psychotic medications.[17] Meanwhile anti-depressants and anti-Parkinsonian medications excite the same neurotransmitters.[18,19]

Dopamine serves many functions, one of which is to moderate attention. This means that the subject of experience (engagement, attentional focus) is largely determined by a system that is dysfunctional in most mental illness.[20] The focus of mental health patients is frequently bizarre and unpredictable. Having said this, the diagnoses of mental illnesses are very useful for drawing generalisations, because the standardised diagnoses are largely based on symptoms that reflect the specifics of attentional dysfunction rather than by pathology.

The attentional biases of various mental disorders can be understood in simplified terms according to Table 1.

Neutral perception

As the virtual reality experiment of Freeman and Freeman[7] above demonstrates, there's no such thing as a neutral perception. Affective positivity and negativity are processed differently on a neurological level; in practice, neutral is processed either as positive when it occurs in a positive context, or as negative when neutrality occurs in a negative context. With healthy people, all perception, including personal communication, carries a natural affective *positive bias*, meaning that the ambiguity of so-called "neutral"perceptions are taken as positive by default. This bias is reversed in psychotic conditions (other psychiatric conditions have yet to be tested), meaning that an entrenched negative bias tends to dominate in psychiatric conditions.[15] The result is that everyone, and the environment, must work hard to counter this bias.

Person-to-person communication is particularly important to analyse in the context of the polarisation of perception, because it touches the sorest points of paranoid thinking.[7,21] Psychiatric patients are often bizarrely unaware of their surroundings unless they relate in some small way to the underlying narratives of their delusional scripts, at which point, they become highly attuned. If patients are paranoid (a very high proportion of schizophrenics, bipolar, substance-related psychosis and dementia patients are), then ambiguous or negative communication will not go unnoticed, even if it is very subtle. Several studies demonstrate that schizophrenic patients are an order of magnitude more sensitive to expected stimuli than healthy controls, especially when those expectations relate to delusional ideas.[22,23,24]

Design and treatment fit

Many healthcare units are high-reliability organisations where a small practitioner error can have sudden and catastrophic consequences. In these circumstances the fit between spatial design and the routines established in clinical praxis are critical to the functioning of the facility.

A major shift in models of care will be required before equivalent spaces in the mental healthcare milieu can be developed because these facilities are essentially domestic. The main treatment rooms in a mental health facility include bedrooms, courtyards, living rooms and rooms that can be used to retrain patients in the use of normal activities of daily life (ADL) including kitchens, bathrooms and laundries. Other clinical spaces also serve normal human functions and thus are best if they are human in scale and layout: consultation and assessment rooms, rehabilitation gyms, and spaces for other person-to-person treatments. The exact details of these seldom matter, aside from good acoustic privacy, appropriate lighting, and the inclusion of practitioner escape routes.

The spaces in existing units that are possibly the most design sensitive are seclusion and medication rooms. Both are useful only when models of care have failed.

Consultation or interactive collaboration?

Consultation is an attempt to engage interest groups in the design process, but it's rare that a genuine dialogue evolves that requires an ongoing commitment from those being consulted. Collaboration, on the other hand, requires that both problems

	Top-down	Bottom up
Superfluity	Hyper-arousal, mania, paranoid psychosis	Hyper-arousal
Deficits	Depression Forgetfulness	Flat affect Poor self-awareness

Table 1: The attentional biases of various mental illnesses can be understood in terms of attentional dysfunctions. Top-down attention is intent and habit driven, and bottom-up attention is stimulus driven. Many mental illnesses are the combination of two dysfunctions. Paranoid schizophrenia, for instance, is likely the superfluity of top-down attention with a simultaneous deficit of bottom-up attention[20]

and solutions be shared. As counter-intuitive as it sounds, we should not seek opinions and ideas of the stakeholders to guide the project, but rather seek out representatives of the interest groups who are willing to take the whole journey, sharing the responsibility for both successes and failures. With this approach, you'll find people who are going to understand why things turn out one way or another.

It's important that everyone understands and embraces the project's vision to be salutogenic, sustainable and future-proof, which means it cannot rely on outdated or traditional models of care or design paradigms. But this short paper is not the place to lay down a methodology for effective collaboration and project management. For more expert guidance and research-based knowledge on leadership in complex healthcare environments, see Plsek and Wilson's paper on the subject in the British Medical Journal.[25]

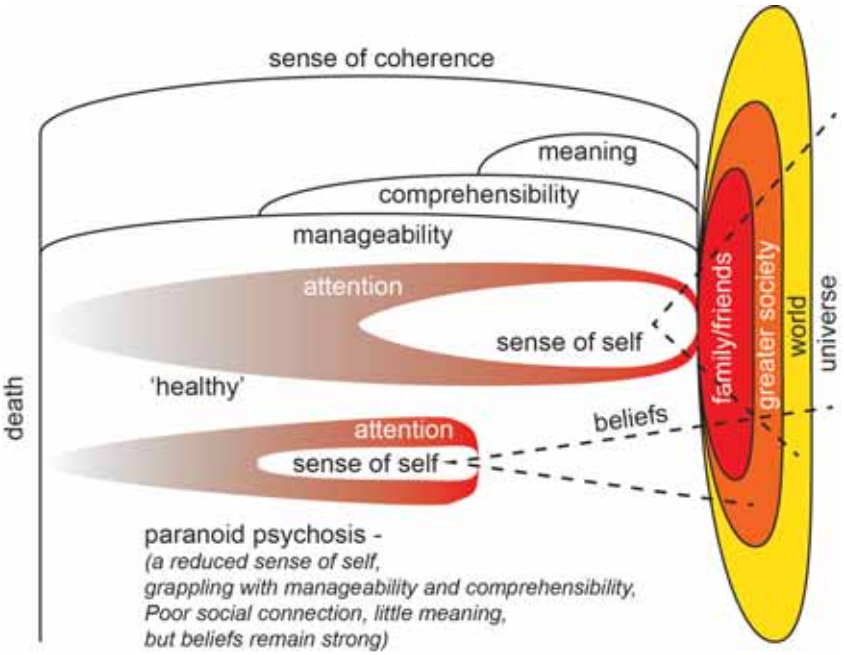

Figure 4: Salutogenic theory treats the state of wellbeing as a continuum, with death at one end and a more meaningful, more fulfilled, more connected life at the other. In this model a state of paranoid psychosis is a contraction from greater social concerns because of a loss of meaning and comprehensibility.

The salutogenic method

In 2010 a method was published especially for addressing the salutogenesis of mental health patients to give a good basis for decision making, wherever evidence is hard to locate or simply doesn't exist. The method aims to make every decision support the SOC in some way. Generally speaking these will have a holistic effect on the coherence of the entire facility.

To do this, all decisions, however minor, should be closely scrutinised for how they assist the ability to manage, comprehend or find meaning. They should then be checked for how they might erode the sense of coherence by taking away manageability, comprehensibility and meaning.

Ideally the more important decisions should be referred to a collaborative committee so that the critical decisions can be ratified from other perspectives.[25]

The hierarchy of meaning

"The absence of the things that make life manageable has obvious consequences, although they are not as significant as we tend to assume. Lack of food, water and shelter will be a source of stress that will make outcomes worse, but with their meaning and comprehensibility needs looked after; people can go a long time without basics. As Frank Lloyd Wright famously said, 'give me the luxuries of life, and I'll gladly go without the necessities.'"[26]

Not all interventions and decisions are equal. There is a hierarchy of meaning, with meaning and connections with society and the greater world as the foundational basis for meaning, followed by understanding and comprehensibility, and finally by basic needs. This inverts Maslow's logic that basic needs are pivotal for maintaining human life and that self-actualisation is a final luxury once all other needs are in place.

The mental health unit is also a forum for the competing needs of the various users (clinical, legal, non-clinical, patients and visitors), but all too often psychiatric facilities are designed to make manageability for the staff extremely efficient, while taking power from patients and eroding their sense of meaning. This is all too easy with architecture, which has a long tradition of amplifying power to some and denying it to others.[13] Such games must be avoided because it works against the very raison d'être of the unit: to empower and enable patients enough that they can handle life on their own once they leave. Great care should be taken to make sure that the patient's wellbeing and sense of meaning is always protected. In the context of the mental health facility, this principle harks back to the Hippocratic oath "I will apply measures for the benefit of the sick according to my ability and judgment; I will keep them from harm and injustice."[27]

Manageability

This is what hospital architecture does best. *Support for manageability means providing the basics to support life; food, shelter, medication, security, activities to occupy the mind etc.*[28] It is also the focus of a lot of the treatment; managing pain, managing patients etc. But at every step, the role of the unit in managing on behalf of patients should be rolled back to allow patients to manage on their own. It may be impractical, but giving less critical patients access to a kitchen and groceries could be an important step in enabling independence. "The feeling that a person is in control of his or her environment and life circumstances is very fortifying."[29] Things that support manageability for patients will include provisions for their health, security and comfort, but also provisions for patients to make decisions for themselves.

Comprehensibility

Comprehensibility is the way an individual understands the situations they're in. In a mental health facility context, that means knowing why they are there, how to negotiate the facility and its routines and how to do things, including how to leave. It also means knowing about the

diagnoses and medications they're being given, their rights etc, and the context of the greater world, including the formal laws or informal social mores of the world. Comprehensibility is more important than manageability, because it's much easier to cope with adversity if people can understand their circumstances.

Psychiatric patients often have a very hard time understanding the basis of how things work and why things are like they are. In fact, it is widely hypothesised that attempts to rationalise beliefs about how things work are the basis of delusions.[30-33]

Things that may improve comprehensibility are clear wayfinding, simple typologies, lots of relevant information, lessons, transparency in methods of care and decision making, and as little ambiguity as possible. (Ambiguity is generally dangerous for psychiatric patients,[34] so a door-knob should look like a door-knob and a shower like a shower.)

Meaning

Only a rich sense of meaning will be of assistance when manageability and comprehensibility is lost.

With meaningfulness, one can face the most dire of circumstances – starvation, pain, illness and the worst demonstrations of human antipathy – and still feel confident that, in the long run, everything will turn out for the best.[1,5] In psychotherapy, it is only when meaning is established that there is ever release, resolution and recovery,[35] thus it is reasonable to assert that the fostering of meaning is the single most important role of the mental health facility.

It is also the hardest task to accomplish because efforts cannot be prescriptive. Meaning is deeply personal and the product of an individual journey.

One of the great problems of health facility design and management is the problem of suicide. The creation of meaning is the only way suicidal ideation can be reliably treated. When a patient discovers something to live for, suicidal thoughts will lose their power to turn into action.

Meaning is built on anything that is of greater importance than the individual self, whether friends, family, society, the planet or pets. Religion can also fit into this group, but belief is infinitely flexible and adaptable to current circumstances. Unless belief is grounded and validated by some level of external reality, it loses its purpose and is as worthless as any delusion. What belief is useful for is to create real and meaningful links with the greater society, world and cosmos. One of the fundamental reasons that the principles of salutogenics work is because they enable action rather than paralysis. If I believe God loves me because I care for the environment, I will actively care for the environment, and those positive actions form the basis of an affectively positive connection with the environment.

Delusional beliefs, on the other hand, support passive or negative behaviours. If I were to believe that it doesn't matter, I can't make a difference anyway, I would be suffering from a passive delusion. If I were to believe that a random shopper was evil, and the best thing I could do is to slay her, then this would be a negative delusion.[36]

External reality is often very unforgiving. People can be very savage – especially to people who behave strangely like many mental patients do.[37] But there are ways that patients can connect with external reality meaningfully, with little risk of failure.

This is not the place to detail all the ways of encouraging meaningful connections to the external world, but here are some ideas:

- **Encourage pet ownership.** Many patients with mental illnesses have pets, and in the context of mental health recovery, they should be considered as more important than any contributor to manageability or comprehensibility.[38] When designing a unit, it is wise to provide some rooms (separate if necessary) that *welcome pets*.
- **Arts.** Poetry, music, painting, drawing, sculpture, dance and performance are all wonderful for promoting a sense of meaning. And if you are concerned (like many others are) about handing patients carving tools, bear in mind that the use of woodcarving tools are increasingly common even in forensic mental health units (yes, where patients are sectioned because of extreme psychiatric violence) in New Zealand, and the impacts on improved mental health and behaviour are really good. I've also heard concerns that patients will paint on walls and write obscene and threatening material. My answer is to let them, and even to encourage it, but give the patients washable materials!
- **Meaningful activity.** It's hard to find meaningful activity for patients who cannot even look after themselves, but an effort should be made. One of the most meaningful things a patient can do is share their recovery by helping out the more critical patients.[39] There was a short period between 1850 and 1860 when patients used to milk cows and work gardens, and the products of their labours used to end up on the tables in the evening, and by all accounts, it was spectacularly successful.[40,41]

Meaning takes time and effort to build, but can vanish in minutes. It can be incrementally destroyed by any reason that someone may want to hate the world and society: cruelty, meanness, broken promises, deception, stonewalling and contempt. Unfortunately sedation and seclusion fit into this category. This is not to say anti-psychotics are bad; in most cases they're essential. But the use of sedation as a management tool puts the management needs of staff before the patient's need for meaning.

Conclusion

A number of examples and explorations of these ideas are included in Golembiewski,[13,16,26,28] and every facility will be different, but to conclude this article, I would like to present an example of how a salutogenic unit might look and function.

Frank is brought in a police van. It's 2am. In the past few years he has spent more time in short-stay mental health facilities than out. He has been diagnosed with chronic bipolar (type I) with frequent substance-induced psychotic episodes. Frank is aware that he was smoking cannabis earlier, but he's furious because he didn't do anything wrong – until the police arrived. It's just that someone tried to steal his car and beat him up and stripped him as a final humiliation.

When the van door opens, Frank hurls abuse at his captors, the police. But he steps out somewhere unexpected. It's not a prison cell, nor a mental health facility; it's nice. It looks like the back veranda of a country home. The lights are low, and there are a couple of people sitting, chatting on a sofa having a drink and a cigarette. One gets up and meets Frank at the bottom of the steps. "Hi. I'm Lloyd," he says.

"Those x*$# pigs! Roughed me up!" Frank replies.

"Yeah. Looks like it."

"When we picked him up, he was vandalising a car in a parking lot…" one of the policemen start to report. Frank doesn't realise that the staff at the salutogenic unit already have all this information; they were contacted 20 minutes ago, and that's why they are out here on the veranda at 2am!

"Put it in all your report, and kindly leave. This feller is naked, unhappy, and needs to relax," Lloyd says to the policeman, who is slightly affronted but gets back into the van, and drives off. Lloyd leads Frank onto the veranda. "Do you want a dressing gown? A drink or a cigarette?" he asks.

Over the next 15 minutes, Frank debriefs to Lloyd and Zaha on the sofa, with a glass of lemon, lime and bitters (not his personal choice – but that's what was there) while he is introduced to the e-cigarette for the first time. "…Not allowed to smoke real ones here," Zaha explains, handing Frank the e-cigarette. "But this is much the same. It's still smoking, and it's still nicotine, only you can use it indoors, and it's not cancerous." Frank is asked if he has pets or anything he has to collect from home in the morning.

Soon Frank is led to his bedroom. The short corridor has a polished hardwood floor, with a long and deep runner rug to muffle footsteps. Paintings (some donated by an art school and some by other guests, he is told) hang off a picture rail. His room has a big, heavy wooden door with a brass handle. Inside, a heavy wooden bed is made up. The window has open louvres and a mosquito screen. There is a desk, with paper, crayons and pens laid out on it (they are washable, but Frank hasn't been told that). The dimmed wall-mounted wash lighting casts a warm yellow glow. There are picture and dado rails, and an abstract painting hangs from them. As a precaution against suicide attempts, a few of the features – the curtains, the picture rail and the toilet roll holder in the bathroom – are suspended by strong magnets, but the unit is still new, and nobody has tried yet, so these features just look normal, fancy even.

…The story continues. As long as the designer is willing, belief can be sustained – materialised, even – into something meaningful. This paper is an introduction to my vision of how psychiatric units will look and function in the future: always sensitive to an understanding that the healing process of mental illness requires humanity to foster meaning, comprehensibility, manageability and ultimately a strong sense of coherence.

Author

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David Hockney RA: A Bigger Picture

Royal Academy of Arts, London: 21 January 2012-9 April 2012
Guggenheim Museum, Bilbao: 14 May-30 September 2012
Museum Ludwig, Cologne: 29 October 2012-4 February, 2013

Margaret Drabble, in the beautifully presented catalogue that accompanies the Royal Academy of Arts' recent David Hockney exhibition in London, reminds us of Constable's assertion in 1836 that "There has never been an age, however rude and uncultivated, in which the love of landscape has not been in some way manifested. And how could it be otherwise? For man is the sole intellectual inhabitant of one vast natural landscape."

As readers of this journal will acknowledge, the redoubtable efforts of researchers to measure the impact of nature on human health and wellbeing are welcome, promoting our wider understanding of our intuitive relationship with nature in this era of rapid urbanisation.

But as Drabble suggests, perhaps we only need to seek evidence of the power and spirit of place manifested through nature by the works of the great landscape painters, poets, philosophers and artists of all genres throughout human history, from John Constable and JMW Turner to Wordsworth and Jean-Jacques Rousseau, and now David Hockney.

Winter Tunnel with Snow, March. Oil on canvas, 2006

A Closer Winter Tunnel, February-March. Oil on six canvases, 2006

There is much to celebrate in the 60-year career of David Hockney as one of the great modern day artists, but it is the vivid interpretations of nature and landscape in his latest exhibition that arguably give him a historical place among these great cultural masters of art, literature and thought.

Curated by the Royal Academy of Arts in the UK, where the works were first presented earlier this year, the exhibition will subsequently move to Bilbao in May, and finally Cologne in October. The show offers extraordinary interpretations of more than 150 works, shown alongside related drawings and digital video, that were largely inspired by the Yorkshire countryside, as Hockney returned to the landscapes he knew as a boy.

Brought up in the working-class industrial city of Bradford, explains Drabble, Hockney was descended from a long line of farm labourers and claims a sense of familiarity with the land. "I don't think there is a place in the natural world that we could think was ugly. It tends to be man-made things that can be called ugly. I have never seen an ugly natural landscape."

The exhibition also includes a selection of works dating as far back as 1956, which places the recent work in the context of Hockney's extended exploration of and fascination with landscape. The exhibition takes the visitor on a journey through Hockney's view of the world.

Initially, the exhibition addresses his various approaches towards the depiction of landscape throughout his career. Past works include Garrowby Hill, 1998 (Museum of Fine Arts, Boston) and A Closer Grand Canyon, 1998 (Louisiana Museum of Modern Art, Humlebæk). Hockney's exploration of the depiction of space is traced from work dating to his time as a student, through his photocollages of the 1980s and the Grand Canyon paintings of the late 1990s, to the recent paintings of East Yorkshire, frequently made *en plein air*.

The exhibition reveals the artist's emotional engagement with the landscape he knew in his youth, as, in a series of galleries each dedicated to a particular motif, he examines daily variations in light and weather conditions and the cycles of growth and decay as the seasons change. Since undertaking this exhibition

Pearblossom Highway, 11-18 April 1986 #1. Photocollage

in 2007, Hockney's intense observation of his surroundings has become manifested in a variety of media. Highlights include three groups of new work made specifically for this exhibition.

Firstly, a series of paintings inspired by Claude Lorrain's painting The Sermon on the Mount, 1656 (The Frick Collection, New York) in which Hockney explores its unusual treatment of space, culminating in the monumental painting: A Bigger Message, 2010.

Secondly, new digital videos featuring motifs familiar from Hockney's paintings are displayed on multiple screens; filmed simultaneously using nine and 18 cameras, they provide a spellbinding visual experience. Hockney's in-depth engagement with the works of the Old Masters and the historical use of optical aids was made clear in his book Secret Knowledge (2001).

The exhibition culminates in the largest of the Royal Academy's galleries, with the immersive work The Arrival of Spring in Woldgate, East Yorkshire in 2011. Hockney's glorious homage to nature is dominated by a painting on 32 canvases, surrounded by more than 50 large-scale iPad drawings printed on paper, which chronicle the advancing season in breathtaking detail.

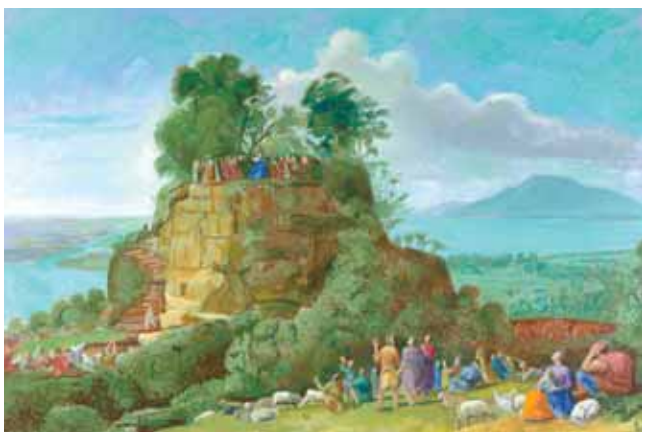
Throughout his career, Hockney has possessed the rare ability to integrate the old with the new. This is encapsulated in the energy and vitality he brings to the lost and arguably forgotten – even derided – art of landscape painting, by adopting modern technology (the iPhone and iPad) that allows him to capture and then reimagine the countryside of East Yorkshire. As he once said: "Technology has always contributed to art. The brush itself is a piece of technology isn't it?"

As more research comes to the fore and our knowledge about the workings of the unconscious mind and human perception develops, Hockney's use of technology allows him to explore through art, with ever greater precision, a representation of the world which dismisses the traditional single-point perspective of western society, and embraces the multi-perspective reality of our relationship to the world around us.

Artist's biography

Born in Bradford in 1937, David Hockney attended Bradford School of Art before studying at the Royal College of Art. He visited Los Angeles in 1964 and settled there soon after, becoming closely associated with southern California and producing a large body of work there over many decades. Elected as a Royal Academician in 1991, Hockney has recently been appointed a member of the Order of Merit by the Queen.

Marc Sansom is editorial director of the International Academy for Design & Health



The Sermon on the Mount II (After Claude), Oil on canvas, 2010

Nov. 7th, Nov. 26th 2010, Woldgate Woods, 11.30am and 9.30am. Digital video still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