



JOURNAL *of* BIOPHILIC DESIGN

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HEALTHCARE

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Coming up ...

ISSUE 4, April/May 2023 – CITIES

ISSUE 5, June/July 2023 – CREATIVITY

ISSUE 6, August/September 2023 – BLUE MIND

ISSUE 7, October/November 2023 – EDUCATION

ISSUE 8, December 2023/January 2024 – WELLBEING

ISSUE 9, February/March 2024 – SEN/DIFFERENCES

ISSUE 10, April/May 2024 – ENVIRONMENT

ISSUE 11, June/July 2024 – LEISURE/HOTELS

ISSUE 12, Aug/Sept 2024 – RETAIL”

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Final word

If you are designing with biophilia at the heart of what you do, thank you for making the environments you create, the lives you improve and the planet happier and healthier. If you have just started on your Biophilic Design journey, then welcome to the movement, together we can make the world a better place to live, work and flourish in.

WELCOME

Welcome to the third edition of The Journal of Biophilic Design.

I set up The Journal of Biophilic Design when both my parents had been in hospital and I saw, first-hand, the positive impact views of nature had on healing. I couldn't control the views my father had when he was dying, he was looking at white ceiling tiles and I can't begin to think how he must have felt. He had dementia and Alzheimer's, so his frame of reference was even more greatly curtailed by this view. He had spent a lot of his life outside, he loved nature, and even little robins would come and sit on his shovel when he was digging the garden or on his hand when he was painting outside. I had no control over what he could see in his very last moments, and I regret that every day. For my mother, I had more control and took chemical-resistant printed views of forests and waterscapes into her intensive care room. I witnessed her delirium decline, her cortisol levels and blood pressure

improve, and she came back to me.

It was after witnessing this first-hand that I realised there was something in this and have taken steps ever since to try and raise awareness of the importance and value nature connection has on our health. That is why this issue is especially important to me.

There are so many wonderful things going on in this space, from nature-prescribing to redesigning and reconfiguring the hospitals we have. I feel hopeful that the hospitals of the future (on a timeline yet to be determined, but I feel it will happen), will be places where staff and patients will have better, less stressful experiences.

Vanessa Champion PhD, AMRSPH
Editor and Founder

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HIGHLIGHTS

Each edition of The Journal of Biophilic Design has regular sections. We highlight them here so you can navigate your way around the Journal. If you would like to contribute to a future edition, please do contact our editor we would love to feature your research and case studies.

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Details of our contributors can be found on our website. Each edition of The Journal of Biophilic Design is published every other month. Next issue's focus is **Cities**.

Sign up for [our newsletter](#) on [our website](#) to be reminded when the edition is out. Don't forget you can read this on [your Kindle](#) as well as buy a beautiful full colour printed edition to keep and refer back to, contact us for direct links.

If you would like to sponsor the Journal please contact us. Future editions will focus on Cities, Creativity, Blue Mind, Education, Wellbeing, SEN, Environment, Leisure, Retail.

HEALTHCARE

Can I ask a question? Why are hospitals generally scary places? Why are their designs grey, angular, impersonal, blank, and even prison-like? I suppose it is a bit like what happened to our workplace design, they were “improved” at the turn of the last century to become factories of health.

But it wasn’t always like that. Even in the 19th century some of the buildings of hospitals, at least here in the UK, were beautifully designed architecturally. Sanatoriums were often in the countryside, had views of nature, and healthy food, and were designed to inspire feelings of calm and healing. In fact, we still have sanatoria now, think “health spa”. Just thinking of these places might conjure for some, places of luxury nestled in Switzerland, with crystal clear air, views of the Lakes and massive windows affording aforesaid-mentioned views!

See, my question is, why can’t our hospitals be designed with this mentality? I’m not saying that I think it’s practical, or affordable, to build hospitals in the middle mountains and allow time for healing, I’m saying why can’t we have the “spa” mindset in the back of our minds when we are thinking about creating spaces of healing.

We know that views of nature help healing, as mentioned throughout this issue, there are seminal studies, not least by the often-quoted, Roger Ulrich, who looked at the positive post-operative recovery among patients who had views of nature versus those who looked at a wall. We have thousands of hours of research that prove that being around nature, touching nature, seeing and feeling nature and a whole mix of this, helps us get better faster.

Surely, we are setting ourselves up to fail if we naively consider that the environment we are in doesn’t have an impact on us.

The origin of the word, Hospital, comes from the Latin, “hospitium” meaning hospitality. In the Middle Ages hospitals were alms-houses for the poor, hostels for pilgrims, or hospital schools, eventually manifesting itself in the Old French “hostel” which became “hotel”. From Wikipedia, it says: “The word “hospital” comes from the Latin hospes, signifying a stranger or foreigner, hence a guest. Another noun derived from this, hospitium came to signify hospitality, that is the relation between guest and shelterer, hospitality, friendliness, and hospitable reception.” One could argue that some hospitals are now so far removed from this concept that they feel the most “inhospitable” of places!

While the morphing of the name of the building may leave some eyebrows in the air, it should serve as a reminder as to what hospitals are meant for. They are meant to host people when they are at the most challenging periods of their lives. They might be having surgery, diagnosis, they could be dying. Why we should subject them to cold, unfriendly environments on top of what they are already experiencing doesn’t make sense.

Surely it also makes viable financial sense to help create spaces where they will get better faster (and therefore be less of a burden on the healthcare system), reduce the stress while they are waiting (and therefore reduce the short tempers on staff), give staff better respite and affords quality respite breaks when they get them if they have views or access to nature (which in turn helps staff retention, and reduction of sick pay, costs associated with recruitment and so on) and more.

If you are interested in taking this discussion further and supporting a campaign to help bring about a policy change to see Biophilic Design brought into every NHS, then please get in touch with me editor@journalofbiophilicdesign, and sign up for our newsletter on our pop-up form on www.journalofbiophilicdesign.com.

Nature inspired Designs in Healthcare Settings

“Wouldn't it be amazing to see even more Prize-winning healthcare environments which embrace Biophilic Design principles? Understanding the proven benefits of nature connections in healthcare to improve staff and patient wellbeing, reduce recovery time and need for medication is key.”

Victoria Jackson of Oliver Heath Design

We all know how beneficial connections with nature can be for our wellbeing, and that Biophilic Design can help bring those connections into the built environment. So, when it comes to the healthcare sector it would seem at first glance like the perfect setting for bringing in the principles of Biophilic Design.

So why isn't a biophilic approach standard within our hospitals and other healthcare provision? There are several issues at play in this sector. As we know, the National Health Service (NHS) in the UK is massively under-resourced and under huge pressure to provide the critical care for many. Resources are stretched beyond capacity and those working for the NHS are doing the best they can with what they have.

However, this challenge is part of a broader cultural, political, and societal phenomenon in which short term-costs are prioritised over long-term gains. Some of this comes down to perception – perception of both value and costs. Understanding (as research has proven) the benefits of nature connections in healthcare to improve individual (staff & patient) wellbeing, reduce recovery time and need for medication (therefore costs) can help. For example, Roger Ulrich's seminal 1984 study which demonstrated the benefits of views onto greenery, (compared to that of a brick wall), on recuperation rates of patients coming out of gall bladder surgery (Ulrich, R. S. “View through a window may influence recovery from surgery” Science, Vol. 224. 1984.).

An understanding that it is possible to introduce Biophilic Design at different budgetary levels and that it doesn't necessarily mean ongoing maintenance costs can also help in the uptake of nature-inspired design in healthcare settings. The common misconception that Biophilic Design means ‘just add plants’ can be off-putting in spaces that need high levels of infection control and low levels of ongoing maintenance (e.g., watering). However, with a more holistic approach, nature connections can be created through indirect experiences by incorporating nature-inspired materials, patterns, and textures for the interior fitout. This can be achieved through the flooring, wall treatments and furniture – all of which need to be specified anyway.

If procurement processes ensure anything specified within a healthcare setting is beneficial to the wellbeing of the users of the space, then integrating biophilic elements can be straightforward. What's more any increases in costs through introducing biophilic elements can pay for themselves in the long

term, by improving staff retention and reducing absenteeism and presenteeism (https://www.terrapinbrightgreen.com/wp-content/uploads/2012/06/The-Economics-of-Biophilia_Terrapin-Bright-Green-2012e.pdf)

Prize-winning healthcare environments have been embracing Biophilic Design principles in different ways according to their suitability and setting, for example:

- Studio Heatherwicks Maggie's Centre in Leeds – with its biomorphic shapes and forms.
- The Khoo Teck Puat Hospital in Singapore by CPG consultants – with its lush green setting.
- The Alderhay children's hospital – with its desire to enhance views out onto gardens.
- Ab Rogers Design's 'Living Systems' submission for the Wolfson Economics Prize – that proposed the hospital as part of the clinical team and wellness centres within communities.

The background image shows a bright, modern interior space, likely a hospital or office lobby. It features large windows on the left and right, allowing natural light to fill the room. A staircase with a glass railing is visible in the center. Several indoor plants, including a large fern in the foreground and various smaller plants on the right, are placed throughout the space. The floor is a light-colored, polished material.

If we zoom out further for a moment and think about the term ‘healthcare’ – or taking care of our health – this is fundamentally different to what happens in most of the spaces in the healthcare sector, where we go when we are already sick and need treatment. Really all our buildings should be healthcare spaces, to prevent us needing ‘sickcare’ and to take pressure off the ‘healthcare providers’. Bringing in nature connections, whether directly, or indirectly, can help create spaces where occupants’ wellbeing is at the forefront of consideration. After all we have already seen a rise in interest

in nature being prescribed in place of medication (<https://www.rspb.org.uk/about-the-rspb/about-us/media-centre/press-releases/nature-prescriptions-edinburgh-pilot/>), whilst the benefits of forest bathing or Shinrin yoku have long been known in Japan and are now being studied globally and have been found to benefit both physical and mental wellbeing (<https://link.springer.com/article/10.1007/s11469-020-00363-4>).

While there are signs that the healthcare sector has started to embrace the benefits of improving nature connections – either

through the design of exemplar spaces or the prescription of nature – there is still a long way to go before Biophilic hospitals and surgeries are the norm. In the meantime, the best thing we can do to support and lessen the burden on the NHS as individuals is to keep ourselves healthy. As designers, we can create healthier spaces that support wellbeing in all sectors of the built environment by incorporating Biophilic Design. You never know, perhaps next we’ll see healthcare professionals prescribing biophilic homes ...

At Oliver Heath Design we help our

clients design healthier spaces through our bespoke design packages. We also support design teams hoping to incorporate Biophilic Design in their projects through our consultancy work for more information:

<https://www.oliverheath.com/>

Or take a look at a wellbeing space we designed to support physical and mental health, here:

<https://www.oliverheath.com/case-studies/remind/>

TRANSFORMING THE NHS WITH BIOPHILIC DESIGN

“With over 1200 hospitals, a million staff, and nearly everyone in the UK having some interaction with its services, just imagine the health and planetary impact of the NHS embracing biophilic design.”

Dr Leighton Phillips

As I sit and write this on a grey day in early January, longing for sunshine and a view extending beyond fifty metres of drizzle, it is easy to appreciate the profound effect that the natural environment can have on how we feel. Yet those who use or work inside many of our healthcare facilities face similarly grey environments on a daily basis and often at the most stressful moments in life. Such moments might include finding out about a new illness, trying to recover from a life changing operation, worrying about a loved one on a hospital visit, or trying to deliver the highest standards of care when dealing with the demands associated with winter illness and pressure.

We know how much access to nature matters to people’s wellness, but much of our healthcare estate was designed in the modernist era, where function and minimalistic design were favoured by planners and architects. Indeed, often I still hear the word ‘clinical’ used to describe such minimalistic design in a variety of non-healthcare settings, conjuring images in my mind of cold and sterile environments. With international healthcare systems

increasingly acknowledging the importance of moving beyond treating illness towards tackling the wider determinants of health and wellbeing, there has never been a better time to think and act differently about our healthcare facility design. Facility design presents a significant opportunity to move beyond treating illness to encouraging wellness.

When I became aware of Biophilic Design, I felt an immediate sense of hope. Here was an evidence-based framework with the potential to guide improvements to our current facilities and help plan future investments in healthcare estate. This was particularly timely, as in West Wales we have committed to a ten-year strategy, *A Healthier Mid and West Wales*, which will see millions spent on healthcare infrastructure. Better still, I could identify many examples of international healthcare systems already embracing Biophilic Design and demonstrating quantifiable impact. These included the Singapore Health Care System and closer to home, the Alder Hey Children’s Hospital and soon to be constructed Velindre Cancer Hospital in Wales.





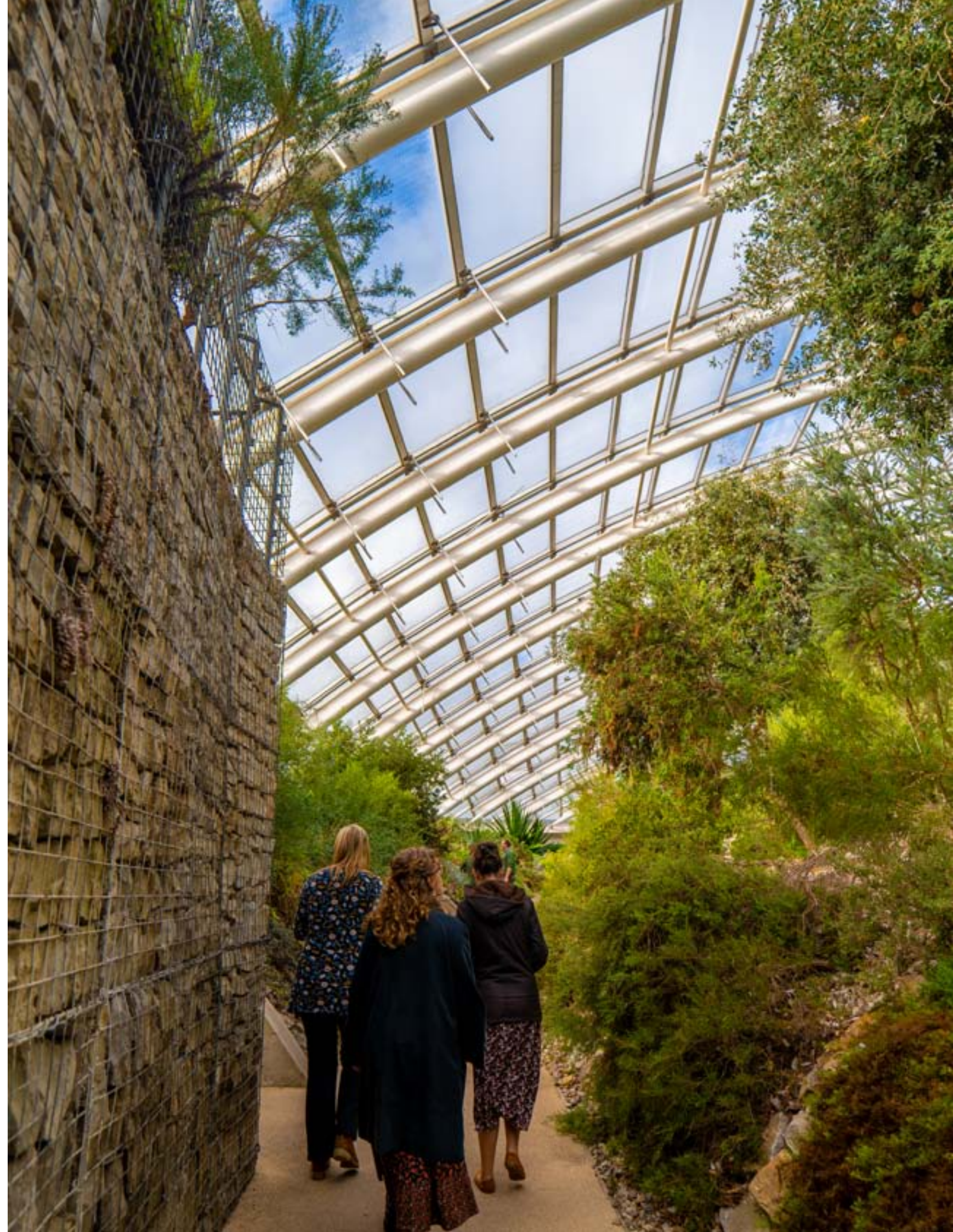
The experience of these systems was that pursuing biophilic design is not a short-term fix. You have to be in it for the long haul and resilient in the face of naysayers. However, they truly believe that such commitment will pay dividends for the wellness of staff, patients and the planet. With this in mind, last summer, we started this long haul Journey within Hywel Dda University Health Board, an integrated healthcare organisation in West Wales serving a population of c. 400,000.

I have always believed that change happens when you have people with a deep and personal commitment to bring it about. It rarely happens because a plan or piece of paper says it must. This was particularly evident when I started to talk to friends, colleagues and even those in architectural practice about Biophilic Design, with many describing that it has been around for years. My response was to ask why it was not happening routinely, to which many remained silent! Ultimately, I think in large – Hywel Dda UHB's operating budget is c. £1bn - and complex organisations like the NHS, change can be very difficult. Increasing demand, stretched budgets, political pressures and standardised working practices can slow the pace of adopting new ideas. However, there are examples of change happening quickly and they are usually driven by committed people with a spark and drive to do things differently.

To encourage this commitment to Biophilic Design, I worked closely with the remarkable ecologist Professor Geoff Proffit from Swansea University. Professor Proffit has decades of experience of

improving the quality of, and access to, the natural environment. We quickly agreed that an action learning approach would be the best way of developing the understanding of Biophilic Design and commitment to action within Hywel Dda UHB. Over a period of three months, we have guided a group of colleagues representing medicine, psychology, nursing, estates, infection control, and nursing through a process of discovery and securing commitment. The process has provided a theoretical understanding but more importantly has lots of practical insight on engineering solutions, ecology, architecture, and practical case studies from planners and architects leading some of the most exciting schemes from across the world.

Our final session, which represents the end of the beginning, took place in December, culminating in colleagues describing the individual and collective actions that they are starting to take to the Chief Executive. Some of the challenges were of course evident, including the trade-offs between securing high levels of energy efficiency with incorporating glass to afford views of nature and the infection control considerations around air circulating technologies. However, it was pleasing that different decisions are already starting to be made in schemes relating to our existing estate, and the design process around a new hospital is being recalibrated to ensure Biophilic Design is at its core. This is truly phenomenal, as the intention will be that the building gives back to nature more than is taken through its building and operations.





The ultimate test will of course be whether our commitment endures beyond this initial programmes, but the early signs are good. In Wales we benefit from a supportive policy context, with legislation including the Well Being of Future Generations (2015) Act and several wellbeing goals with a close alignment to the principles of Biophilic Design. I am particularly appreciative of the Welsh Government and Future Generation Commissioners interest, involvement and ongoing commitment to this process.

While controlling the grey and wet winter weather in Wales is clearly outside of my grasp, I truly believe that within Hywel Dda UHB we are at the start of an exciting process that will breathe life into our existing and new facilities and look forward to sharing this with you over the coming months.

Dr Leighton Phillips is Director of Research, Innovation and University Partnerships at Hywel Dda University Health Board and an Honorary Professor at Aberystwyth University. In his current role, Leighton oversees a significant research portfolio, including supporting industry in the development of new technologies and devices. He also leads the Health Board's Value Based Healthcare Programme. Prior to joining the Health Board, Leighton worked in the HEI sector and the senior civil service. He is a keen adventurer, loves spending time surfing and walking, and as a deep appreciation for the benefits that reconnecting with the natural world can bring.

<https://hduhb.nhs.wales/>

Look out for a podcast with Dr Phillips coming out on the Journal of Biophilic Design podcast series (on Spotify, Audible, Amazon, iTunes, YouTube, on our website and anywhere you listen to your RSS podcast feeds).

Where it all started: Khoo Teck Puat Hospital, Singapore

“It is difficult to think how Biophilic design can be used in the healthcare system without looking at the example of Khoo Teck Puat hospital in Singapore, which was completed in 2010, a beautiful, life-affirming design.”

Odile Smith is our correspondent based in Italy

I was particularly interested in looking at the process behind the concept, how they got there and how they achieved such incredible results. Considering the facility is now over 12 years old, where did it all start? What was the spark? What was the driving force?

What can we learn from the Khoo Teck Puat hospital design process?

I will be honest, what struck me most (and I have noticed this in other incredible case studies) is that the main stakeholder, the client – the Ministry of Health in Singapore gave a very clear input in short: “to create a patient-centric hospital”.

The Hospital management led by the visionary ex-CEO Liak Teng Lit, translated this with clear leadership and a profound belief that sustainability and connection with nature needs to be an integral way of life. He tasked the CPG Consultants architecture team with the challenge to design a patient-centric hospital.

From the early stages, the team worked on defining the values and mindset necessary to take on this ambitious project. These values would impact the entire vision, objectives and implementation of the project itself and all those involved in it.

The vision was defined after speaking with occupants, medical staff, caregivers, and hospital facilities management, as well as architects, engineers, and consultants.

According to CPG Consultants, who were the key consultants for the Khoo Teck Puat hospital project, biophilic design should happen early in the design process before concepts and forms are set. A deep understanding of the site’s contexts, including history, culture, ecology, and climate is essential in creating biophilic buildings. Engaging experts and stakeholders in advance, allow teams to incorporate the information, vision, and objectives into the projects with regard to any biophilic goal.





Established shared visions will need to be translated into specific project objectives for targeted actions.

The original concept for Khoo Teck Puat hospital was clearly defined as:

“a garden in a hospital; a hospital in a garden”

Part of the design concept of “The garden in a hospital” refers to a central courtyard that opens on one side to the adjacent Yishun Pond, allowing visual and physical connectivity between the Khoo Teck Puat hospital (KTPH) premise and the natural setting of the Yishun Pond.

When viewed from the Yishun Pond’s natural setting, it becomes a hospital in a garden.



That can be expanded into 5 design outcomes:

- Sight – provided by visual access to greenery and water;
- Smell – from a selection of scented plants;
- Sound - of falling water;
- Appearance – a naturalistic and rain-forest-like landscape;
- Diversity – from a variety of plants, birds and butterflies;
- Community – The hospital which will be a public space situated within blue-green areas.

Evidence-based studies back the idea of creating a healing environment to aid patient recovery. By looking at trees and

plants, one’s stress levels may be reduced, muscle tension and blood pressure may also be eased. Flora and fauna have been shown to help patients de-stress and speed up their healing process.

“At CPG, we believe healthcare facilities should contribute to a healing environment. Medical staff and equipment are crucial to the recovery of patients, but so is the surrounding environment,” said Ar. Jerry Ong, who was the Lead Design Architect of the KTPH project at CPG Consultants.

Throughout the process, CPG Consultants continued to hold meetings and workshops with all stakeholders involved, creating an integrated design process and shared decisions process that ensured the objectives were met.



In the case of Khoo Teck Puat Hospital, its V-shaped configuration of blocks, delineating a central court and with an opening to the north, let in fresh air. To tap into this natural airflow, the envelope of the buildings had to calibrate permeability and shade.

This enables the patients to have access to natural light, cooling breezes and views, without risk of solar glare or rain entry.

To amplify Mr Liak's vision, CPG's approach was to design a facility that "does not look like, smell like or feel like a hospital". For this, the landscaping of the environment was key.

Designed to be 'forest-like', water features with aquatic species, and plants that attract birds and butterflies were introduced.

Greenery extended from the central courtyard to upper levels of the buildings and down into the open-to-sky basement, creating the impression of architecture deeply enmeshed in a garden. At the upper levels, balconies with scented plants bring the experience to the patient's bedside.

All together it is the numbers that make the difference; here are just a few:

93000 sqm of greenery

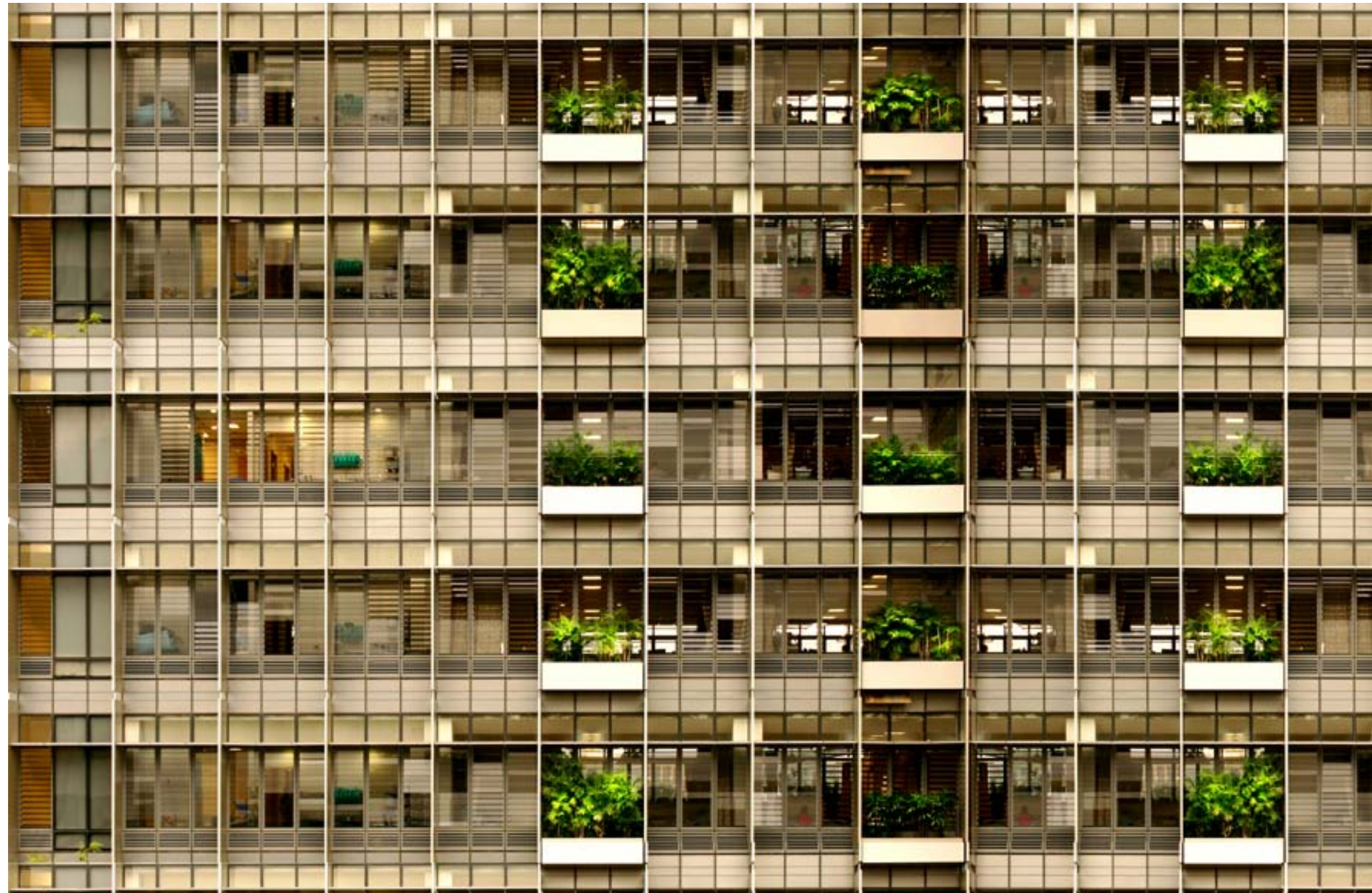
1.4km of plant-lined corridors

8 roof gardens – 81 green balconies

780 Trees (115 different species)

99 species of butterflies and 29 species of dragonflies.

82 species of birds and 100 species of fish



Rather impressive I would say!

Furthermore, to make the hospital truly biophilic, every available surface had to be maximised to create a therapeutic green space ensuring that on every floor patients and staff have direct access to the view of nature.





The use of roof gardens and green balconies were cornerstones for the well-being of the hospital occupants and visitors, with an exceptional side benefit of organic gardening by community volunteers that led back to healthy organic foods in the hospital kitchens. Occupants are delighted to eat the fruit and vegetable they have seen grow just outside their window, and it contributes to the memorable spaces and experiences that make a hospital not just a hospital.

It is the truly holistic approach that makes this project such a success, as much as having this holistic approach set out in the values and vision from the very beginning and together with an integrated design structure and a thorough inclusive process at all levels, ensured that the outcome meets the objectives.

From this success story and others similar, it is evident that shared values and clear leadership from the initial idea of a project are mandatory to make this happen.

www.thebioplichub.com

Credit: All photos by CPG Consultants

Sources

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CARE HOME DESIGN

Drawing Room Interiors

It is essential that as designers of healthcare facilities, we remember that sometimes residents or patients get very little time outside and that we, therefore, help to keep residents in touch with nature.

— CASE STUDY —

Can you tell us a little about your practice, what sectors do you cover and what do you enjoy most about them?

The Drawing Room Interiors (DRI) is a small Interior Design practice, founded in 1989 by Diana Celella. DRI specialize in Commercial Healthcare Interiors, design including Retirement Living, Extra Care and Care Homes.

I have worked in this sector of interior design since 1987 and as such have gained a reputation as a well-recognized and extremely knowledgeable Healthcare Designer. My approach to each project is tailored to the needs of the operator.

Over my career, I have designed in most sectors of the Interior Design industry, but my passion is for healthcare design. By implementing Evidence-based design principles, as a designer, I can give residents more independence, increased confidence, and fewer accidents. Designing facilities to be less institutional and more homely without losing sight of the practical requirements, such as infection control, dementia-enabling design, and layouts which work for residents, staff, and equipment.

Designing the facilities to be all-inclusive by thinking about acoustics, Light reflectance values, lighting etc.

Why is Biophilic Design important to you?

I believe that humans connect with nature, and that nature is an important element of our wellness, as such biophilic design helps to integrate natural elements into interior environments.

Depending on the health of residents in Care Homes, some residents do not get much time outside which I feel makes it more important than ever to give a connection to nature and the calming effect of natural elements.

Why is nature-inspired design so important in healthcare to you?

Biophilic design is thought to support cognitive functions, physical health and psychological well-being. As many residents of Care Homes spend much of their time indoors it therefore makes it important to have a connection with nature-inspired design. As well as residents there are also benefits of the staff's wellness.

Have you implemented Biophilic Design / nature-inspired design into your healthcare projects?

I have used biophilic design principles in a quiet a few projects, however the case study I have selected as an example is New Lodge a new build Care home and Extra Care facility for Joseph Rowntree Housing trust (JRHT) which is in the Garden Village of New Earswick, York. The project comprises of 105 extra care apartments and a 44-bedroom care home, spread over four buildings complete with communal facilities throughout.

The reason I decided to use a biophilic design for this project was that New Earswick is an original Garden village designed by Joseph Rowntree and his architect Unwin. As a Garden village, nature and planting were considered by Rowntree and Unwin to be of particular importance. Existing trees were left in place, hedgerows respected were possible. Avenues of trees were planted and named accordingly. New Earswick follows the Arts and Crafts movement which was inspired by nature and natural forms. I decided that by creating the new interiors based on biophilic principles I would not only be respecting Joseph Rowntree's philosophy but giving the residents health benefits.





What were the issues that needed helping/ solving through the design?

As well as using biophilic design principles I also wanted to give a totally individual design approach, I therefore decided to design bespoke fabrics for the majority of the curtains and some upholsteries, which I worked on with a textile designer. This meant not only were the fabrics nature inspired but they also help to prompt residents with dementia to the functionality of the rooms, for example fruit of the curtain fabric in the Dining rooms.

I decided to use a moss and bark wall in the reception area, this was not only to introduce nature but also to help with the acoustics, due to the residents I needed to have a toxicology report completed on the moss, something the suppliers had not been asked for before.

To encourage more use of the outside space, the activity room was designed as a garden room, which a potting unit and I also designed a welly and coat station, which act as prompts to people living with dementia.

Using Evidence-based Design research such as light reflectance values used throughout the building with flooring close in points to avoid sudden changes to aid ageing eyes, seats have a minimum of 30 LRV difference from the floor. Upholsteries are anti-Bacterial, anti-microbial and impervious, furniture ergonomically designed for the elderly.

Activities which relate to local areas helping people with dementia to recall memories, such as a train carriage, Chocolate Factory area, an office and a potting area. All artwork relates to locality and aids with wayfinding. I worked with local residents and JRHT staff to find vintage images and accessories which connected the home to the Garden Village and Joseph Rowntree.

The design creates a friendly and homely atmosphere, whilst at the same time being practical for both staff and residents. Carefully designed and flexible spaces mean residents can live independently and safely.

What was the difference it made?

The residents are very happy and settled in quickly to their new environment.

The project was awarded Stirling Dementia Gold award for Dementia Friendly Care Home as well as being Winner of the Global Design Future Award, Gold Muse design award in Healthcare Design category and Silver in the International Novum Design awards, Interior Design category.

A 92 year old resident said: *“I only wish I was younger so I could live here longer”*.







What do you think should be absolutely essential in any healthcare design?

It is essential that as designers of healthcare facilities, we remember that sometimes residents or patients get very little time outside and we, therefore, help by creating environments which include large windows allowing as much natural light as possible into the interior and that we help to keep residents in touch with nature.

Anything else you would like to add?

I have added a separate link with destination points, the destination points are ends of corridors with activities, which reduces the frustration of arriving at a corridor end. In this project, I used activities which not only related to nature but also the local points of interest such as Willows and Wetlands, Bridgewater Canal and local gardens. The project is Stockmoor Lodge for Somerset Care.

I have also added a link for the Royal Masonic Benevolent Institute (RMBI) of a Care Home I have recently finished called Prince Philip Duke of Edinburgh Court in Berkshire, I designed the bistro area based on a local lake called Bearwood Lakes. For the servery, I used natural wood to form a ripple design of the water, and red bricks behind the servery, as the area was originally famous for making red bricks. The curtains are a bespoke design on voile which is based on the trees surrounding the Bearwood lakes.

Diana Celella is an international award-winning designer, Director of The Drawing Room Interiors, Associate Consultant Hammond Care, Dementia Choice, as well as being Ex-President of SBID and Ex-Chairman of the Healthcare Design Panel (HDAC). She works in the commercial Interior sector, specialising in healthcare projects, from care homes and dental practices to assisted living and retirement villages, she is recognised throughout the industry as an expert in implementing evidence-based design.

With 35 years of deep industry knowledge coupled with an analytical and detail-oriented approach, she is equipped to understand the needs of the most discerning clients and audiences delivering an experience rooted in customer service, integrity and expertise. Her creative and design skills make her a keen advocate for her clients, proactively seeking out new ways to enhance her services and continually attain excellence, with client satisfaction the ultimate objective

Leveraging the wisdom of her knowledge and skills, Diana is an Associate University Lecturer of MA, a position inspired by her desire to share her designing knowledge and skills. She is a member of the British Institute of Interior Design (BIID) and in 2016 she was named West Midland Woman of the Year for her contributions to Design Education.



www.drawingroomint.co.uk
www.biid.org.uk

*Photos of work by Diana Celella: The Drawing Room Interiors
Photographer: Paul Craig*

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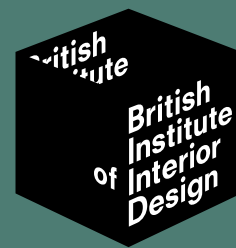
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“The Workplace should be somewhere that doesn’t make us sick. In fact, how can we design workplaces that people really want to come to? The theme for the Workspace Design Show 2023 is ‘Destination Workplace’ and here some of the speakers share their thoughts.”

Michael Dowds, Head of Workplace Design Standards, Department for Work and Pensions

You need to really know your people. Take every opportunity to bring the various teams using a space on the design journey with you. Help them reimagine how they could carry out their work in different settings to achieve better outcomes. Encourage creativity, imagination, collaboration appropriate for those using the space.

Most people don’t naturally default to a smarter way of working. Help your people understand how the workplace has been designed with them in mind, and how to make best use of the various work settings. Review the workplace with your people after a period of time to help keep things fresh, appropriate and to continue the journey together.

Tina Norden, Partner, Conran & Partners

Key considerations are now to actually set the workplace apart from home functionally whilst creating environments people like being in. Lighting is key, ergonomics of chairs and table, flexible height desks – and spaces where the team can come together for meetings and socials. All things that are very hard to recreate at home!

Natasha Hewlett, Senior Project Designer, Peldon Rose

Today’s offices need to deliver something special and should be so much more than just a place to work; somewhere that encapsulates the purpose of a business, provides space for connection, collaboration and bring the best out in their people. A true destination workspace considers the needs of the employee as an individual and caters for everyone, which is a delicate balance of designing for their priorities and needs.

Claudia Bastiani, Head of Workplace Experience & Design, Legal & General

Looking forward to seeing whether what we thought were the key factors for a high performing workspace before the pandemic; have these changed with the key shifts that the more general population have come to realise? We have followed the Hospitality sector for the last 20 or so years in creating ‘experiences’ and placemaking, insistent upon work/life balance and creating workspaces that support both. Generally our workspaces now cross at least two different places each week; do we need to change our design thinking?

Amy Gargan, Workplace & Interiors Sector Lead, Director, RKD Architects
Undoubtedly the focus now for employers is to provide a workplace that offers so much more than what their employees can experience working remotely. Their reason for coming to the office is no longer one of routine or a sense of obligation, but rather it is purpose driven and the workplace must respond by tailoring itself to meet the needs of the individual.

This means a curated office landscape that offers a variety of intuitive work settings that fulfil the individual’s requirements providing for ultimate flexibility and productivity. The experience when in the workplace should be seamless – from booking a desk or reserving meeting space, to knowing who and when other team members will be there.

The employee who is removed from the office for part of their working week comes there seeking a sense of belonging and therefore it is incumbent upon the employer to create an environment which not only enables their employees to work in the most effective way possible, but also embodies their culture and values, creating a sense of community.

Scott Rominger, Creative Director, WeWork

A workspace must be a dynamic and mixed-use space that meets the varying needs of workers. From quiet nooks, lounges and collaborative spaces to conference rooms and dedicated focus areas, at WeWork, we strike a balance between functional and thoughtful design – underpinned by flexibility. As work trends evolve, it’s a combination of understanding what workers actually want, and having the flexibility to adapt seamlessly that will be key in 2023.

Paula Rowntree, Head of Workplace Design, Lloyds Banking Group

For me, the most important consideration is our colleagues and the different roles and needs they have from space, one size does not fit all. How do we create the optimum space to support both productivity and also well being and comfort in the workplace. After two years of Covid and home working we need to focus on how the Office space can provide the face to face human interaction that you simply don’t get at home; virtual is just not the same; humans are social animals with connection being vital for our health and well-being as Covid so aptly demonstrated.

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How do you see flexibility being implemented in offices to maximise the use of real estate and improve the employee experience?

Paula Rowntree, Head of Workplace Design, Lloyds Banking Group

(listen out for a podcast with Paula on the Journal of Biophilic Design podcast series)

On a personal level, I am curious about how we can blend more retail design thinking in our office space; retail is constantly reinventing itself and designs for low-cost/modular/flexible environments. If I know nothing I know that change is a constant in today's world so bringing more of this retail way of thinking/designing is something I am exploring.

Scott Rominger, Creative Director, WeWork

Work trends continue to evolve as businesses put their right foot forward and employees figure out what they need and want from the office going into 2023. At WeWork, flexibility is at the core of our business – particularly in our design approach, where we adapt and enhance our spaces depending on our members' varying needs. For example, in large offices, we used to provide 10% lounge space and now we are seeing the need for 50-60% collaboration and lounge space. We're also seeing increased demand for dedicated, focused areas. What's become clear is that as the criteria for the modern office evolves, flexible design solutions that can be adjusted in a few weeks rather than in a few months will be table stakes' for any operator as we head into 2023.

Natasha Hewlett, Senior Project Designer, Peldon Rose

By creating flexible workspaces, employers can cater to a diversity of needs whilst maximising the real estate. We are seeing more multi-purpose spaces being designed, for example social areas that can be adapted into town hall spaces. Two very useable zones

utilising the same amount of real estate by considering the flexibility of the furniture, as well as the technology and AV solutions.

Steve Brewer, Founding Partner, Burt-Jones & Brewer

(listen out for a podcast with Steve on the Journal of Biophilic Design's podcast series)

Multi-tenanted buildings will need to offer more to legacy and prospective tenants, it's no longer good enough to just offer great showers, upscale changing spaces, plenty of lockers and bicycle parking. With many high-rise office buildings occupied by businesses from various sectors, demands are becoming multiple and diverse, extending far beyond what would originally have been considered core business needs. New developments have been adding communal gyms, bike parking, showers etc for years. It is now about experience, not just facility. The demand is for spaces that need to flex more, where an entire area of site, floor or group of floors are assigned as a shared space for tenants to flex and grow. For example, this could be a short or mid-term project rooms with dedicated workspaces for tenants looking to incubate new business ideas, or a dedicated, informal environment for external tenants to mix and collaborate with building users, curated with a specific agenda to engage in creative workshops and sessions to, directly and indirectly, foster innovation. The key being to enhance the experience, not just the facility. These new spaces should be viewed as collateral to the tenant offer, as a void to fill, providing value as a service, not as an overhead and operational cost.

In terms of how to improve the experience within individual workspaces, employees are being given a new level of personal autonomy. The Covid experience has enabled them to have a voice in the discussion about what the workspace becomes and how it should be shaped, tailormade if you like. Where small enhancements can be made to better an individual's needs and wellbeing at a fundamental level, such as direct control of lighting, comfort at the desk or work setting.

What changes are you hoping to see in the UK workspaces in 2023?

Tina Norden, Partner, Conran & Partners

More variety, more flexibility and a regard for the human factor whilst retaining a professional environment. And professional doesn't mean boring and grey, it means an environment that is conducive to the type of work being done, looks right for the sector it is in and promotes staff wellbeing. Claudia Bastiani, Head of Workplace Experience & Design, Legal & General

For 2023 and beyond, I am interested in exploring design that is truly inclusive and sustainable, so catering for neurodiversity, the not-so-obvious physical disabilities such as challenges with hearing and sight, spaces for community that cater for all and true carbon calculation. What will differentiate a great workspace from an outstanding workspace will be inclusivity and sustainability.

Both interesting subjects are ever-evolving so understanding what the current thought is around these will be interesting, as well as understanding the current challenges. We find ourselves in a situation where for the first time we have a very informed audience (the workforce) so not being engaged in evolving your thinking on this is no longer an option.

Lewis Barker, Director, Workplace Services EMEA, ServiceNow

More climate and sustainability-focused spaces – our company has commitments we need to make alongside other companies and as Real Estate is a massive polluter, it's within all our control to help solve this issue. Flexible and adaptable spaces – simply put we need to experiment and having flexible spaces allows this experimentation to happen. We'd still need to ensure quiet and solo working spaces, but these can also be flexible in nature too.

Claire Henderson, Inclusive Design Lead, Workplace Design, HMRC

Post pandemic return to the office has seen us all think about our work environment differently and that is even more evident in the recent generation of recruits where going to an office is about more than just a space for a desk, it's about all the wellbeing benefits which come with that.

We were already on that path pre-pandemic but the change in behaviours has been accelerated and I hope 2023 sees more of us adopting that behaviour and making the most of fantastic workspaces that are out there, and of course we need to ensure we have designs and products to meet that challenge!



How can empathy allow future designs to attract and retain talent?

Amy Gargan, Workplace & Interiors Sector Lead, Director, RKD Architects

More and more we are understanding the diversity of employees and recognising that not everyone works in the same way. We also know that the environment we work in can greatly affect our mood, productivity, and well-being. Employers seeking to incorporate empathetic design principles in their workplace are cognisant of that diversity and strive to create an inclusive workplace that values individual differences in the workforce and makes everyone feel accepted.

Design should focus on creating a workplace which is human-centric, catering to individuals, their personalities, experience, and choices in the way they work. Addressing environmental and wellbeing factors will help keep employees engaged, giving them a sense of fulfilment that will ultimately benefit employee retention.

Claire Henderson, Inclusive Design Lead, Workplace Design, HMRC

As a society we are becoming increasingly aware of the diverse nature of people, we aren't all the same and what a boring world it would be if we were! Workspace is key to supporting individuals shine, by providing the right environment, or indeed the choice of environments throughout, people see that not only do employers care about them as employees but also as individuals, which comes with increased levels of engagement and retention as well as productivity.

Only by listening to a diverse range of end users will design teams truly get anywhere near providing an inclusive workspace and ultimately a change for a protected characteristic generally is something that

helps others, lowered kerbs, clamshell doors, all examples of that so it's a win-win. Claudia Bastiani, Head of Workplace Experience & Design, Legal & General Neuroarchitecture will play an ever more significant role in the creation of future workspaces; understanding the question that we are trying to answer i.e. what does empathy in the design and operation of a workspace really mean? These are the sorts of interesting and sometimes uncomfortable conversations that need to be explored.

The interaction between HR, Real Estate and Technology has never been more significant. Data and the ability to pivot your thinking quickly is key to evolving strategies around employee engagement. Neuroscience will make more and more of a contribution to future strategies which might seem disruptive for some, whilst very exciting for others.

Natasha Hewlett, Senior Project Designer, Peldon Rose

I think empathic design should consider the human above everything. The needs and requirements within a workspace differ between every single person, so for employers to both attract and retain talent they have to invest in their people. Creating 'everybody' spaces sounds like a challenge, but by designing a workspace revolving around the human flow with flexibility in mind will do exactly that.

Quiet focus areas, dedicated collaboration zones away from the desk, high energy social spaces, but most importantly the choice of how the employee can work. These are all ways to create diverse environments that go above and beyond the basic requirements of the traditional office, giving choice and flexibility for everyone – for example introverts, extroverts, anyone with a disability or who is neurodiverse.

What measures should designers and employers be taking to promote employee wellbeing?

Steve Brewer, Founding Partner, Burtt-Jones & Brewer

Using words like 'inclusivity' or 'diversity' is fine. Everyone has a right to be able to choose how, what and where they work from, especially once in the workplace. Designing in 'wellness' rooms, referring to planting as 'biophilic' design is a also positive. Labelling a room as the 'wellbeing' room, separate from the main workspace certainly has merit but is not the panacea. The key to getting this right, from my perspective, is to answer the human, experiential, questions first. If you do build a wellbeing room, what goes into it, where is it located, is it discrete and quiet, how easy is to access, has it got a view, when can it be used, who has control of booking it, how do you know if it's being used ?

Culture eats strategy for breakfast as the saying goes. Get the workplace culture right and the strategy will follow, or community as I prefer to call it.

Wellbeing is holistic. All the pieces of the jigsaw puzzle need to be mapped out first, to create the company's unique vision/ picture and establish a place for wellbeing within the culture. This isn't just about the workplace, it's about before and after people arrive at the office and for those working remotely. Wellbeing isn't just a well-appointed room in the basement.

Tina Norden, Partner, Conran & Partners

Wellbeing has thankfully become a key word outside the spa and it is understood how important it is for the productivity and positivity of the team. It encompasses all

elements of life and all senses, so there is much that a workplace can do to improve the wellness of its team.

Lighting is absolutely key and can even work differently at different times of the day and to circadian rhythms.

Ergonomics are often underrated, in particular in younger teams, but a good chair, and a good set up for the computer all mean a happy body into the future.

And most importantly creating an environment that is conducive to teamwork, collaboration and flexibility in setups to foster a social and collaborative atmosphere.

Lewis Barker, Director, Workplace Services EMEA, ServiceNow

Manager training to educate of wellness practices and providing company-wide wellness initiatives. Have a baseline of wellness activities that employees can tap into, could be virtual or remote. Design spaces that are biophilic and have good air circulation and systems

Michael Dowds, Head of Workplace Design Standards, Department for Work and Pensions

The WELL Building Standard is a good starting point.

WELL Certification puts physical and mental health first by considering a wide number of factors including air quality, water, nourishment, light, fitness, comfort and mind. It can be expensive to fully implement, but much of the guidance can be incorporated in designs fairly simply just by being aware of what is possible and the kinds of things that really make a difference.



How have you been using sustainable products and implementing sustainable designs in their offices?

**Cristiano Testi, Principal Director,
tp bennett**

The embodied carbon of materials contributes to at least 40% of a building's total carbon footprint – for offices this can be as much as 60-70% (World Green Building Council, 2021), meaning that nearly two thirds of its carbon footprint can be 'blown' before the first user switches on the first light.

As an international design practice, the materials we specify are both our most significant environmental impact, and our greatest opportunity to achieve positive change!

However, true "sustainability" should consider more than just environmental factors – and must also focus upon social interfaces; most notably for those working in higher-risk supply chain manufacturing processes.

**Claire Henderson, Inclusive Design Lead,
Workplace Design, HMRC**

HMRC, as a UK Government body, has a responsibility to ensure we are a considerate client and as such our Locations Programme has very much driven a sustainable agenda from day 1, local procurement is always our preferred route, we seek innovative products made from recycled materials as well as longer lifecycle products to reduce the need to regularly replace. This is also something we ensure all of our suppliers have embedded in their processes so that it flows down the supply chain and hopefully drives a change throughout the industry. Consideration to how we ensure the ongoing operation of our buildings is sustainable is also high on our agenda, for example how

we can drive better waste management and user behaviours around recycling through design as well as thinking about how our building management systems can drive energy efficiencies.

**Paula Rowntree, Head of Workplace Design,
Lloyds Banking Group**

Sustainability is a core of our strategy as a business so how we design with sustainability at the heart is front and centre for us. Our supply chain is encouraged to bring new, innovative products to our attention and we regularly run an Innovation Dragons Den with our Sustainability team to encourage companies to share with us what they are doing – clearly this is a space where innovation and creativity is driving lots of fantastic initiatives to improve the basics of heating and lighting systems as well as innovation in furniture and biophilia. Driving to net zero is a minimum standard we are setting ourselves.

**Natasha Hewlett, Senior Project Designer,
Peldon Rose**

As designers we should be questioning every product choice we make, designing out waste wherever we can and thinking about the entire life cycle of each and every specified item. Sustainable design also encapsulates how flexible and adaptable a workspace can be as well as what material is chosen for a worktop, for example. Reducing waste (and therefore carbon) is important on any fit out and there are many ways this can be achieved - from flooring take back schemes to furniture reuse/rental offerings. Sustainability should be on the forefront of every supplier and installers mind too, connecting the entire chain from design to build and then throughout the entire products life cycle.

<https://workspaceshow.co.uk>

Health, Comfort and Productivity Prioritised in Ekho Studio's new workplace scheme for AstraZeneca UK Drawing Room Interiors

When we think of health and wellbeing in healthcare, we might immediately think of hospitals and that interface, but think of all the researchers behind the scenes in labs, the support staff and so on, where do they work, how do we make spaces comfortable and conducive for those workers too?

— CASE STUDY —

Wellbeing and wellness were at the heart of the brief for AstraZeneca UK's own offices, spread across two floors and over 21,000 sq ft of number 2 Pancras Square, King's Cross. The space is now home to staff from AstraZeneca UK, who were previously based located in Luton and includes teams across its medical, marketing, digital, communications, finance and HR functions.

AstraZeneca is a household name to many, a global pharmaceutical company with a major UK presence, pushing boundaries of science with a vision to deliver life-changing medicines. The company appointed Ekho Studio as its interior design partner for the new scheme. *"The overarching ethos was to create a healthier, more comfortable and productive workspace"* Sarah Dodsworth, one of Ekho Studio's joint Founders commented. *"We worked on the scheme throughout the pandemic as we moved this branch of the company from their former offices to an entirely new way of working in central London."*







The new workplace needed to house more than 200 employees at 156 workstation desks, with agile work-from-home (WFH) options taken on board, as well as the provision of a variety of non-workstation spaces, from informal collaboration and breakaway settings to an on-site restaurant and external terrace space. The new space also had to incorporate a reception area, a variety of VC-enabled meeting rooms, plus dedicated washrooms and shower facilities.

In its designs, Ekho Studio carefully balanced the needs of a supremely functional workplace whilst creating a sense of aspiration, with the design concept the result of a number of thorough and penetrating early-stage workshop sessions with the client team, helping to build the brief on the most solid foundations. Given the lack of face-to-face possibilities for much of that time, Ekho Studio also helped lead interactive consultations with the full team on spatial priorities and design directions, so that decisions were also based on grassroots contributions about what team members needed from their space on an everyday basis.

The new workplace nurtures an easy and informal atmosphere, which in turn fosters serendipitous collaborations, as work and social behaviours are no longer siloed, and mix together very naturally. Key design features include newly-installed bi-folding doors in the large café and social area, enabling easy transition to outside space, fresh air and panoramic city views via a south-facing terrace. There is plenty of external planting, as well as a mix of informal settings to gather, socialise and do business.

There are several mixed-mode flexible settings across the floorplates designed to accommodate anything from a typical seated meeting with AV, to standing only meetings to encourage brainstorming and quick decision making, or simply to have a cuppa. Yoga, pilates and mindfulness classes are also catered for. This has all been realised through a considered layout and by selecting flexible furniture pieces for easy adaptability. Newly-provided wash/shower rooms also encourage this multi-functional ethos, enabling staff and visitors to feel comfortable transitioning between work-leisure and 'wind down' mode.





The material palette focuses on warmth and comfort throughout. Natural timber materials form the basis of the palette, complimented by monolithic concrete flooring, tactile wall renders, rich hues, pastel colour tones, live planting and carefully selected artwork. The furniture is integral to the success of the scheme, even down to small touches like the library corner with books and the opportunity to display awards and bric-a-brac, all of which contributes holistically to a sense of community.

“Numerous recent studies have proven that by introducing elements of nature into our interior spaces, our productivity, creativity and morale all increase” Sarah Dodsworth added. “A common misconception, however, is that biophilic design simply translates to adding lots of plant life to an interior. It is far more complex than that. The inclusion of natural features, materials and textures can help to mimic the outdoors and a more natural environment. It’s vital that our physical environments meet our needs, not only functionally, to help us perform better, but to support our health and wellbeing too. Part of this wide-reaching agenda can be delivered by creating environments that are adaptive and responsive to people’s individual needs – as well as being comfortable and diverse. A truly successful building will have been designed with a holistic approach to wellbeing and the creation of a community. We certainly believe that wellbeing is social as well as physical.”

<https://ekho.studio>

Photography by Billy Bolton



House for Life – Five Design Principles

Studies for a new type of Care Home in the United Kingdom

“Environmental gerontologists strive to predict which setting is going to best fit the needs and abilities of an older individual. Their theory is that place matters, and ‘it is better, more enjoyable, easier, and less adaptationally costly to grow old in some places than in others’ (Golant, 2003, p. 638). One theory explains that this attachment, or place tie, makes the senior feel more in control, secure, and have positive self-esteem. ‘Place attachment is not a state but a process that continues throughout life’ (Golant, 2003, p. 639). Removing seniors from locations they have formed attachments to helps to explain why they may suffer from relocation stress syndrome. Bringing possessions with them to the facility where they are relocating keeps some of this attachment intact and helps to boost self-esteem (Golant, 2003).”

Robert Bedner

The following is an excerpt from a report entitled “House for Life” prepared by CURA Design for a national care home provider in the UK. The report described Cura Designs architectural generators for the development of *New standard design principles for the future design of small care homes*.

The House for Life Report identified five primary design principles.

The wealth of research proving the positive health, cognition, behavioural and other impacts that access to nature has on human beings is astounding. And yet, on average we spend 90% of our time indoors, often in sterile buildings devoid of any natural elements. Adding a biophilic design approach is critical if we are to address this. The purpose of the design principles is more to recognize a way of living life to its fullest and creating well-being than creating a new aesthetic or architectural style in care home design.

Principle 1 Connect with the Community

Connecting with the community is an essential design principle for the House For Life. This connection plays a vital role towards a sense of belonging and the alleviation of loneliness. The focus of CURA’s research and design activities are as follows:

- Gain a knowledge of local history and culture.
- Identify the local culture and characteristics.
- Learn good practice visiting local care homes
- Map connections between the site and community landmarks and cross link to them.
- Considerations for visitors, children, plants and pets in the common and private spaces.
- Create a community gathering space for the residents and the community. Music, talks, films, activities.







Principle 2 Connect with Nature

Connecting with nature is an essential design principle for the House For Life. This connection plays a vital role towards a sense of belonging, the alleviation of loneliness, and a sense of well being. The focus of CURAS research and design activities for this principle would be as follows:

- Gain a knowledge of the local landscape
- Gain a knowledge of biodiversity local to the area for incorporation into the design.
- Explore residents connections to in house gardens and local wildlife.
- Explore architecture that engages with the natural world and promotes well being for the residents.
- Protect and enhance the existing biodiversity of the site for the benefit of all.

Principle 3 Flexibility with Needs and Services

Understanding functional requirements of the spaces are vital for the working day to day aspects of the care home.

- Consider all care types and operational needs and how they are linked to each other and the community.
- Ensure that all of the space is being used all of the time by different types of Residents and visitors. Ensure that spaces can be multifunctional and incorporate movable walls and partitions.
- Considerations for visitors, children plants and pets in the common and private spaces.
- Interviewing all management and staff to understand their needs.
- Technological considerations and Code considerations.
- Post project evaluations.

Principle 4 Facades and the Spaces In Between

Entrances, interior and external doorways, windows, and exterior spaces between and adjacent to the care home are vital zones for interacting with nature.

- Care home primary entrance.
- Residential unit entrance doorways and doorways to gardens.
- Windows, skylights and ventilation that respond to residents needs.
- Entrances and Exists to the care home and community and gathering space.

Principle 5 Private Spaces / Modules and New Technologies

Identify and define how residents actually live in the care home over time and facilitate this change.

- Design modular units that can be adapted to different sites.
- Design ways of living in residential spaces that are not fixed and can absorb anything whatsoever to satisfy the changing demands of the owner.
- The best living space does not consist of the number or size of the rooms but the quality of life and well being that the residential rooms enable.
- Incorporate current technologies that are linked to smart phones and laptops for better control of the space and as well protection in case of falls or mishaps.

The benefits of Biophilic Design

Biophilia is defined as love of life or the urge for humans to seek connections with nature and other forms of life. Biophilic design (an extension of biophilia) is a sustainable design strategy that incorporates reconnecting people with the natural environment for the benefit of their mental, physical and spiritual well being.





CURA's five design principles for a "House for Life" are based on building upon existing validated scientific evidence that draws both from studies regarding the current state of home care design and as well studies that show the benefits of biophilic principles when they are applied to the built environment.

These studies are well documented internationally and demonstrate, categorically, that not only does biophilic design benefit the well being of the residents in the care home but as well the staff and the overall operation of the care home itself resulting in higher efficiency and productivity for the business and job satisfaction for the staff. From the environmental point of view, it is the right thing to do as CURA are committed to protecting and enhancing the existing bio-diversity on the site.

Biophilic design strategies combined with professional research create a win-win strategy for the business, the residents and for nature.

The research was conducted in 1991 at two comparable nursing homes, the Chase Memorial Nursing Home in New York and a control facility at an undisclosed location. Below is a list of outcomes obtained from the research that occurred at the Chase Memorial Nursing Home after the Eden Alternative practices were implemented (Weinstein, 1997, p. 6):

- Decrease in urinary tract infections, upper respiratory infections, and other infections.
- Significant decrease in mortality rates.
- 15% fewer deaths at 18 months past intervention.
- 25% fewer deaths at two years past intervention.
- This resulted in 8 lives being saved.
- 26% decrease in turnover among Certified Nursing Assistants, therefore lowering recruitment and training costs.
- Decrease in medication use.
- The daily cost of medication used by residents at the control facility was \$2.32 per person. The daily cost of medication used by residents at the "Edenized" facility was \$1.44 per person. This is a 38% difference.



On how natural systems lead to better prevention and more effective cure

“Now is the time to push and pull our healthcare estate toward a more human and nature-centric way of working.”

David O’Coimin

I always talk about wanting to make better the spaces where we work, play, learn and heal. My sense is that we are leaving a lot of potential locked within people. That is because these spaces are hindering rather than amplifying our neurodifferences and hence neuroadvantages.

After browsing through Alex’s book, In my last two articles, we dived a little into the corporate and the home spaces in the context of work. This time we’re going to spend a few minutes thinking about where and how we heal. I will reveal some frightening statistics and some inspiring tales, eventually unveiling

some approaches I’ve seen which can help improve what goes on in these vital spaces.

We can think about this from two important angles – prevention and cure:

How can a nature-centric approach help us to stay out of healthcare; and how can it help to make healthcare more effective? The latter through supporting more effective treatment, but also by helping caregivers to operate more powerfully. How can Trauma Informed Design and Design For The Mind help to guide us on this path?



It is with these notions in mind that I present the following.

We spend 90% of our time in buildings. For the average adult, it even means spending over 1/3 of your life at work, yet the most common buildings, including in our vital healthcare estate, offer compromised air quality, dim lighting, inactive work practices, and little to no connection to nature.

40 billion Euros per annum is lost in working days, healthcare costs, impaired learning & reduced productivity due to excessive noise levels in The EU.

Recommended noise levels in classrooms and hospital wards is 30-35dB. Actual noise levels sit around 65-94dB. How does this affect our modes of learning and healing? Put simply, they are at least deeply hindered and at worst shattered. There is a significant issue at play, but also a huge opportunity to make positive change.

When I think about nature, it connects to me in four modes – to the sights of vegetation, earth, water & sky which give us a sense of place, context and connect to our instincts as carers and to our needs as children of mother nature; to distinctive ambient sounds which vibrate with our own molecular make-up; to clean healthy scents including fresh air which enrich our engines; and finally to touch, both in terms of momentary stimulating and enriching contact with natural elements, but also in terms of interaction, nurturing and being part of growth.

Probably nobody reading this will be surprised at the power that plants can bring to an environment and how

interaction with growing can not only enrich an individual's sense of self but also actively accelerate healing. But if we look more broadly at nature, thinking about materials, systems, and cyclical processes – by incorporating nature and its structures and rhythms into our built environment, we can effectively 'heal-on-the-go'. Prevention before cure. This is greatly missing from our pre-healthcare world.

A Swedish experimental study of nursing home residents revealed that residents' power of concentration increased after a visit to the garden, compared to resting indoors. Similar benefits are available to all of us and so access to nature can be considered a vital, even basic, human need, and something which needs to be prevalent. Could we do more in the workplace, shopping malls, communities etc before someone even comes in contact with the healthcare estate?

Another review showed that sensory gardens and horticultural activities were associated with decreased behavioural symptoms (agitation), improved sleep and reduced use of psychotropic medications in dementia care. Would a more natural built environment provide a level playing field for our neurodivergent population, for whom the world as it is now can be an unforgiving, excluding, debilitating place? Certainly, it would, as the British Standards PAS 6463 Design For The Mind puts forward.

In healthcare environments themselves, which are under constant strain to perform miracles, **to push and pull our healthcare estate toward a more human and nature centric way of working.**





We've seen that by creating small restful cubby holes and by activating dead-space under stairs or even in corridors, or in neglected courtyards, bringing peaceful natural moments to staff, patients and their support, the results demand greater attention and adoption.

Colour can have a significant effect on the mind. From a biophilic point of view we are not simply talking using green to echo nature but also tapping in to how the brain processes colour to affect mental state. Calming lilacs, invigorating magentas, purple to green light helping rebalance the visual effects of dyslexia – using colour to affect mood and behaviours which can help prepare for treatment, aid the treatment process and accelerate the recovery process. Pantone, the globally recognised experts on colour, have for the past two years now, chosen deeply mindful, powerful 'neuro-

colours' as their Colour Of The Year – those being Very Peri and Viva Magenta. More on that in a future article.

So what can we do now?

Speaking from our direct experience, affording staff small mindfully coloured spaces in which to rest and recharge brings psychological safety. Not just the actual experience in the space, but also the knowledge that it is there if needed. This can aid stress reduction, rapid recharge and self-care, all of which lead to greater synaptic availability.

Providing parents with a space to work remotely while long-term onsite during a child's care, greatly reduces the significant stresses present, aiding better decision-making.



Giving patients the possibility to remove themselves at least temporarily from the toxic noise levels and external stimulations present in hospitals, help to rebuild the body's own immune system, accelerating recovery or increasing resistance to attack.

To conclude.

Providing healthcare facilities teams with flexible nature-inspired modular elements, ones which can adapt and evolve depending on the need of a space; elements of seating, shelter, and planting; items which can be arranged to create zones, boulevards, working areas, tribal meeting places, community settings, mindful ad-hoc consultation space; bringing new life to corridors, atria, stairwells, courtyards; and doing

all of this in a sustainable circular way which uses recycled natural materials and works well with already present onsite elements – this is where we see great opportunity right now to push and pull our healthcare estate toward a more human and nature-centric way of working.

Begone B2c and B2B. Let's have H2H and H2N.

Human to Human and Human to Nature.

www.nookpod.com

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THE SCIENCE BEHIND BIOPHILIC DESIGN

Biophilic Design as many of us realise is more than just plants. We need nature-inspired design and all that entails good natural circadian lighting, non-reflective surfaces for better healthier acoustics, appropriate gentle nature soundscapes, water elements, colours inspired by nature, natural materials, views of nature which inspire awe, zoning and 'landscaping' our interiors, creating prospect and refuge and lots more.

In this regular section, we look at the research and science behind Biophilic Design. Dr Sally Augustin explores current and seminal research presenting it to you in a way that's digestible! Hopefully, this section acts like a springboard in your own exploration of Biophilia and human-centred design.

If you have a question for us, do sign up for our newsletter on our website www.journalofbiophilicdesign.com and email us.

Healthy Minds, Healthy Bodies via Biophilic Design

“We live in a burned-out, frazzled age. As we rush from task to task, dealing with the inevitable (it seems) calamity that prevents direct movement from Points A to B, our stress levels climb, which isn’t good news for the biological systems that keep us alive or our mental health.”

Dr Sally Augustin

When our mental health is better we’re

- **Calmer**
- **Happier**
- **Get along well with other people and are more interested in socializing**
- **Process information we receive from the world around us more effectively**
- **Have higher levels of cognitive performance and creativity**
- **Cope more effectively with challenges that living life sends our way.**

And, as our mental health improves, our physical health is apt to as well.

Biophilic design can help to counter the tensions intrinsic in modern life and keep us out of the ED and the looney bin (or both!).

Yin and colleagues (2018) found that “The indoor biophilic environment was associated with a decrease in participants’

blood pressure. . . . Short-term memory improved by 14% [in a biophilic space compared to a non-biophilic one]. Participants reported a decrease in negative emotions and an increase in positive emotions after experiencing the biophilic setting.”

Biophilic design is not magic, however. It soothes, refreshes, and elevates our minds but if your boss calls you on the weekend to demand project re-do’s by Monday morning or your teenage son/daughter runs your new car into a tree, filling your home with natural light and tuning the late night artificial light in your home to a warm mellow glow (both of which are consistent with principles of biophilic design) will not make your boss less of an ogre or fix your car—but that daylight and fine-tuned artificial light will make your life a little bit better than it would be otherwise.

Biophilic design’s powerful effects on mental and physical health come largely via its ability to reduce stress levels.

Stress is the enemy of both our mental and physical health. It activates our bodies to levels that punish our physical systems, beating them up and wearing them down before their time.

Mentally, stress distracts us from whatever we’ve planned, whether that’s the work that someone is paying us to do or playing our very best tennis or coming up with a tasty new recipe for fresh summer fruits or something else entirely. When something is causing us stress, we can’t ignore it, no matter how hard we try. The thinking we do about whatever is making us tense diverts some of our mental processing power, which is what keeps us from performing to our full potential.

Many of the ways that biophilic design soothes us also help us to mentally refresh after we’ve become mentally exhausted (doing knowledge work, for instance), all of which improve our cognitive performance as well as our mood. To design biophilically for these vital effects:

- Let as much natural light into a space as you can. Be wary of oversized windows that lead to glare, greenhouse effects that up the temperature to uncomfortable levels, or drafts that create uncomfortable wind currents through a space – they’re all stressors. Window blinds and careful furniture arrangement can do a lot to keep them at bay and using more matte than shiny surfaces can also promote glare-free living as do clerestory windows (but those higher windows can cut out useful views, for example, of nature).

- When natural light just isn’t bright enough for whatever is planned, add circadian lighting to improve physical health, mood and cognitive performance and to reduce stress. Circadian lighting mimics nature’s daily cycles of sunlight colour and intensity. To mimic the sun, light should be slightly dimmer and warmer at the beginning and end of the day and brighter and cooler at midday. Also, to be most effective, the warmer cooler light should come from fixtures that are on tabletops or floor lamps and the cooler light should flow from higher, overhead ones. Lights with different sorts of bulbs in them can be turned on at different times of day to support circadian cycles. Ticleanu (2021) reports that “A combination of bright daytime light and night-time darkness is essential for circadian entrainment and maintenance of a regular daily sleep–wake cycle. . . . Find indoor seating positions that receive abundant daylight levels but still allow for visual comfort to be maintained. For example, facing towards windows but at an angle and/or at a distance away from them so that glare does not occur, and visual task details are perceived easily, quickly and comfortably. . . . When using electric lighting, ensure it is brighter and has a cooler white colour appearance from mid-morning until early afternoon, then dim it down and set it to warmer white colour appearance towards the end of the day. . . . [after sunset] Face away from electric light sources as much as possible to reduce light levels at the eyes.” Mental and physical health are better when the spaces where people sleep are as dark as possible. Omidvar and Brambilla (2021) even link light colour to thermal experiences. They report that “Artificial lights categorized in the

range of daylight (5000 K–6500 K) seem to cause less physiological stimulation and consequently less manipulation of thermal perception. . . . 2800 K light stimulates more physiological processes and induces a more incredible feeling of warmth than 6500 K light. . . . changing the interior light colour could change the skin temperature between 0.3° and 0.8°. . . . People are much more sensitive to changes in the colour of light in warm environments.” The researchers recommend neutral white light for warm areas and 4000 K and 2800 K lighting in cool areas to increase user comfort.

- Make sure that there’s moderate visual complexity in a space. Moderate visual complexity in days of yore made it easier for us to see danger approaching. Since we’re using the same visual system now as we did when lions, and tigers, and bears were a much greater concern, on a daily basis, to most of us, we are still stressed when visual complexity raises above or falls below this level. Using more colours and patterns in a space increases visual complexity, for example, as does create a space with less apparent order. For reference: a residential interior designed by Frank Lloyd Wright has moderate visual complexity.
- Manage sightlines. One of the best-known tenets of biophilic design is supplying “prospect and refuge.” This means providing users with views out over the nearby area from a place where they feel secure. Today, a gathering space in a niche along a circulation route in a large building, a canopy bed, or a window seat, inglenook, or balcony are places where we have prospect and

refuge (the best and most magical effects seem to be in treehouses); sitting on a branch high above the ground in a tree on the savanna made us happy in just the same ways many, many generations of Homo Sapiens ago. When we are in a space with prospect and refuge, we feel comfortable and our brain is freed up, it’s not preoccupied with what may be lurking about waiting to eat us, it works well. Sightlines were important to our earliest ancestors (our forebears had to be able to see danger approaching, as noted earlier) and their careful management can still boost our mental and physical wellbeing. Favoured seats and preferred places to sleep have a good view of the entrance to the place we’re in, for example. Not convinced? Think about what seats get scooped up first in restaurants where people can seat themselves – they’re in high-backed booths and have views of the restaurant’s entrance. Good sightlines do not necessarily require a wide-open space, just well-placed doors, interior windows, screens, etc.

Place green plants in view. Seeing green plants (ones that are alive and ones that are good enough copies of real ones to fool us into thinking that they are real), inside or outdoors, enhances the performance of our brains and bodies while lowering our stress levels and improving our mood. Green walls have, specifically, been linked to better health. Soininen and colleagues (2022) found that “air-circulating green walls may induce beneficial changes in a human microbiome. . . . The green walls (size 2m×1m×0.3m) used in this study . . . circulate indoor air. They first absorb the indoor air through the plant roots and soilless substrate, then automated fans circulate the air back to the room.

When the indoor air passes through the green wall, volatile organic compounds (VOC) are efficiently removed via biofiltration by microbes, plants and the growing medium. . . . Each green wall contains three plant taxa (heartleaf philodendron (*Philodendron scandens*), dragon tree (*Dracaena* sp.) and bird’s nest fern (*Asplenium antiquum*) growing altogether in 63 units. Each unit consists of two to four plant individuals. . . . Spending time in green wall rooms seems to be related to increasing abundance of health-supporting skin microbiota within a relatively short time period of two weeks.”

- Don’t forget the art. Art that shows recognizable nature scenes (in 2 dimensions in photographs or paintings; in 3 dimensions via sculptures) cuts our stress levels and mentally refreshes us, returning us to peak brain performance. If the nature scenes viewed show water (for instance, a real pond or a fountain, it doesn’t matter which) bonus restoration points should be awarded.
- Consider some natural fractals. Seeing some visual fractal patterns, as found in nature, leads to positive experiences. Terrapin Bright Green has prepared a useful resource designers can use to incorporate these sorts of fractals into their projects (Trombin, 2020). On the website at which Terrapin’s work is shared, the Terrapin team reports that “Fractal patterns are an intricate ubiquitous machinery behind nature’s order. . . . The unique trademark of nature to make complexity comprehensible is underpinned by fractal patterns, which apply to virtually any domain of life; to the design of the built environment, fractal patterns may present opportunities to

positively impact human perception, health, cognitive performance, emotions and stress. Yet, designing with fractals can also come with implementation challenges. This paper provides a high-level conceptual framework for thinking about design with fractals, and for promoting restorative and satisfactory environments, with a focus on the indoor environmental quality. This paper includes primary scientific research on fractals, perception and health, metrics and terminology used to describe fractals, and perspectives on design, technology and other factors that may influence the creation of fractal patterns for design projects.” The Terrapin report provides information on tools/software that can support designing with fractals.

- Don’t forget the smells. Nabhan, Daugherty, and Hartung (“The Smell of Desert Rain May Be Good for Your Health” 2022) found that “Desert dwellers know it well: the smell of rain and the feeling of euphoria that comes when a storm washes over the parched earth. That feeling, and the health benefits that come with it, may be the result of oils and other chemicals released by desert plants after a good soaking. . . . ‘The Sonoran Desert flora is one of the richest in the world in plants that emit fragrant volatile oils, and many of those fragrances confer stress-reducing health benefits to humans, wildlife and the plants themselves,’ said Gary Nabhan. . . . ‘The fragrant volatile organic compounds from desert plants may in many ways contribute to improving sleep patterns, stabilizing emotional hormones, enhancing digestion, heightening mental clarity and reducing depression or anxiety,’ Nabhan said.”

- Ponder the sounds. Hearing the sorts of nature sounds that might be present in a meadow on a lovely spring day (for instance, a burbling brook, wind gently rustling leaves and grasses, birds peacefully singing) has been shown to reduce stress levels and enhance cognitive performance.
- Maybe add some animals. Being around animals, particularly fish in aquariums, has positive implications for our mental and physical health. Clements and colleagues (2019) report after a literature review that “Nineteen studies were included [in their analysis]. . . . Outcomes relating to anxiety, relaxation and/or physiological stress were commonly assessed. . . . Preliminary support was found for effects on mood, pain, nutritional intake and body weight, but not loneliness.”

Ventilation influences our physical health and mental health and performance and, particularly if openable windows and moving air are part of the ventilation process, that ventilation is biophilic. Ventilation to fight disease transmission has gotten a lot of attention recently, particularly at the beginning of the COVID-19 pandemic. Being less likely to become ill because of the air you're breathing does, of course, do nice things for the stress levels you are experiencing as well as your health. Less attention has been focused over the years on the effects of well-ventilated air on mental performance, which has been extensively researched by a team at Harvard; as ventilation improves, not surprisingly, so does mental state and cognitive performance. Allen and Macomber, allied with the group at Harvard, recommend in their 2020 book that building managers/

designers “Increase the ventilation rate to a minimum of 30 cfm/person.”

Joseph Allen, the director of Harvard's Healthy Buildings program clearly lays what his team has learned about building ventilation. For example: “My team at Harvard recently published research on the health of several hundred office workers around the world for more than a year. We found that people performed better on cognition tests when the ventilation rate in their working environment was higher. When they were exposed to more outdoor air, they responded to questions more quickly and got more answers right. Our team reached a similar finding a few years back in a tightly controlled laboratory setting. In that study, people did notably better on cognitive tasks when carbon dioxide made up about 600 parts per million of the air they breathed than when it made up about 1,000 parts per million. . . . In our new research, we observed the effect in real buildings globally. We also observed a reduction of worker performance even at indoor CO2 levels that many researchers had previously assumed were perfectly fine.”

Natural experiences can be awe-inspiring. Monroy and Keltner's 2022 work confirms the value of feeling awed; people can be awed in various ways, including, for example, via viewing extraordinary nature or workmanship or materials. The research duo reports that “Awe engages five processes—shifts in neurophysiology, a diminished focus on the self, increased prosocial relationality, greater social integration, and a heightened sense of meaning – that benefit well-being. We . . . apply [our] model to illuminate how experiences of awe that arise in nature,

spirituality, music, collective movement, and psychedelics strengthen the mind and body [they enhance mental and physical health].”

Just thinking something is natural may be enough to improve our lives. Haga and colleagues (2016) share that “Participants conducted cognitively demanding tests prior to and after a brief pause. During the pause, the participants were exposed to an ambiguous sound consisting of pink noise with white noise [more information on pink and white noise follows, in later paragraphs] interspersed. Participants in the ‘nature sound-source condition’ were told that the sound originated from a nature scene with a waterfall; participants in the ‘industrial sound-source condition’ were told that the sound originated from an industrial environment with machinery; and participants in the ‘control condition’ were told nothing about the sound origin. Self-reported mental exhaustion showed that participants in the nature sound-source condition were more psychologically restored after the pause than participants in the industrial sound-source condition.”

Other factors that improve our mental health but that are not necessarily biophilic include:

- Having a comfortable amount of control over the physical environments in which we find ourselves, which also means individuals and groups can access truly private spaces when they feel that they are necessary and also their own territories (permanent or temporary, and temporary can be very brief, for example the time spent in an accountant's waiting room).

- Being in a space and particularly “owning” a space that we feel send positive messages about us. For example, someone who is a fervent environmentalist gets a mental health boost when they work or live in a place that is known to be designed in an environmentally friendly way.

- Socializing, in person, in real life, with the people we want to spend time with when we choose to do so. Even the most introverted human is a social animal. Design can make the time we spend with others much more pleasant.

- Accomplishing whatever we have planned. So, if we need to concentrate our office needs to support our efforts to focus and a kitchen where we plan to bake a birthday cake needs a stove.

Design can also support physical health in several ways that are not purely biophilic. By, for example:

- Encouraging healthy eating, as discussed in an earlier issue of The Journal of Biophilic Design.
- Supporting sleeping and napping.
- Building in opportunities for activity, inside via furniture such as sit-stand desks, sensory-aware circulation spaces and stairway design, or circulation options that are not as direct as they might be, for instance, and outside via increasing area walkability.

Biophilic design can boost our mental and physical health – the neuroscience research presented in this article shows how.

www.thespacedoctors.com
www.designwithscience.com

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GIVING OUR SENSES A WORKOUT

“When was the last time you looked at the horizon? I mean REALLY looked at the horizon? Claire Francis of the Sensory Trust explores the science behind how and why we need to rethink how we engage our senses.”

Claire Francis

We all know that being outside in nature is good for us. A wealth of evidence has emerged over recent years demonstrating that time spent outdoors positively impacts our health and well-being. It calms us, improves sleep patterns, energises us, motivates us and regulates serotonin levels and that’s just for starters. But, have you ever considered whether you are getting the most out of your time outside? Are you really working your senses to reap all the benefits that contact with nature can bring?

We communicate and interact with the natural environment not through verbal language but through our senses. We acknowledge the seasons when our senses detect the changes in temperature, moisture and sunlight. We smell new plant growth, hear birds and insects and taste the air after the rain.

Sensory experiences build layers of memories in our brains which in turn create an emotional attachment to place. The more sensory experiences that we expose ourselves to the stronger the connection to nature and the outdoors

becomes. By forging these connections, we open ourselves up to all the healing possibilities of nature.

A friend recently shared with me an interesting theory regarding gazing at the horizon. Our ancestors would have gazed at the horizon and widened their peripheral vision as much as possible in order to scan the landscape for threats. This act produces a calming effect, safe in the knowledge that no immediate action needs to be taken. If immediate action did need to be taken (say, in the form of an attack) then the field of vision would naturally narrow and the fight, flight or freeze stress response kicks into play.

It’s an interesting theory, but how does this fit in with the modern world and can just looking at something differently really have an impact on our health and well-being?

Dr Andrew Huberman, a neuroscientist at Stanford has been studying the impact of vision and breathing on stress and the body for over 20 years. His research has revealed that when we look at something

stressful (or exciting) our field of vision narrows so that one thing is in laser-sharp focus and the rest is blurrier. Our eyeballs actually rotate slightly inwards towards our nose. In contrast, by expanding our visual field the body is able to switch off the stress response.

So, to take this one step further we can actually induce a state of calm and reduced stress by allowing our eyes to relax and take in a wider panorama or view. Forget focusing on one thing and instead broaden your horizon.

"If you keep your head still, you can dilate your gaze so you can see far into the periphery – above, below and to the sides of you. That mode of vision releases a mechanism in the brain stem involved in vigilance and arousal. We can actually turn off the stress response by changing the way that we are viewing our environment, regardless of what's in that environment." – Dr Andrew Huberman

It's not just sight that can impact our state of well-being. Consider how many times you have been for a walk to ruminate on an issue and found yourself so lost in thought that you don't remember anything about your walk, what you've seen, heard, or smelled. Did you even look up? With the ever-daily stresses of life, it's all too easy to get caught up in our problems, listening to our internal chatter and not giving ourselves permission to switch off and calm down. By taking time to stop and engage our senses we can gain perspective, live in the moment, and enjoy noticing tiny details that may otherwise have passed us by. These tiny details are often referred to as micro awe. By experiencing a sense of awe, we are allowing our minds and bodies to shift perspective and appreciate the vastness of the natural world, often beyond

our comprehension. Feelings of isolation and disconnection are reduced and replaced by feelings of curiosity, collective thinking, and calmness.

Focussing on one sense at a time can be a great way to begin connecting with nature and reap the physical and emotional rewards. Start by stopping and taking in the sounds around you, focusing on how the air feels as you move through it or perhaps running your hand through long grass. Look up, notice the sky and of course don't forget the horizon. Take a big deep breath, how does the air taste and what can you smell? Finally, focus in on something around you and allow your mind to be curious. We are all sensory beings, each sense working to trigger a different part of the brain acting to ground us, connect us and help us to be present in the moment. Next time you're outside take a moment to really give your senses a workout, you might be surprised by how you feel.

Article by Claire Francis, Sensory Trust

Sensory Trust is a national charity and leading authority on inclusive and sensory design. We create meaningful and lasting connections between people of all ages and abilities and the natural world. Our mission is the enhancement of health and well-being through sensory experiences and meaningful connections with nature. We believe everyone should have equal access to outdoor spaces as well as emotional and intellectual access to nature experiences. Inclusion and accessibility are at the heart of all our work.

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Andrea Harman

Promoting recovery and wellbeing in Healthcare

*“Our experience of a space affects how we feel,
and we know that connecting to nature in
an indoor environment has a restorative
and comforting effect on us.”*

From a design perspective the connection to nature often focusses on light and the visual elements of a space however what we hear plays a fundamental role. We tend to prefer the calming sounds of nature not jarring sounds that alert us to change and danger (even though in context these are beneficial). So, the sound within a space can either positively or negatively affect the users and within healthcare, the focus should be not just on patient experience and outcomes but also staff comfort and wellbeing.

If we look at hospitals specifically there are many ways that good acoustic design has been shown to be beneficial to both staff and patients. The two groups have very different activities to perform in the same space. Each of these functions requires its own acoustic solution and activity-based acoustic design can be used to deliver significant improvements. This involves defining spaces from three perspectives – activity, people and space – and then finding the common ground where all perspectives benefit.

Whilst all the causes and associations are not yet clear for patients sleep and rest has been shown to be a key aspect of recovery; our ability to sleep is closely linked to noise especially in unfamiliar places and situations. The hospital environment for recovery and restoration should promote daytime rest or low levels of interaction and night time uninterrupted sleep. However, our hearing is a sense that does not sleep, always being alert, and unusual or unwanted noise will often keep us awake at night or wake us up and interrupt our rest.





Hospitals are often noisy spaces with alarms, monitors, speaking, snoring and movement of staff, patients and supplies. They are 24-hour operational spaces and although noise levels tend to decrease at night from high daytime levels, they are still far noisier than recommended levels for sleep. In answer to this, reducing the spread of noise through clever acoustic design is crucial. This will help create a calm comfortable space, which aids rest and sleep. Research has shown that achieving the best room acoustic design in hospital has resulted in patients requiring less pain medication, having lower blood pressure and having a reduced length of hospital stay with fewer patients readmitted.

For staff the acoustic conditions often affect communication and concentration; this is in an environment that is high pressure and still often relies on speech and listening to provide information.

In emergency departments, noise is regarded by over 60% of staff as being 'very' or 'somewhat' burdensome. With 70% of medical errors in emergency departments traced back to 'communication shortcomings' – exacerbated by multitasking and interruptions. In a good room acoustic environment staff felt less stressed, with

more control over their role so it is clear to see why this is important.

Good room acoustics also plays a role in other healthcare establishments. In care homes for older people, age-related hearing loss (presbycusis) often causes communication challenges. Approximately 70% of people aged over seventy have hearing loss; in a poor acoustic environment with high levels of background noise, speech communication becomes a real effort resulting in fatigue, poor self image and frequent misunderstandings. This often results in withdrawal from social situations leading to isolation and depression. Affecting the room acoustics can help promote a good environment for speaking and listening.

Mental health hospitals are another healthcare example where good acoustic design is key. The most widespread responses to noise within a residential mental health unit are annoyance, anxiety, fear and confusion. Excessive noise may affect mood and behaviour, reducing engagement and increasing levels of challenging behaviour. Keeping the sound environment comfortable and stopping noise spreading has shown positive outcomes.

Initial steps to good acoustic design include identifying any sources of excessive or intrusive noise and deciding if these are necessary or could be removed or adapted.

Layout and zoning of the space to increase the distance between the patient and the noise source, decrease the distance covered by staff and supplies and offering quiet zones maybe an option. Then the room shape, size and finishes should be assessed for their impact on the acoustics.

The final area of consideration for improving acoustic performance is through the addition of sound absorption.

Sound absorption is utilised to reduce the sound reflections in a room, reduce the intensity and impact of sudden or loud noises that trigger our physiological fight or flight response and help control the movement of sound through a space so that it does not impact other users and reduce the levels of background noise

that can affect our communication and concentration.

In the same way as other elements of design for occupant well-being, room acoustics should be addressed during the initial design and construction process for any new healthcare building or refurbishment, when it is less expensive and easier to accomplish.

<https://www.ecophon.com/en/>

For more information

Noise in healthcare research roundup:

<https://www.ecophon.com/uk/about-ecophon/newsroom/hc-research-summary/impact-of-noise-in-healthcare---a-research-summary/>

Nature images in a children's hospital design:

<https://www.acousticbulletin.com/clever-hospital-designs-prevent-noise-and-calm-down-patients?highlight=hospital>

Age related hearing loss:

<https://cks.nice.org.uk/topics/hearing-loss-in-adults/background-information/prevalence/>

Podcasts:

<https://www.ecophon.com/uk/about-ecophon/newsroom/a-sound-effect-on-people---ecophons-acoustics-podcast/>

<https://journalofbiophilicdesign.com/podcast-journal-of-biophilic-design/sound-without-walls-essential-improved-acoustics-in-healthcare>

BIOPHILIC DESIGN AND THE POTENTIAL IMPACT ON TINNITUS

“Tinnitus is defined by the British Tinnitus Association as a ‘sensation of hearing a sound in the absence of any external sound’, It can present as many different individual noises or mixtures of sounds and could be expressed as a whistle, whine or hiss, music, voices or countless other descriptions.”

Robert Shephard

Although subjective tinnitus (the most common form of this symptom) can only be heard by the individual experiencing it, the sound is as real and present as any other resulting from an external source that could be heard by all. Tinnitus is an extremely common yet complex symptom that relates to a diverse range of precipitating factors. Some people will consider it to be only a mild irritation, but many of those that experience it, find it has a devastating impact on their lives and consequently those close to them.

Although sometimes its presence will be as a result of a single cause, more often than not its emergence and continued perception is multi-factorial and therefore to effectively ease or treat tinnitus, a complete and holistic assessment will provide an understanding of the precipitating and underlying factors relating to that individual. This allows the clinician to offer a more targeted and effective approach to achieve a better outcome. It is not unusual with many of

those experiencing tinnitus, that a highly influential factor linked with the presence and severity of their symptom is stress, anxiety or what could be thought of as an emotional state. So, to manage tinnitus we must also recognise and address these contributory associated negative emotions. If indicated, as an important element of our approach, we may utilise various therapies, and directive counselling, and encourage relaxation or mindfulness in our care plans.

Until recently I was unaware of the term Biophilia, and it was not until I attended a conference last year and spoke with Vanessa Champion, someone with a clear passion for the subject did I hear the expression Biophilic design.

Whilst I was unaware of the exact term, I believe we all recognise that we have an innate connection with nature. I know that I have always felt most calm in woodland. If I wish to relax, I will walk with our dog in the woods or fields near our home. As an audiologist with decades



of experience, I have often recommended to my patients, when appropriate as part of their treatment, to recognise the stress they may be experiencing and when possible that they should make time in their day to step back from any stress and relax. During the day, take a break away from the office or work environment, and ideally find a green space to relax for even a short while. At the weekend reclaim some balance and do the things that relax them. This will often be outside and away from urbanisation; cycling in the countryside, walking in the woods, riding or just listening to music in the garden.

So, although I did not know it had a name, I have been encouraging biophilia with my patients for many years.

As a clinician, I have not been schooled in the complexities of biophilic design, but I would suggest that any planning of a building or space that encourages relaxation and that connection with nature

will be beneficial in reducing anxiety and stress, improving general wellbeing, and could therefore have a positive effect on how someone will perceive their tinnitus. Conversely, those environments that are sterile and remove us from that connection may not be beneficial to how a person manages their auditory symptom. I have some patients that find certain places with harsh or reverberant acoustics, will initiate or worsen their particular auditory condition.

entandhearinghealthcare.com

Rob Shephard is Consultant Clinical Audiologist and has for 38 years worked in hospitals helping treat people with hearing and balance disorders, he specialises in tinnitus and prevention of induced auditory conditions. Read more about him on the “Contributors” page on our website <https://journalofbiophilicdesign.com/contributors>

WHAT'S ALL THIS NOISE?

“We pose some questions to leading acousticians working in the healthcare system and related workplaces, to find out just what they think are challenges in hospitals, care homes, surgeries, ICUs and more. They generously also share some research papers which are interesting rabbit holes to venture down in order to find out more.”

Dr Vanessa Champion

Alex Wilson, Chartered Occupational Hygienist CMFOH

As an Occupational Hygienist, might you have some thoughts on the current state of our healthcare facilities, the NHS, how the environment can sometimes have a negative impact on our healthcare outcomes?

“Your question is an interesting one. As an Occupational Hygienist my view is similar to that of me as a human being. An environment can very much affect a person’s feelings and possible outcomes. I have had very positive experiences recently with the NHS so it’s hard to give an overall yes or no. There are busy times, rules and political issues in all workplaces.

The NHS and or healthcare is no different. Maybe some people in this sector feel as if they can or cannot get away with it.

What I do know as an Occupational Hygienist is that this sector needs people to protect people’s health. That’s not the public or patients but the employees. The pandemic taught us that Healthcare needs hygienists to understand their own exposures to harmful health hazards and to put in place suitable and effective preventive controls to reduce the burden of ill health on staff. That’s chemical, ergonomic, physical, biological and psychosocial.”

Dr David Greenberg, Dr of Auditory Neuroscience. PhD, UCL Ear Institute in the faculty of Brain Science.

How do you feel about the noise levels in healthcare environments, are some worse than others? What are the main issues, and most importantly how can we address them?

“Noise levels in healthcare environments can have negative effects on patient outcomes, staff communication and work efficiency. Research has shown that noise levels in intensive care units and emergency departments tend to be particularly high. The main issues with noise in healthcare environments include poor acoustics in the design of the space, high levels of ambient noise from equipment and staff, and inadequate soundproofing.

To address these issues in terms of environmental design, several strategies can be implemented. These include:

- Incorporating acoustical design principles into the layout and construction of healthcare facilities, such as using sound-absorbing materials and designing spaces to minimize sound reflections.*
- Using sound-attenuating materials and barriers to reduce ambient noise levels.*
- Incorporating sound-masking systems, which add background noise to a space to conceal speech and other sounds.*
- Making changes to equipment and operations, such as using quieter equipment and scheduling noisy procedures during certain hours.*
- Encouraging staff to be aware of noise levels and to make an effort to keep noise to a minimum.*

It’s important to note that each healthcare facility is unique and will require a tailored approach to tackle the noise issue. A thorough acoustical assessment of the facility and its operations is critical in developing an effective noise reduction plan.”

Research Papers

There is a great deal of research on the impact our environments have on our hearing and therefore our physical and mental health. Here are some recommendations from our Hearing Conservation Association network.

A new approach to workplace hearing conservation Dr David Greenberg
<https://www.entandaudiologynews.com/features/audiology-features/post/a-new-approach-to-workplace-hearing-conservation>

Occupational noise-induced hearing loss (ONIHL) is the most common occupational health condition in the world and the most commonly reported occupational disease in Europe [1]. It is estimated that nearly two million of the 12 million UK adults suffering from hearing loss have had their hearing damaged due to noise exposure at work [2].

Noise at night in hospital general wards: a mapping of the literature, British Journal of Nursing

<https://doi.org/10.12968/bjon.2015.24.10.536>

“Interventions to reduce noise were targeted at staff education, behaviour modification, care organisation and environmental solutions. The scoping suggested that when compared with specialist units, there is little evidence on effective interventions reducing disturbance from night-time noise on general wards. The available evidence suggests a whole systems approach should be adopted to aid quality sleep and promote recovery.”

The experience of noise in communication-intensive workplaces: A qualitative study
<https://doi.org/10.1371/journal.pone.0280241>

“I came across this fascinating article from Sweden, published just a few days ago. It’s about the impact of noisy workplaces - not the usual suspects but rather a preschool, an obstetrics ward and intensive care. It evidenced the damaging impact of noise on employee concentration, motivation, wellbeing, and effectiveness; and it distinguished between ‘unnecessary’ noise and essential sounds. It deepens our understanding of the whole field of human-sound interaction and strengthens arguments for better noise monitoring practices.”

Dr Lorraine Gailey, Founding Director, Hearing Partners CIC

Acoustic Solutions:

As well as awareness of the issues, from our design point of view, researchers and advisors advocate for better design of the space for patients within a hospital. Use materials with strong noise-absorbing abilities to help minimize the echoing of noise from activities outside the room. In the study conducted by Hsu et al. (Hsu, T., Ryherd, E., Persson Waye, K., & Ackerman, J. (2012). *Noise Pollution in Hospitals: Impact on Patients*. Journal of Clinical Outcomes Management, 19(7), 301-309) sound-absorptive ceiling tiles were placed in rooms that decreased reverberation time, the time it takes for noise to decay, and ultimately helped reduce noise (2012).

How Noise Affects Patients in Hospitals, Proceedings of the Human Factors and Ergonomics Society 2019 Annual Meeting pp 1510 ff

“Hospitals are where patients stay to improve their current condition and well-being. However, many studies demonstrate that noise has negative effects on patients during their hospital stays. Noise exposure can also lead to increased stress levels for patients (Padmakumar, A. D., Bhasin, V., Wenham, T. N., & Bodenham, A. R. (2013). *Evaluation of Noise Levels in Intensive Care Units in Two Large Teaching Hospitals – A Prospective Observational Study*. Journal of the Intensive Care Society, 14(3), 205-210). In addition to sleep, noise largely influences physiological functions in patients.”

We know that the more we experience noise the more, we as patients experience a higher pulse rate, which increases the possibility of “readmission into the coronary care unit” (Delaney, L. J., Currie, M. J., Huang, H. C., Lopez, V., Litton, E., & Van Haren, F. (2017). *The nocturnal acoustical intensity of the intensive care environment: an observational study*. Journal of intensive care, 5, 41.). Finally, we also know that our ability to communicate and speak clearly drops when we are bombarded by lots of noise, this is backed up by research reported by Pope et al. (Pope, D. S., Gallun, F. J., & Kampel, S. (2013). *Effect of hospital noise on patients’ ability to hear, understand, and recall speech*. Research in Nursing & Health, 36(3), 228-241).

Clinical review: The impact of noise on patients’ sleep and the effectiveness of noise reduction strategies in intensive care units

<http://ccforum.com/content/13/2/208>

One of the main problems that we face when we don’t get enough sleep is that we are at a greater risk of experiencing delirium, and it affects our respiratory, cardiovascular and immunological systems. “Sound-absorbing treatment is a relatively effective noise reduction strategy, whereas sound masking appears to be the most effective technique for improving sleep. For future research, there should be close collaboration between medical researchers and acousticians.” Introducing “Sound-absorbing treatment” is a “relatively effective noise reduction strategy”, and they have found that “sound masking appears to be the most effective technique for improving sleep.” So, the key here is if you can’t reduce the noise levels to a healthy minimum, then bring in acoustic solutions to help patients sleep and heal better. Biophilic Design is more than plants, it is about bringing an environment to a condition which resembles a good day outside, and as Andrea Harman often reminds us, nature doesn’t have walls, so introducing acoustic and sound solutions which trigger our ears and therefore our brains into experiencing a feeling similar to being outside then we also know from other research that this helps bring our cortisol levels down and of course, we will get better sleep and therefore heal more quickly.

We know noise is an issue in many healthcare settings, but like the importance of good light, sometimes we overlook what we need to be doing to change the environment for the better. “Thus, knowing the consequences of noise on patients should lead to **crucial measures for making more human-factored improvements in the hospital.**”



PLANTS

One of the loveliest facts I've learnt about plants and greening our homes, cities, schools and workspaces is that not only are they bumper-packed with VOC-reducing properties, brilliant for our recovery, focus, concentration and memory, but are also directly instrumental in our own wellbeing.

We know for instance, that gardening reduces symptoms of depression and anxiety while also boosting our happiness to levels akin to going out for a meal, walking or biking even! Just being around indoor plants improves our physical and mental health, especially when it comes to cognitive performance and reducing physiological stress.

On the air-cleaning aspect, we know that plants help remove pollutants like carbon dioxide, dust particles, VOCs from air fresheners and cooking and cleaning as well as nitrogen dioxide from traffic. If you are wondering why all these matters, apart from the obvious negative impact that some pollutants can cause something as annoying as a sore throat, and that they can also contribute to cancer and respiratory problems, too much carbon dioxide around us reduces our cognitive performance, in other words, our brains go sleepy. Each issue we have experts who give us tips on planting, how, where and why we need plants as well as some visual inspiration. Enjoy! Let us know what you love to plant!

Why we need plants in our Healthcare settings

“While there are some spaces within Hospitals where, at least here in the UK, we cannot bring in plants because of their policy, there are other spaces where we most definitely can, and this article outlines a few reasons why we need them.”

Coll Smith

Plants have a calming effect on us and help us feel better when we're unwell. Two statements which have been proven time and again. Certainly in the recent Covid pandemic people, many of whom had never before shown an interest in houseplants, invested in them. This meant sometimes building huge collections of indoor plants and showing that houseplants definitely have a great effect on our mental health.

Early interest in houseplants, started during the previous century, with explorers collecting plants as a scientific pursuit, finding many specimens in often never before explored countries. They were brought back to first-world countries and displayed in large atriums or homes of the rich.

Some 100 years or so later by the 1980s,

there is a great interest in houseplants and how we could benefit from having them around to support our health.

Researchers

One of the first names that springs to mind when health care is mentioned with hospitals in focus is Roger Ulrich who is quoted elsewhere in this journal too. His research found that views of natural environments or even pictures of natural environments aided recovery times positively. Not only did it speed up the times needed for recovery but often less medication was needed in the process. It all sounds too good to be true, doesn't it? And so what if views of nature have such a positive effect, why don't we see more access to beautiful planted areas/gardens or even plants inside hospitals?

Currently with the crises in hospitals with not enough staff, strikes – at levels, it seems, never known before – and supporting industries (ambulance services) also in crisis, green areas and plants come a long way down the list of solutions.

What we have seen in recent years is the positive connections to gardens and their help aiding recovery or attention to coping with diagnosis. The famous Maggie's Centres spring to mind and their gardens which have helped many patients with cancer but of course it isn't only cancer patients who can benefit from plants and what they offer.

Hospital research

But whether it is the health of the staff or the recovery of patients, plants have proved that they can certainly have a

positive effect on both patients and staff.

Research has shown that patients recover faster and need less medication when they are surrounded by green plants or have good views of green open spaces.

Green plants in their rooms also help to lower stress levels around surgery significantly and help with healing.

For instance, adding plants to an x-ray department not only reduced the smell of chemicals but also had other positive effects for staff:

- tiredness vanished
- headaches dropped by 45%
- 30% fewer complaints of hoarseness, dry throats and tiredness

Within a year absenteeism had dropped by more than 60% and remained at this level for at least five years.



Photo credit to Bioteecture.

Roger Ulrich, Texas A M University pioneered this research early on by using mere views of plants – pictures and views out of windows to assess stress levels and surgical recovery.

His findings were that

- Patients recovered more quickly
- They needed less medication
- And therefore called on nursing staff less often

A win win situation for patient, staff and hospital costs.

Park and Mattson

In a study by **Seong-Hyun Park and Richard H Mattson**, researchers from the Department of Horticulture, Recreation and Forestry at Kansas State University, provide strong evidence that contact with plants is directly beneficial to a hospital patient's health. Using various medical and psychological measurements, the study set out to evaluate if plants in hospital rooms have therapeutic influences.

Studies show that when patients suffer great stress associated with surgery, they typically experience more severe pain and a slower recovery period. This study (90 patients recovering from an appendectomy) showed that those with plants in their rooms did indeed have lower levels of stress (lower blood pressure and heart rate), and recovered more quickly needing less medication than their counterparts in the control group without plants in their rooms.

93% of the group found that plants were the most positive qualities of their rooms.

In the x-ray department

Tøve Fjeld, professor at the Horticultural Institute of the Norwegian College of Agriculture in Oslo, researched the effects of green plants at the x-ray department of the Oslo Cancer Hospital.

The Radiology Department led the way for the whole Norwegian health sector by spending some 50,000 Norwegian kroner on plants and spectral light (daylight). The staff completed a total of nine questionnaires before and after the rooms had included plants in their decor.

Once the plants were installed there was a marked difference in earlier conditions experienced by the staff:

- tiredness vanished
- headaches dropped by 45%
- 30% fewer complaints of hoarseness, dry throats and tiredness

Within a year absenteeism had dropped from 13.1% to 5.8% for the nursing staff and 18.6 to just 5.3% for the administrative staff. These figures showing a 60% + reduction remained at this level for at least 5 years (i.e. this was the last time reports were available).

Plants used to improve our health and wellbeing

We are seeing some moves in the direction of including plants in health centres and hospitals with their use at Maggie's Centres as mentioned before. We have also seen evidence through some of our plants@work members who have planted medically connected buildings. For instance last year The Royal College of Physicians was entered in our annual

awards as it occupied a space outside of London for the first time and included planting throughout its building.

During early days of the pandemic several members got involved in projects offering plants for engagement. Biotecture built green Plant Box walls at NHS Nightingale Hospital at the ExCel Centre in London, and encouraged donations of trees, pots, seats, parasols, artificial lawns and irrigation services from their contacts.

A north London company joined forces with Project Wingman, set up by airline crews with time on their hands to look after NHS staff during their breaks in dedicated lounges by providing plants for these spaces and for the staff to take home.

Plants are recognised healers.

Coll Smith, plants@work
www.plantsatwork.org.uk



Photo credit to Project Wingman.

Peace Lily *Spathiphyllum*

The Peace Lily, real name *Spathiphyllum*, is a hardy, green plant with pointed green leaves and elegant white bracts. Often mistaken for flowers, the white bracts are a similar shape to the leaves and the actual flowers are tiny and grow on the spike which the white bract protects.



The Peace Lily is easy to care for and makes a super plant for offices and other workplaces because of this. If the soil gets too dry, the stems start to droop but give it a drink of water and it will perk up pretty quickly.

Originally from the tropical rain forests off Colombia and Venezuela, the Peace Lily is a member of the Arum family (Araceae). It made its first journey to Europe in the late 19th century. There are 50 different cultivars known and virtually all of them have the bright white bracts, sometimes with a slight green tinge.

Its name *Spathiphyllum* is derived from the Greek – ‘spath’ meaning spoon and ‘phyl’ meaning leaves- directly referencing its spoon-shaped leaves.

According to the Flower Council of Holland, the peace lily is known as ‘the bringer of peace’ with the whole flower representing the white flag, the internationally recognised signal of truce.

Caring for the Peace Lily

This plant is easy to care for; it likes a light place but not full sun but it does like it warm -18 -22°C. Keep its soil moist, spray with water to make it think it’s back in the rainforest! Remove any wilted flowers to encourage more blooms and to keep it looking at its best.

www.plantsatwork.org.uk



Coll Smith

VERTICAL Gardens



DANIEL BELL VERTICAL GARDENS

“... if you are using plants then if you can ensure health then it will be more than worthwhile ...”

We speak with, Daniel Bell who has 30 years of experience in landscape design and since 2004 a pioneer of successful eco-sustainable vertical gardens, working in challenging climates encompassing London, Iran, USA & Australia.

Can you tell us where it is, who it was for?

This was in a new built laboratory in Stockholm for the Karolinska Institute.

What were the requirements from the client?

To keep the planting palette quite flat. But I ignored this and the Monstera are the stand-out plant by far, also they requested we use no plants that bore spores so ferns for example were not used.



What was it like before?

This was a new build. I guess an old, dated office block.

How has this transformed the space?

I think the kitchen areas for me are my favourite.

Were there many challenges?

To be honest, installation was fine, we were indoors, no stress on the time frame to a point and I had my brother leading the planting team!

What plants did you include and why?

I used many species but stand out plants for me on this project were the Monstera (giant foliage achieved in just 1 year) and Ludisia the only Orchid that thrives on a vertical garden with a high diversity of species, Soleirolia (often known as Baby's Tears) was used throughout purely because of its soft moss-like feel and it is so popular.

Is the client happy?

The owners are very happy and the building has won a number of architectural awards.

Has it made their stressful jobs less stressful?

I would like to think so but in the world Microbiology and Cell and Molecular Biology I can't comment ;) One of the main things is the fresh air too I should think away from the labs!

Are you happy with it?

Yes definitely, when you bring plants directly into the workspace the value is enormous.

What are you especially pleased with?

I love the scale of the project, we designed 28 individual vertical gardens throughout, a bold move by the architect but **for me if you are using plants then if you can ensure health then it will be more than worthwhile...**

<https://daniel-bell-vertical-garden.format.com>

DESIGNING WITH PLANTS IN HEALTHCARE SETTINGS

Top tips for planting in healthcare settings by The Good Plant Company, Cambridge

It is well documented that plants have a calming effect on people, so including them in healthcare settings is an incredibly positive thing to do for our mental health and well-being, especially as attending medical appointments can cause anxiety and stress. There is also evidence that people actually heal quicker if they have a view of nature or plants, so here are some of our top tips for including them:

- 1) Design a scheme with a relaxed, homely feel by using planters made out of natural looking materials such as stoneware, terracotta or lightweight fibrestone.
- 2) Cluster together plants with different leaf shapes and heights for an interesting planting design, breaking up the somewhat clinical/sterile lines of medical settings.
- 3) Include plants such as Spathiphyllum, Sanseveria, Areca Palms and Aglaonema which are effective at helping remove volatile toxic compounds from the air.
- 4) Where possible, use a soilless medium of planting such as hydroculture. This prevents the pesky flies which can occur in soil plants, which although are harmless, can be a bit of an irritant!
- 5) Lastly have fun with the planting scheme and tailor it to the type of healthcare setting you are designing for. Don't be afraid to use artificial alternatives where there is no natural light or where live foliage is not permitted (such as wards), as this still creates a biophilic environment to aid wellbeing.

<https://thegoodplantcompany.com>



A beautiful Areca Palm at the on the Cambridge Biomedical campus.



Clusters of plants with different leaf shapes and heights for an interesting design.



ENVIRONMENT PEOPLE PLANET

When somebody says the word “environment” to you, what is the immediate thing that comes to mind? Is it the climate crisis? Is it a forest scene? Is it the room you’re in? The truth is, it is all that isn’t it? Everywhere we go, every waking moment, we are surrounded by an “environment”. When we think of it like that, it makes you wonder why we then choose to surround ourselves with poisons, noise, clutter, rubbish, concrete dust, grey walls, hard reflective surfaces, pollutants, make cars a priority in our thoroughfares and so on. Of course, maybe there are people out there who like that. But for most of us, living and thriving in a healthy, uplifting environment, with positive views, clean air, with “life” around us is something we strive for. There is a reason hotel rooms with sea or mountain views are more expensive!

So, this issue, we have three different takes on the environment to spark debate and thoughts. From Dr Patty Baker’s exploration of how the environment was inextricably linked to wellness in the ancient Greek and Roman worlds to a wake-up call from diplomat and environmentalist Alexander Verbeek. We also hear about this amazing project: the NHS Forest (my personal thanks for this one goes to Suzanne Tarrant who first put me onto the fact there was an NHS Forest conference), and finally to the boundaries now being imposed by new legislation on the freedom to roam which we have always enjoyed in Britain.

I hope these all spark debate. We would love to hear from you, do join our newsletter at www.journalofbiophilicdesign.com and join in the conversation on social media too.

“Sensing” Health in Ancient Greece and Rome: Environmental Influences on Bodily Balance

“Theories on how landscapes are thought to influence health through sensory experiences are not new ideas, the ancient Greeks and Romans were doing it over two thousand years ago...”

Dr Patty Baker

Breathing in fresh air, staring out to sea or over mountainous landscapes, listening to the dulcet tones of bird songs, and smelling the mild scent of forest pines all make us feel calm and healthy. Modern environmental psychological studies are continually demonstrating that pleasant sensory experiences in salubrious environments have positive effects on our physical and mental wellbeing.¹ This idea is nothing new. The Greeks and Romans were well aware of the benefits of nature on the body, and like environmental psychologists today, they cited sensory experiences as vital to the relationship between landscapes and wellbeing.

Modern technologies such as those used to measure brainwave activity and chemical changes within the bodies and minds of people exposed to natural spaces are used by psychologists to determine how

the environment impacts health. These tests were non-existent in the ancient world, but ancient philosophers created complex theories that elegantly explained why wellness was interlinked with the environment. Their natural philosophies formed the bases of western medical and scientific observations from the sixth century BCE well into the early modern period (17th/18th CE).

A range of ancient literature, from philosophy, science, medicine, poetry, history, and personal letters inform us that natural “scientific” causes, rather than mythological explanations of how natural phenomena and life functioned, permeated popular thought and were widely accepted. So, without modern technologies, how did ancient philosophers explain environmental impacts on health?

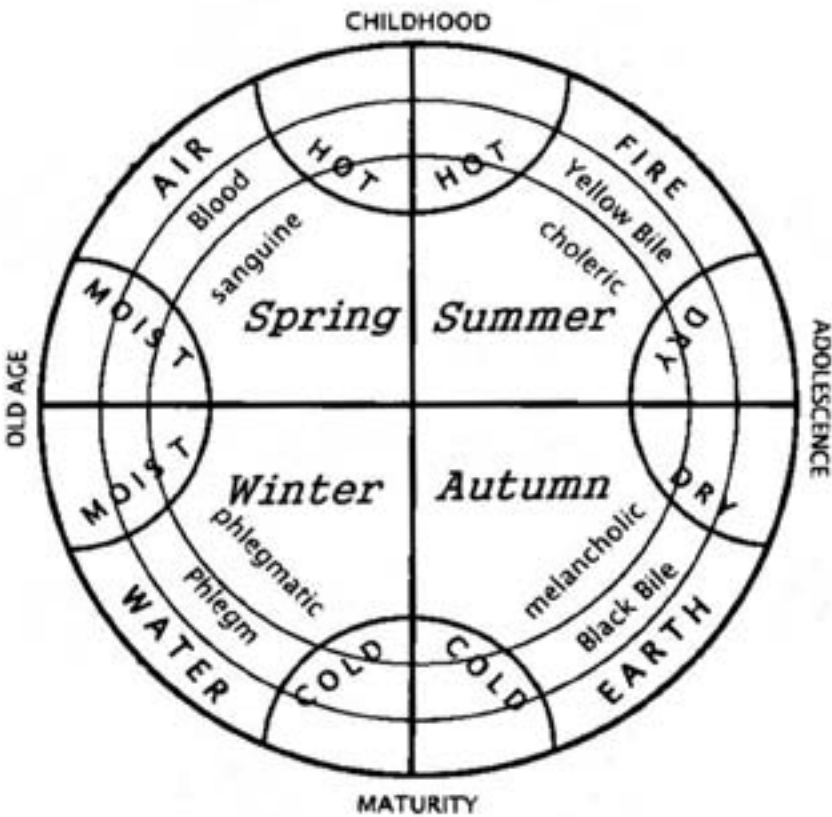
By the mid-fifth century BCE, the theory that all things in the cosmos consisted of a mixture of the **four elements**: earth, air, fire, and water was well-established.² Each of the elements had corresponding properties. Earth was cold and dry, air was warm and moist, fire was hot and dry, and water was cold and moist.

The elemental properties were central to ancient descriptions of illness, health, and medical cures connected to humoral medicine, which was the primary explanation for mental and bodily functions. Bile (or yellow bile), black bile, phlegm, and blood were the **humours**³ thought to exist in the body, and a balanced mix of these was essential for wellbeing.

As shown in the table below, each humour

corresponded to an element, elemental properties, mental temperament, age, and season of the year. For example, blood was associated with the element air, which was hot and moist, a sanguine temperament, infancy/childhood, and spring.

Imbalanced humors were the cause of ill health. Physicians examined patients to determine which humor had become dominate. Once recognized, the physician would treat the illness with a remedy of opposite properties to bring the bodily mix back into proportion. If someone had too much yellow bile in their system, their dry and feverish symptoms would have been treated with moist and cooling foods, drinks, medicines, and recommendations for spending time in cooling and moist spaces.





Yet, what were thought to be the causes of humoral imbalance? According to various medical texts, disproportions were triggered by a set of external threats to the body, which eventually become known of as the [six non-naturals](#).⁴ They included the quality of air people breathed; sleep and waking; retention and excretions; exercise and rest; food and drink; and mental affections. The environment, with the exception of air and water, was not placed directly into the category of the non-naturals; however, medical, architectural, and philosophical texts, amongst others, all spoke of the interrelationship between landscapes and the body.⁵

Healthy landscapes, similar to what we find in modern descriptions, had clean, clear, and moving air and water as well as what we would describe as temperate climates. Salubrious spaces also had quiet or mellifluous sounds such as bird songs; mild, pleasant scents; and beautiful views. Insalubrious environments had stagnant air and water, extreme temperatures, overly moist or dry climates, and were also malodours and cacophonous.⁶ Aside from being mentioned by ancient writers, ideal landscapes were depicted in ancient art, such as the garden fresco (1st BCE/CE) found at Livia's Villa at Prima Porta, Rome, Italy.



Garden Fresco, Livia's Villa Prima Porta, Rome. Palazzo Massimo Museum, Rome.
Photo by Patty Baker December 13, 2019.

It was not enough to simply point out the relationship between health and landscapes, ancient writers also explained how the interaction between humans and

landscapes functioned. For them, direct effects of the external surroundings to humoral balance were caused by sensory experiences. The Hippocratic writer of

Affections, for instance, succinctly states,

[A]ll human diseases arise from bile and phlegm; the bile and phlegm produce diseases when, inside the body, one of them becomes too moist, too dry, too hot, or too cold; they become this way from foods and drinks, from exertions and wounds, from smell, sound, sight, and venery, and from heat and cold (Hippocratic Writer of *Affections* 1)

In essence, this idea shows us that the sensory organs – eyes, ears, nose, tongue, and skin (for touch of heat and cold) – played vital roles as “mediators” between the internal humoral body and external landscapes.

There were two main theories that explained sensory function, known to us as intromission and extramission.⁷ The former was a process described by ancient atomists, philosophers who argued that all things were created of tiny indivisible shapes, including the four elements. The shapes floated in a void and would move towards places they fit. Essentially, the

shapes for scent, sound, taste, and images travelled towards their respective sensory organ and through them entered the body and directly affected the humours. The later was a Platonic theory specifically related to vision. Light travelled out from the eyes, mixed with sunlight, and “grabbed” the object being viewed. The object was brought into the eye and body to be identified. Both theories assume that whatever was sensed outside the body was physically brought into it.⁸

As mentioned above, in accordance to modern scientific methods of enquiry, environmental psychologists are finding sensory experiences to be necessary for bodily and landscape interactions. Yet, the next time you find yourself breathing in pleasant smells that bring a sense of wellbeing, know that sophisticated scientific explanations for how this phenomenon functions have been with us for millennia.

www.paxinnature.com

¹ For an overview of these studies, see Florence Williams, 2017. *The Nature Fix: Why Nature Makes Us Happier, Healthier, and More Creative*. New York and London: W.W. Norton & Company.

² <https://plato.stanford.edu/entries/empedocles/>

³ <https://plato.stanford.edu/entries/galen/>

⁴ <https://pubmed.ncbi.nlm.nih.gov/8358767/>

⁵ Landscapes, the local weather, and air and water conditions were also used to explain common physical and mental characteristics of people living in different areas of the known world. See for example, the Hippocratic work *Airs Waters Places*

⁶ The letters of Pliny the Younger (1st CE) frequently mention healthful conditions. See, for example, Letter 5.6. The medical writer Celsus (1st CE) also spoke well-balanced environments, see *On medicine* 1.1.1-1.2.3. The Roman writer of *On Military Things*, Vegetius (4th CE) described landscapes to avoid when building fortifications, similar to what Vitruvius described in his first century architectural treatise.

⁷ These theories continued to be discussed in Medieval Islamic Medical and Philosophical Texts <https://plato.stanford.edu/entries/arabic-islamic-mind/>

⁸ The Roman architect Vitruvius provides a detailed description of how views of greenery helped to clear thick humors from the eyes and healed vision (*On architecture* 5.9.5). See also P. Baker 2018, Identifying the Connection between Roman Conceptions of ‘Pure Air’ and Physical and Mental Health in Pompeian Gardens (c.150 BC–AD 79): a Multi-sensory Approach to Ancient Medicine.” *World Archaeology* 50 (3): 404-17; P. Baker 2018. Tastes and Digestion: Archaeology and Medicine in Roman Italy.” In K. Rudolph (ed.) *Taste and the Ancient Senses*. The Senses in Antiquity Series, London: Routledge, pp. 138-60; P. A. Baker 2017 Viewing Health: Asclepia in their Natural Settings.” *Religion in the Roman Empire* 3 (2), 143-63

THE NHS FOREST

“Imagine a hospital with a view of trees outside every window. Imagine walking to your appointment along a winding path bordered by blossoming cherry trees. Imagine patients spending time with their visitors in the shade of a small woodland. Imagine staff being invited to join lunchtime wellbeing sessions beneath the green canopy.”

Vicki Brown

Imagine a hospital where healthcare happens right across the estate – not just inside the building.

This is the vision of the Centre for Sustainable Healthcare, who founded the NHS Forest [1] in 2009. Starting life as a tree planting initiative, the NHS Forest has evolved over the years as the evidence [2] for and understanding of the links between green space and health have become more widespread.

We know, for example, that patients who have a view of trees from their window will recover more quickly from surgery, and request fewer painkillers, than those who have a view of a wall. We know that access to nature can reduce incidences of

cardiovascular disease, stroke and type 2 diabetes, as well as lowering rates of stress, anxiety and depression.

In England alone, it has been calculated that the NHS could save an estimated £2.1 billion in treatment costs *every year* if everyone had access to good quality green space. Green space contributes to a sustainable healthcare service, not simply by storing carbon and supporting wildlife, but by reducing dependence on the NHS and cutting costs across the system.

CSH believes the NHS can be an active driver for creating and protecting green space, as well as enjoying the many benefits it brings.



Broomfield Hospital – Photo Credit: Carey Newson CSH 2021

Mount Vernon Cancer Centre – Photo Credit: Vicki Brown CSH 2021



Creating accessible green spaces for all

The NHS estate is hugely varied. The hundreds of hospitals, GP surgeries and ambulance stations contain compact courtyards, therapeutic gardens, productive orchards and ancient woodlands. Trees can provide cleaner air, offer shade and privacy,

lower noise pollution, reduce erosion and flood risk, and reduce temperatures – both outdoors, and inside neighbouring buildings. They capture and store carbon, and provide habitats for native species. In healthcare settings, they can provide calming views, and be actively used as part of care.



Glenfield Hospital – Photo Credit: Dora Damian 2022

Access to nature is incredibly unequal: the poorest communities and ethnic minorities are twice as likely to live in a neighbourhood without nature-rich spaces [3]. Healthcare sites located within these areas can act as ‘anchor institutions’ – providing accessible, safe and welcoming green spaces. This can combat wider social disparities: studies show that when people have more access to green space where they live, income-related health inequalities are less marked. The more biodiverse the space, the greater the health benefits can be; trees and woodlands near hospitals can offer accessible landscapes that change throughout the seasons, to listen to birdsong or kick fallen leaves.

There can be many barriers to visiting local parks – in terms of distance, obstacles for people with wheelchairs, pushchairs or mobility aids, a fear of stigma against those with mental or physical health issues, women feeling unsafe to enter alone, and some communities feeling they do not “belong” in these spaces. Healthcare sites are well placed to address these barriers, as they are visited by all, regardless of disability, race, sex or age.

Supporting staff wellbeing

“We can’t go outside in scrubs and our breaks are quite short, so by the time we’ve got changed and been able to leave it’s time to come back again... during winter months we don’t see the sunlight for maybe four days at a time.”

Long, irregular shifts, stressful work and short (or no) breaks can make it virtually impossible for healthcare staff to have

regular contact with nature. Planting and conserving trees close to wards and offices – with accessible walkways, signage, seating and features that provide privacy – can significantly increase the opportunities for staff to spend time outside.

“What I’m doing is not gardening. This is wellbeing. This is to help [clinical staff] have somewhere to go.” – NHS staff member and hospital garden volunteer

At a time when NHS staff are reporting high levels of stress and there are more than 130,000 vacancies, we believe the presence of trees near their workspaces is more important than ever, in attracting staff, retaining them, and supporting their health and wellbeing. So, too, is creating a cultural setting which permits and encourages them to use these spaces as part of their workday.

Greening the grey

Ideally, provision for trees and woodlands would be embedded into the design of healthcare sites at the very inception of the planning process – hospitals could be excellent candidates for biophilic design, given the number and variety of people this could benefit. The government’s New Hospital Programme, which aims to deliver 48 hospitals by 2030, has created an opportunity to rethink the design of these buildings. Multiple design submissions have been forward-thinking in their architectural concepts [4], which include creative and ambitious plans for incorporating nature into the healthcare landscape.







In reality, most hospitals will have to find solutions for protecting, managing and expanding the tree cover they already have. Strategically situated trees, visible from ward beds or offices, will have benefits that extend beyond biodiversity and carbon. Mature trees offer multiple benefits; actively protecting and managing these should be a priority. Some sites may need to look beyond the estate; Aintree Hospital [5] in Liverpool, for example, and Grantown-on-Spey Medical Practice [6] in the Cairngorms both manage woodlands that border their sites, and are exploring ways to use them to support their patients and wider public health.

**“I’d found ‘me’ in this garden.
I laughed, I didn’t cry, I was singing
[...] My family noticed the difference,
the relationships with my family had
improved, and I’d got my confidence
back.” – NHS staff member, during
the Covid-19 pandemic**

A solution to the health and climate crises

The world is experiencing twin climate and biodiversity crises, with grave implications for human health. At the same time, the UK healthcare system is also in crisis. Protecting and expanding our trees and woodlands is not just a nice thing to do; it is essential for a resilient

health service, resilient ecosystems and a resilient population. In order to realise the full range of benefits from these trees and woodlands, they must be protected and actively managed. The NHS green estate is a healthcare asset – one that should be invested in, capitalised on, and celebrated.

<https://nhsforest.org>
<https://sustainablehealthcare.org.uk>

The Centre for Sustainable Healthcare is a registered charity. It offers strategic input and consultancy. Our green space projects, including the NHS Forest, assist healthcare sites to improve their natural environment and reconnect their staff, patients and the wider community with their local green space to benefit their health.

The NHS Forest is funded by the Trees Call to Action Fund. The fund was developed by Defra in partnership with the Forestry Commission and is being delivered by the Heritage Fund.

1. <https://nhsforest.org/>
2. <https://nhsforest.org/evidence/>
3. <https://www.cpre.org.uk/about-us/cpre-media/new-campaign-calls-for-legal-right-to-nature-in-levelling-up-reforms/>
4. <https://nhsforest.org/blog/new-hospital-programme-new-generation-of-garden-hospitals/>
5. <https://nhsforest.org/locations/aintree-university-hospital/>
6. <https://nhsforest.org/locations/grantown-on-spey-medical-practice/>

The NHS Forest works with healthcare sites to protect, expand and nurture their green spaces for the benefit of staff, patients and biodiversity.

Since 2009, we have planted more than 100,000 trees on or near NHS land, with support from our generous sponsors.

**Can you sponsor an NHS Forest tree for just £10?
Please visit nhsforest.org/sponsor-tree**

or email info@nhsforest.org to speak with us about corporate sponsorship options



The Centre for Sustainable Healthcare is registered in England & Wales as a company limited by guarantee No. 7450026 and as a charity No. 1143189. Registered address: 8 King Edward Street, Oxford, OX1 4HL

This project is funded by the Trees Call to Action Fund. The fund was developed by Defra in partnership with the Forestry Commission and is being delivered by the Heritage Fund.

NEVER BEFORE ARE WE SO CLOSE TO "MIDNIGHT"

"Today, the Doomsday Clock, a symbolic representation of the likelihood of a global catastrophe, has been moved closer to "midnight" by atomic scientists."

Alexander Verbeek

The Doomsday clock, created in 1947 to convey threats to humanity and the planet, is now set at 90 seconds to midnight, the closest it has ever been. This decision was made due to several factors, but primarily because of the rising dangers of the Ukraine war. The country's sovereignty is at stake, and so are the broader European security arrangements and the norms of international conduct. A (nuclear) escalation of the conflict is a terrible risk.

Climate crisis

The war also undermines the worldwide efforts to combat climate change; the invasion of Ukraine sparked a rush to establish independence from Russian energy supplies, particularly in the European Union.

The Doomsday Clock has been adjusted 18 times since its creation in 1947, with the closest it has ever been to "midnight" being two minutes in 1953, following the testing of the hydrogen bomb by the United States.

The clock was furthest from doomsday in 1991, when it was 17 minutes to midnight. The last time it was adjusted was in 2020, when it was moved to 100 seconds to midnight.

Oceans have never been so warm as now

Last week, Carbon Brief published its 'State of the Climate Report'. One of the findings about last year is that it was the warmest year ever recorded for ocean heat content, which increased notably between 2021 and 2022. The publication noted that "in many ways, Ocean Heat Content represents a much better measure of climate change than global average surface temperatures. It is where most of the extra heat ends up and is much less variable on a year-to-year basis than surface temperatures."

And to end this short and sombre post let me share the most frightening statistic I read today in the same report: the heat increase in 2022 compared to 2021 is roughly 19 times as much as the total energy produced by all human activities on Earth in 2020.

Sustainable solutions

On a positive note, the Abu Dhabi Sustainability Week which took place in January began with a voice "united on climate action". The Abu Dhabi Sustainability Week convenes heads of state, policymakers, industry leaders, investors, youth, and entrepreneurs.

Abu Dhabi Sustainability Week (ADSW) will convene heads of state, policymakers, industry leaders, investors, youth, and entrepreneurs. And if anyone needs a reminder that we shouldn't give up hope, read the [UN report](#) published this week about the hole in the ozone layer. Readers my age and older will remember how much we feared in the 1990s the destruction of this layer that protects us from harmful ultraviolet rays from the sun.

Healing of the Ozone hole

However, there is excellent news: the ozone hole is predicted to completely heal over most of the world within two decades and some years later on the poles. This fantastic turnaround of our planet's fortunes was possible because governments listened to scientists, involved all stakeholders, and were willing to work together towards a common goal.

Bringing key stakeholders together

Solutions like this, where science, NGOs, corporations, and governments find consensus, and ask all sides for a willingness to compromise towards a common goal. A first requirement to reach an agreement is to listen to each other and understand the positions of the others involved. It also requires knowledge sharing about the challenges as well as the solutions. And for that, we need gatherings of vital stakeholders like the ADSW, where global challenges can be addressed through inclusive engagement. Like in previous years, the ADSW brings together heads of state, policymakers, industry leaders, investors, entrepreneurs, and youth to discuss, engage and debate climate action and innovations that will ensure a sustainable world.

Alexander Verbeek, environmentalist and former diplomat, is **Policy Director at the Environment and Development Resource Centre**. He writes on the Climate crises and explores solutions to help address our environmental challenges. Alexander also interweaves these messages with descriptions of the beauty of nature and history. Please do follow him on his Substack channel.

<https://theplanet.substack.com/>
<https://www.edrc.net/>

RIGHT TO ROAM: A PERSONAL PERSPECTIVE

“What if you live in a suburban or urban environment? Or what if you truly want to experience a proper wilderness? Get lost in the woods; reconnect with and understand your place in this great biodiverse world where we are, after all, just one species?”

Karen Brazier

Until he passed away just over a year ago, I had a much-loved uncle who lived in a small village near here, in rural North Dorset. A countryman through and through, he was born, lived and died within the same four-mile radius. Towards the end of his life, he told me that he no longer recognised his village. It wasn't so much the high proportion of second homeowners or the loss of the village pub, as devastating as that had been at the time. It was the fact that he could no longer access his village in the way that he once had.

In the last few decades, great swathes of the land surrounding his home had been bought up and fenced off by stockbrokers, hedge fund managers and other wealthy incomers wanting a slice of Dorset charm. “When I was a boy,” he said, “if I wanted to go and see my friend who lived a couple of fields away, I would take the most direct route. Obviously, if there was a crop in the field, I would walk around the edge. We knew that as kids, that we should respect the crops and not cause any damage. That's just how it was. But it's different now. Now it's all barbed-wire fences and locked gates.”

My uncle was highlighting the fact that, in England, we can now only access eight per cent of the land, and three per cent of its rivers. A startling fact and one that I didn't know until I read *The Book of Trespass*, a diligently researched work by Nick Hayes. It's the kind of information you can't unknow. And if you spend any time at all outdoors, you will come up against it time and time again. Angry signs shouting PRIVATE LAND or KEEP OUT. Barbed-wire fences channeling public rights of way into narrow quagmires, lest you should put your toe or heel on a single inch of someone else's vast acreage. You could argue that it's alright for people living in places like Dorset: we're surrounded by greenery and there are plenty of leafy lanes and rural footpaths to follow, or National Trust-owned land to wander. The mental and physical health benefits of being in nature have been much discussed in recent years and, round here, there is no shortage of opportunities to immerse yourself in it if you want to, albeit in a slightly organised, sanctioned kind of way. So what's the problem?

Well, what happens if you don't live somewhere like Dorset? What if you live in a suburban or urban environment? Or what if you truly want to experience a proper wilderness? Get lost in the woods; reconnect with and understand your place in this great biodiverse world where we are, after all, just one species? It's a postcode lottery, and the system wants it to stay that way.

Since Sir Julian Flaux ruled on 13 January that there is no actual right to wild camp on Dartmoor, my mind has been churning about the whole Right to Roam debate, the injustice of this ruling and the seriousness of its wider implications. It rankles because it is symbolic of so much that is wrong with our increasingly feudal society, where the rights of a single wealthy individual carry more weight than the rights of the many. It is a further erosion of the rights we all once had to live on the land, which began with the Enclosures Act, and has turned us into a nation of exclusion, to coin Nick Hayes' term, which most of us accept as completely normal.

As you'll know if you've been following this case in the news, the right to wild camp on Dartmoor had been assumed under the Dartmoor Commons Act 1985. It was, until recently, the only place in England and Wales where wild camping was legally permitted, unlike Scotland, which practises Right to Roam, along with many other countries in Europe. Alexander Darwall, the hedge-fund-manager owner of Dartmoor's 4000-acre Blachford estate, challenged this assumption and won the case on the basis that wild camping did not count as a recreational activity. *I mean.*

I've never wild camped on Dartmoor but was planning to do so this year. Dartmoor is a true wilderness. To spend time there is to feel properly disconnected, deeply immersed in nature in a way that is rarely possible elsewhere, even in a rural county like Dorset. A few years ago, I wild camped on the shores of Loch Coruisk on the Isle of Skye. It was an experience that completely reframed my relationship with the outdoors although it's true to say that I didn't exactly enjoy it at the time: it was a long hike in, the weather unusually hot, and I wasn't used to carrying anything more than a day sack when walking. When we finally reached our destination, I was physically shattered, too tired to do pretty much anything other than eat a sachet of space food heated up on a camping stove and crawl into my sleeping bag. (At least I didn't lie awake listening for strange noises or pondering what we would do if one of us became ill or had an accident.)

Afterwards, however, once we had packed up every scrap of our camp, ensuring we left no trace, and walked back to civilisation in the form of a pint and a hi-carb meal at the Sligachan Hotel, I realised it had been a pivotal moment for me. I had never in my fortysomething years been anywhere as remote or as peaceful, or slept out in a true wilderness. There was a certain sense of achievement, yes, but feeling small in a big, wild expanse with the Cuillin mountains as our backdrop gave me a sense of my tiny, insignificant place in the world. Something clicked at that point and I realised I really didn't need to sweat the small stuff. It was a massive win for my mental health that sustains me to this day.

The problem is this: if you tell people that the countryside isn't for them, whether that's directly via KEEP OUT signs or indirectly by removing their right to sleep under the stars, or herding them down designated, increasingly fenced-off footpaths, effectively forcing people to view nature behind glass, cheek by jowl with others, you're reinforcing a disconnect that is damaging to us as a species and our planet as a whole. So many of us live our lives in sanitised boxes with plastic lawns and go to work in identikit offices built from steel and glass, that it is completely possible to exist in a kind of ecological detachment without ever noticing the subtleties of the changing seasons or the earthy scent of the forest floor, or knowing what true darkness is at night.

I speak from experience. Most of my young adulthood was spent in cities, and while I'm old enough to have been far less dependent on screens than today's twentysomethings, my lifestyle at the time, in which nature was all but absent, did nothing to support me when my mental health crashed following an intensely stressful period of work. I will be forever grateful to my patient but determined partner, who knew that the best thing for me would be many long, bracing walks along the clifftops of the Purbeck coast, even though, at the time, I was anything but a walker. Slowly, and through establishing a steady routine of regular weekend walking and camping trips in Dorset, I developed a set of tools that I still deploy to this day when I can feel myself wobbling. They all involve getting outside, for as long as possible, walking, swimming or camping in one form or another, ideally away from other people.

As my love for nature and the outdoors has grown, so too has my awareness of environmental matters. It is impossible not to notice that certain species are becoming rarer, or the extent of the plastic pollution on our beaches. But if you are disconnected from nature, how are you expected to know or care about these things?

The littering argument is one you'll often hear by those who are against the Right to Roam, alongside 'you can't just have people tramping all over nature'. In truth, the greater damage to nature is often caused by the landowners in whose so-called care so much of this country's land resides. The ecological impact of gamebird shooting, which includes the releasing of millions of non-native birds into the countryside, the use of lead ammunition, the burning of peat bogs and the illegal persecution of raptors, is increasingly well documented, to say nothing of agricultural and industrial waste, organised fly-tipping, or the plastic pollution from the fishing industry. As Jon Moses says in his [article for The Great Outdoors](#), our obsession with an individual's littering lets the real culprits off the hook.

And yes, there will always be those who ignore the 'leave no trace' rule, just as there will always be those who steal from or cause injury to others, damage property or commit all manner of unkind and petty crimes. There is already legislation in place to address this matter. Littering is already a criminal offence. Why use the giant sledgehammer of reducing everyone's right to roam to crack the nut of the ignorant few?

If there's one silver lining, it's the sense of collective anger. The strength of feeling

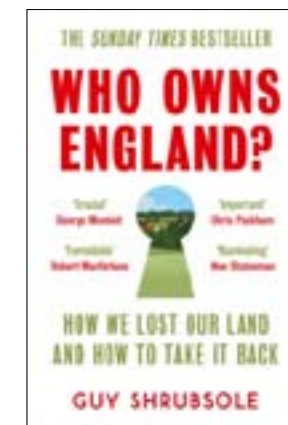
on this matter is considerable, and I don't just mean in my own echo chamber on social media. The Right to Roam has been one of the most frequently discussed subjects in our bookshop and that will only increase with this new ruling. There is a growing sense that a stand must be taken. There is strength in numbers, evidenced by the 3000 people who turned out at the mass protest on Darwall's estate just this weekend.

Further reading

Who Owns England? How We Lost Our Land and How to Take it Back (£10.99)
Published by HarperCollins
<https://uk.bookshop.org/a/8995/9780008321710>

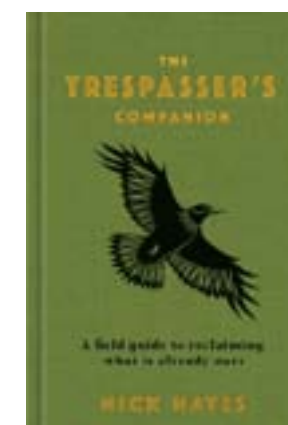
Even if you would no sooner wild camp than climb Everest, I urge you to read *The Book of Trespass* and/or Guy Shrubsole's *Who Owns England?*, and follow *Right to Roam* and *The Stars are for Everyone*. Make your voice heard. This matters.

It is not enough to weep for our lost landscapes. We have to put our hands into the earth to make ourselves whole again.
(Robin Wall Kimmerer)



The Book of Trespass: Crossing the Lines that Divide Us by Nick Hayes (£9.99)
Published by Bloomsbury Publishing
<https://uk.bookshop.org/a/8995/9781526604729>

The Trespasser's Companion: A Field Guide to Reclaiming What is Already Ours by Nick Hayes (£14.99)
Published by Bloomsbury Publishing
<https://uk.bookshop.org/a/8995/9781526646453>



WELLBEING

I love every season for different reasons, but this year I was struggling with Winter which seemed to reflect all the sadness and turmoil that seemed to collect at the end of 2022. I think Christmas and the end of the year is often a turning point for many people, and it depends on where we are emotionally as to how we try and deal with it. My happy place is the sunshine, and I know that as soon as the sun touches my skin, I'm like a photovoltaic cell, it energises me, and helps me switch out of the down-in-the-dumps and lift myself into positive action (whatever form that may take!). So as soon as the winter sun broke through those clouds, I pottered around the pots outside and took a walk in the forest watching the sunlight filter happiness through the leaves onto the path in front of me.

I think this year, Winter, is a reminder to snuggle up to those you love (metaphorically speaking!), remind your friends you are thinking about them, send a card to an old work colleague and ask them how they are doing, or make something (biscuits, soap, soup!) and pop it round to the old couple on the corner who you haven't seen much of since the weather changed.

So while I was struggling this year with everything seemingly so dormant, I'm also taking it as a reminder that I too need some rest. To just stop and restore myself. I did take a couple of days off and after attending a Dawn Chorus walk, I had my attention drawn to the fact that yes, even in this cold early February we can see the start of buds and shoots coming up. Snowdrops are already poking their little delicate heads out and huddling clustered together under the sleeping cherry trees outside.

DIRT CAN MAKE YOU HAPPY

"Soil contains millions of micro-organisms, one of which, when we inhale activates the neurons in our brain to release serotonin which is a key hormone that stabilizes our mood. This is exactly how antidepressants work."

Lara Cowan

I have spent my whole life living differently to other people. Every one of us does, in fact. We all have different routines and habits. But if I look at myself for example, in comparison to my brother and sisters, I have nurtured a distinctive need to be outdoors. I am a wellies and coat girl. My psychologist Mum and film Producer Dad were always responding to my bids to "get my coat and boots" so that I could go out, to run and explore. My passion for the outdoors along with the fact that I was born in 1979 and therefore grew up in a far more trusting world than today's, meant I spent hours outside every day, living in the woods or on farmland.

Today I continue to choose the outdoors over being indoors. I am a gardener and a teacher of nature connection skills. I have so far avoided any major health issues. In fact, I am rarely ill. I can remember only four or five times when I have been ill in bed. But beyond the obvious connection between good physical health and an active relationship with the natural world, it is my mental health that could be in a state of disrepair right now, due to traumatic experiences I have been challenged by. Without the natural antidepressants that I have continually accessed outdoors, my mind would have been far more troubled and may have taken me on far more complicated

and treacherous journeys than it has.

The mind is a delicate organ. It cannot survive without a lot of love and care, especially in the wake of traumatic experiences and volatile relationships. There is a universe of love and care in the natural world. Plants, trees and flowers co-exist, symbiotically and communicate to sustain life on earth. We can be part of that symphony. But it is a choice we need to make because nature is not on our doorstep. Quite to the contrary, in many areas of life nature and the power of nature are being hidden from us.

Soil contains millions of micro-organisms one of which when we inhale activates the neurons in our brain to release serotonin which is a key hormone that stabilizes our mood. This is exactly how antidepressants work. Soil can behave like pharmaceuticals. Looking up to the sky at the clouds, or birds flying in magical unison inspires awe in us which in turn triggers the release of dopamine (another happy hormone) into our bloodstream. Looking at or just listening to the flow of water allows our brain to enter a state of soft fascination, a quietly focused place where the pressure is lifted, and our brains and bodies can restore their innate biological functions encouraging vitality and a healthy overall state of being.

Anyone of us can become severely mentally ill if our stress bucket spills over. All forms of life on earth need each other more than ever in this very turbulent but beautiful world. We need to make a conscious choice to nurture a deep connection with the natural world. Having one plant beside you or giving yourself half an hour a week growing something can make a big difference to

how you feel and how you manage stress. Giving yourself a connection to greenery and to the natural world is a secret key to effective regulation of your biological and hormonal mechanisms. Be kind to yourself and make a choice to connect to the natural world and guide others to do the same.

<https://www.botanicshed.com>



FOODS TO HELP FIGHT OFF DEMENTIA

“Alzheimer’s (which makes up two thirds of dementia) is not an inevitable consequence of ageing. It is largely a preventable disease, and we know quite a lot about what people need to do to help prevent it.”

Patrick Holford, Founder of the Food for the Brain Foundation

The Food for the Brain Foundation is a charity focusing on helping people take simple steps to give them the best chance of avoiding dementia.

Reduce sugar and refined carbs

A 2022 US study reported that having a blood sugar level in the high end of the normal range, at age 35, increased a person’s risk of developing Alzheimer’s later in life by 15%.¹

Reduce the amount and frequency of dishes featuring rice, pasta and potatoes, and instead have more beans, fish, chicken. Eat eggs for breakfast or yoghurt, nuts, seeds and berries. Have oats instead of sugary cereals and oat cakes instead of bread.

Boost your intake of omega-3

DHA (Docosahexaenoic acid) is an important omega-3 fatty acid, and it is found in seafood and certain types of algae (good news for vegans).

A study of almost half a million people from the UK’s Bio Bank found that those taking fish oil supplements had a 7% lower risk of dementia.² The same was

true for those with higher blood levels. Eating three servings of fish a week cuts Alzheimer’s risk by a third.³ The best fish are salmon, mackerel, sardines, anchovies, herring and kippers.

Vegans need to seek out algal or seaweed-derived DHA – it is just as good as that found in fish. You need at least 200mg a day, but ideally double this amount. A very small amount of ALA (alpha-linolenic acid) in walnuts, chia and flax seeds, as well as colder climate leafy vegetables, does convert through to DHA so these foods are also important to eat on a daily basis.

Up your fruit and veg intake

Fruits, vegetables, herbs, spices and cacao are rich in brain-friendly antioxidants and polyphenols which improve circulation in your brain and help keep it young. So, having a handful of berries a day (blueberries being the best), and at least four servings of vegetables is a good starting place. Cacao in chocolate is also brain-friendly,⁴ but the sugar isn’t. Spices such as turmeric, cumin and chilli, cayenne or paprika are also great sources of polyphenols.

Supplement B vitamins

The first study that showed a reversal in the rate of brain shrinkage in people with pre-dementia gave a supplement of vitamin B6, B12 and folic acid. The study showed that the B vitamins halved the rate of brain shrinkage, cut the shrinkage in the Alzheimer's areas of the brain by nine times.⁵ The best drug to date has cut brain shrinkage by 2% with virtually no clinical benefit.

B vitamins are needed to help attach omega-3 into your brain. The next big breakthrough came when Professor David Smith's group at Oxford University showed that the omega-3 fats don't work nearly so well without B vitamins – and the B vitamins don't work in people with low intake of omega-3. You need both.

ABOUT THE AUTHOR

Patrick Holford is a Nutrition and Mental Health expert & Founder of the Institute for Optimum Nutrition, VitaminC4Covid, and the charitable Food for the Brain Foundation, where he directs their Alzheimer's prevention project. Patrick reads hundreds of studies a year assimilating the latest health breakthroughs and turning them into practical advice to make it easy for everyone to live a healthy life. He is author of 46 health books translated into over 30 languages. www.patrickholford.com

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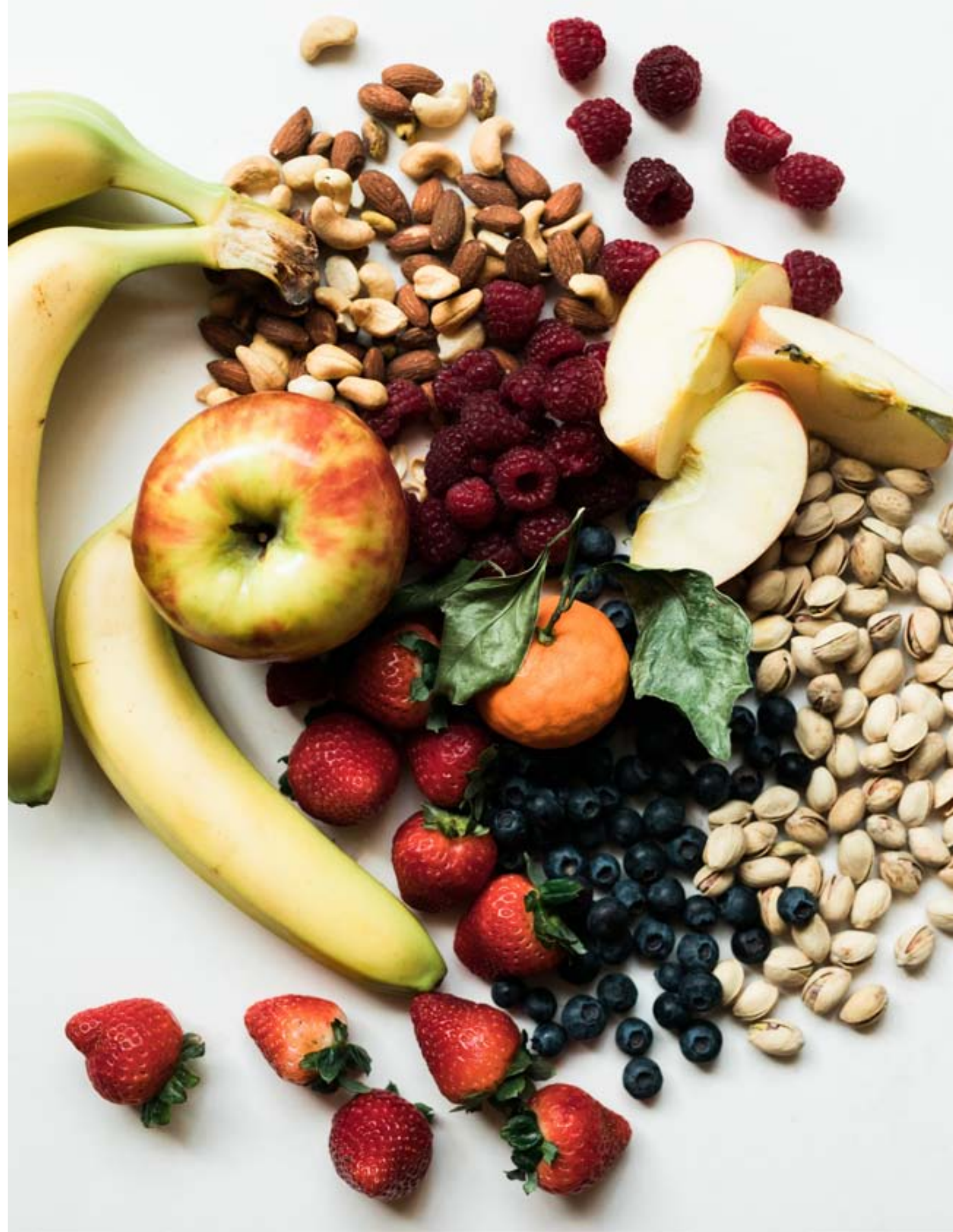
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Nature's Gift - What is our claim on the earth?

Amanda Bond

"Health and Nature, the Land and our Environment, where does one end and the other begin? Does it end at all?"

Many years ago, in my 20s, I studied law. My interest was piqued particularly by the module looking at Public International Law. We looked at the rights of countries, nations, the sea. In the midst of it all, the Falklands war broke out ... and the law of the sea became highly relevant.

Ever since I have maintained an interest in the rights that humans claim on the earth. In recent years, I've studied relationships – between people, their communities, towns and cities, states, countries, and nations through the lens of the Social Sciences. Interestingly, human beings' relationship with the earth was not examined. However, in going off track a bit, looking at countries and states where the land was impacted by climate change, deforestation and by mining, it was clear that local communities, often including indigenous peoples, were directly affected by the health of the land.

That was a decade ago, now environmental health is recognized and refers to:

- Aspects of human health (including quality of life) that are determined by physical, chemical, biological, social, and psychosocial factors in the environment.
- Environment broadly includes everything external to ourselves, including the physical, natural, social and behavioural environments.
- Health is a state of complete physical, mental and social wellbeing, and is not merely the absence of disease or illness.

(<https://www.ehinz.ac.nz/indicators/overview/what-is-environmental-health/>)

But this remains mainly an anthropocentric viewpoint – humanity's needs.

I've experienced chronic pain and illness since contracting glandular fever during my undergraduate studies in law – which halted my progress on that pathway. I had been set to become a barrister. Nature fast became my only means of support and relief. The chronic fatigue, gut issues, back pain, brain fog and numerous other symptoms were largely unacknowledged, and remained so for about 20 years!

ME/CFS is not understood, at best, in my experience, you may find a compassionate GP. Whether they offer any real support is another matter. I spent as much time as possible outdoors, even if all the energy I could muster allowed me to sit in the garden. I was fortunate to live for most of that time in the countryside. I raised four children, the denial I had met when relating symptoms to doctors increased! My GP put it all down to being a busy Mum!

I suffered a major relapse in 2008, after a period of high stress causing anxiety and depression, that reduced my mobility significantly, and increased episodes of migraines. After 6 months of minimal activity, I began to feel able to walk more again. Walking in nature has always been my go-to resource for wellbeing.

This is when a surprise suggestion from a local social services agent led me to return to full-time academic study and a Social Sciences degree.

This sparked off my journey until now, working as a mindfulness-based psychotherapist part-time, the rest of the time in nature, intuitively finding new ways of connection with the land, resulting in a new understanding of myself. In turn, I volunteered for TreeSisters.org, supporting this UK-based charity in its mission to reforest the tropics, and encourage women into leadership roles.

I realised there was no separation between my health and nature, the land, and my environment. So, in 2018 I trained as a certified ANFT Forest Therapy Guide, and as a facilitator of an archetypal practice that looks at how earth's landscapes may return us to wholeness, A Wild Soul Woman™

I've been facilitating workshops and guiding walks ever since...finding my passion in both supporting people through this era of great change, and rewilding ourselves, our environments ... becoming nature, kin.

The word "wild" is related to the word "will"; the wild creature is self-willed, autonomous, not domesticated, living by nature's ways not the laws of human beings. Ralph Metzer.

Chronic illness is spreading worldwide, highlighted by Long Covid. During the lockdowns, and post-lockdown, I guided Forest Therapy walks whenever possible. People relaxed, felt safe in nature, and in groups. A sense of community was experienced, friendships made, stress reduced, a feeling of joy and wellbeing after isolation.

Last year I took part in a pilot study looking at the effects of Forest Therapy (online) on people suffering with Long Covid. The results were affirmed by other larger studies showing the physical, mental, emotional, and spiritual effects of forest bathing. Of particular interest was the sense of connection, and community, a new relationship with themselves, each other, and nature.

Healthcare is Greencare – an alliance between humans, nature and the more-than-human world.

<https://wildedgewalker.earth>

Things that can heal us

Anicee Bauer

As a true believer in Biophilic Design and all the good it can do, this edition's theme around Healthcare feels like a homerun. If Biophilic Design has been researched for one thing, it is its positive effects on physical health and mental and social wellbeing. I therefore boldly assume that you, dear reader, are very well aware of the essential role that nature can play within the healing professions. However, as I see it, this role should not be confined to the physical design level, but also reach into the actual applied practices and methods. Let me explain.

Nowadays, more and more different types of therapies aim to bring people closer to nature and harvest its healing potential. To name a few: Forest Bathing, Healing Gardens (e.g. for dementia patients), Aromatherapy or Ice Bathing. These normal nature-related activities seem to range under "Eco-Therapy". Hiking, campfires, gardening, spending time with animals, outdoor sports or other wilderness adventures like survival camping, are being named as its

techniques. The result is an entanglement of these activities with the concept of "treatment", assuming some kind of illness or disease.

But the truth is: we are not sick. We just have forgotten who and what we are and how the universe works. We are all spiritual beings having a human experience. Not the other way around. Science, however, including modern medicine, follows a mechanistic paradigm that somehow has managed to exclude spirituality. And in doing so, it paradoxically limits itself by not acknowledging that there are no limits to what is possible. In other words: that there is more between Heaven and Earth than we can see or measure. According to biologist Rupert Sheldrake, we have based science on assumptions and then turned them into dogmas. And I agree. Our healthcare system may then offer alternative approaches, like homoeopathy or acupuncture, but the very fact that they are labelled "alternatives" and often are very sparsely compensated for by insurance, says it all.



Space for inner growth

So, especially when it comes to healthcare, it is an urgent time for a more complete and holistic approach, which also means combining new technological knowledge with the old wisdom of our ancestors and Mother Earth. I wonder, for example, how many people are familiar with the Universal Laws of Nature. They originate from ancient Hermetic Philosophy and – by the way – nowadays are even largely acknowledged by modern science. Universal means “existing everywhere”, “involving everyone” and “relating to the whole”. It doesn't get any more sustainable than that. Nevertheless, they are far from being embedded in our societal structures. But if we would understand them and align ourselves with them, it would enable us to consciously tap into the forces that our lives adhere to – whether we know it or not. We could work with life and not have life work against us.

For example, according to the Law of Oneness, separation is an illusion and everything we do, say, think and believe affects everything else, as we all come from the same source. But by ignoring this law, we exclude others, divide the world and create conflict, scarcity and fear. The Law of Vibration states that everything, including every thought, feeling, desire, action or material, consists of energy and has its own unique vibrational frequency. This energy cannot be created or destroyed, only transformed from one state to another. Higher vibrations can transform lower ones and that's how we – in theory – all are able to change the conditions of our lives.

So, the narrative around disease and lack of something seems misleading and



Monastery-like walkway



Minimalistic Design

disempowering to me, as it makes us dependent on a narrow-minded and incomplete worldview. Being connected with nature should not be seen as a remedy for some disorder, but as a healthy and natural way of living. This is why I am intrigued by Shamanism. This ancient healing tradition offers a way of living in connection with nature and all of creation and at the same time embodies the science of quantum physics. Acknowledging that everything is energy, including our bodies and minds, it aims to restore the flow of our universal life force, chi or prana, to remove blockages and activate the body's self-healing potential. As a mediator between the seen and the unseen world, the Shaman gathers information in the quantum field and cares for the whole being with all its interconnected body's: physical, emotional, mental and spiritual.

Other practices that also explicitly work with energy are, for example, Reiki or Qi Gong, and also systemic approaches, like the increasingly popular family constellation, benefit from valuable information and sometimes even life-changing insights that emerge from the so-called "morphogenetic field". There are now also study's researching the effectiveness of family constellations, for example regarding the decrease of itch in dermatitis and psoriasis. So, things are in motion, it seems. As Sheldrake describes it: we find ourselves at a "threshold of a new synthesis in which traditional wisdom, intuitive experience and scientific insight can be mutually enriching." Wouldn't it be magnificent, if also the development in architecture would reflect this evolution?

Biophilic Design is leading the way. And what I would like to see included is some

kind of Spiritual Design that speaks to our inner growth. That helps us to slow down, be silent and present and explore our inner landscapes. We could draw inspiration from traditional sacred spaces, like chapels or prayer rooms with their often unique lighting, chandeliers, round portals or leadlight windows. Or from retreat centres, that often apply minimalism as in the Japanese concept of MA, the "space in-between", where the emptiness that surrounds an object makes it recognizable as such and helps us to see what really matters. And, of course, Positive Design. Positive Design makes us smile and triggers positive emotions like joy, gratitude, inspiration, awe or love. This way it enables us to create high vibrational energy. And then miracles happen. You just wait and see.

*"There are only two ways to live your life.
One is as though nothing is a miracle.
The other is as though everything
is a miracle."*

Albert Einstein

Which one will you choose?

www.humansintrees.com

Further Reading

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Church in harmony with its surrounding

Biophilia: Nature or Nurture?

“Is Biophilia something that is inherent in all of us? Are we born with it, do we develop it as we grow up? Some interesting questions posed, which will definitely spark debate.”

Maureen K. Calamia

As a feng shui and biophilic design consultant, I am often surprised at the lack of biophilic elements in clients' homes and workspaces. No live plants or colours of nature, no artwork of natural scenes, or even little care to orient themselves to natural light and views.

With homeowners, what's even more surprising to me is a lack of connection to their properties. So many people have sod lawns, over-manicured gardens, and few, if any mature trees ... “domesticated nature.” Recently, when I asked a client to point out an area that she felt called to on her land, she pointed to the wooded area just over the fence. So little “wild nature” is present in our lives.

And it's propelled me to be curious, to ask some questions:

- What is biophilia?
- Is everyone born with it?
- And if so, why do some of us seem oblivious to it?

Years ago, I read a book that helped me to understand the psychology behind the current global environmental crisis. Voice of the Earth: An Exploration of Ecopsychology by Theodore Roszak introduced me to the study of ecopsychology and opened new ways of thinking about nature connection, and disconnection.

I learned some of the big societal shifts that led us here, and separated us from the rhythms and cycles of nature. Moving from hunter-gatherers to an agrarian society; the rise of the world's religions with overtures of male dominance and supreme power; and the Industrial, and technological revolutions. The average American spends less than ten per cent of their time outdoors. And when we are outside, we are often in manmade “domesticated” spaces, such as backyards, ball fields, and city parks.

A few years later, I learned about the concepts of “biophilia” and “biophilic design.”

What is biophilia?

Some of you are probably already aware of this, but in the early 1960's, around the time that biologist Rachel Carson published Silent Spring and the environmental movement started to gain traction, German psychologist Erich Fromm coined the term biophilia. Biophilia means love of life. The words often used in describing biophilia is our inherent love of living things.

Lately, it has made me wonder about this “inherent” aspect of biophilia. Is it true that all humans possess this love of nature? And if so, why are so many of us apparently oblivious to, or at least acting against, it?

Out of curiosity, I spent some time researching this and came across this enlightening article.¹ I pondered: Where does biophilia come from and do we all have it?

In this article the authors suggest that biophilia is both nature and nurture (surprise!).

Fromm recognizes the innate...character of biophilia, as a “primary potentiality” (Fromm, 1964, p. 51) “intrinsic to human biology” (Fromm, 1973, p. 407). However, Fromm warns that biophilia is realized only if the environmental conditions – natural and social – are present that foster its growth and development in a natural and spontaneous way.

The environmental conditions that must precede the blossoming of biophilia are:

1. *Physical and mental security – such things are basic shelter, food, and access to economic resources.*
2. *Justice – living in a society where behavioural rules are observed and followed.*
3. *Freedom – the ability to think, express and act without constraints.*

If all these conditions are present, Fromm suggests, then a child has the potential to develop a “biophilic personality,” which includes these four elements: case, responsibility, respect, and knowledge of the natural world.

Is biophilia a hereditary trait?

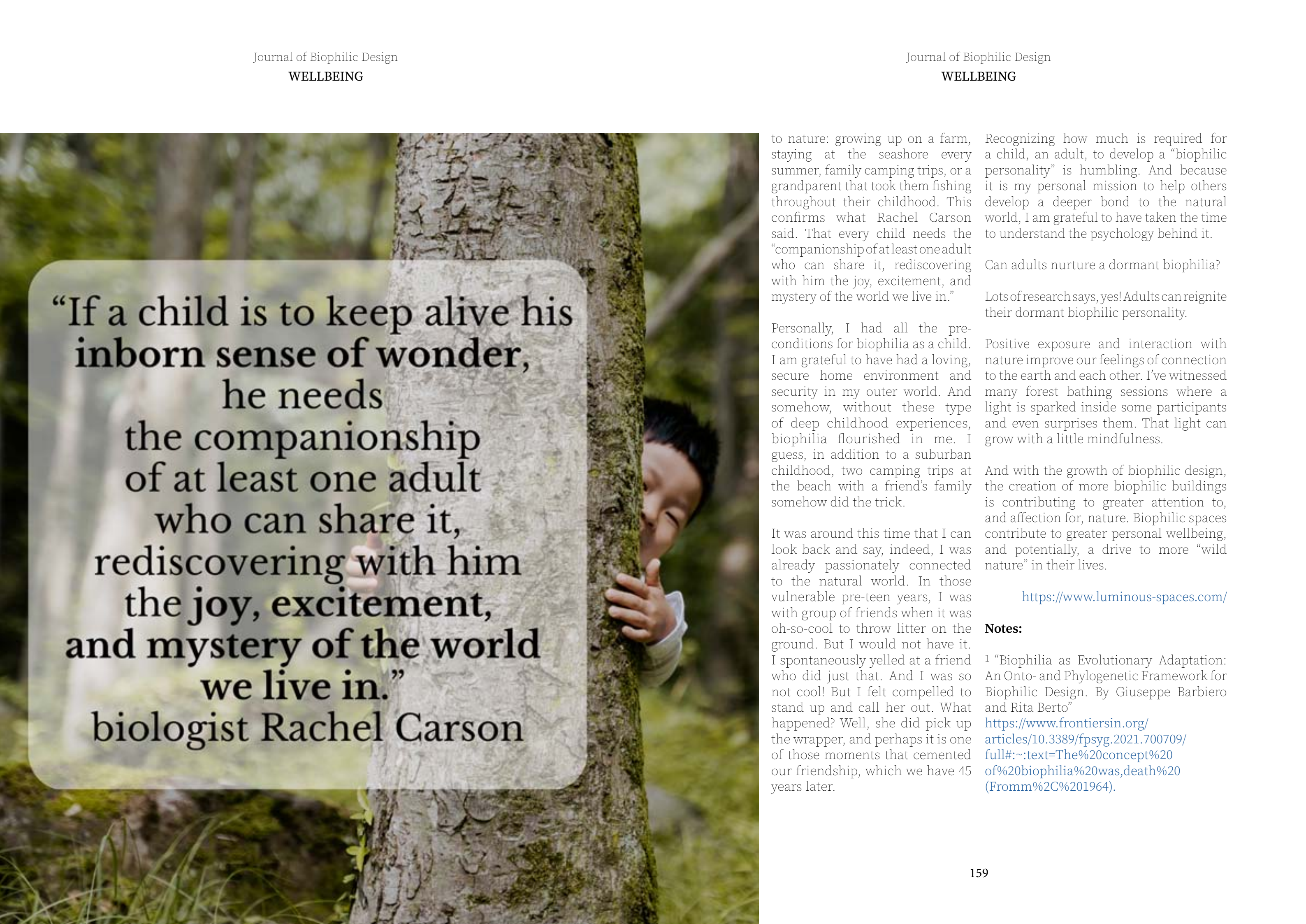
Much research says, yes. Biophilia is a trait that would contribute to successful survival as a human species. It's beneficial for us to feel connected and supported by the environment around us. And, as many researchers, even people like you and I have noticed, biophilia seems to be present in most children.

But, over time, biophilic tendencies will change. Either they will deepen or diminish, depending on an individual's interactions and experiences in and with nature. The biophilia trait can atrophy without positive reinforcement. With negative reinforcement, an individual can develop a fear of nature (biophobia), or even, at the extreme, necrophilia (tendencies toward decay and death).

If the environmental conditions are in contrast with existential needs, then an opposite secondary potentiality may develop, necrophilia, that is, “the passion to destroy life and the attraction for all that is dead, in decay and purely mechanical” (Fromm, 1973, p. 25).

What other factors are required for biophilia to develop and grow?

This past year, I interviewed about fifty people about profound experiences in nature. Nearly all of my participants spoke about deep childhood connections

A young boy with dark hair is peeking from behind a tree trunk in a forest. He is looking towards the camera with a slight smile. The background is a soft-focus forest scene with green foliage and tree trunks.

**“If a child is to keep alive his
inborn sense of wonder,
he needs
the companionship
of at least one adult
who can share it,
rediscovering with him
the joy, excitement,
and mystery of the world
we live in.”
biologist Rachel Carson**

to nature: growing up on a farm, staying at the seashore every summer, family camping trips, or a grandparent that took them fishing throughout their childhood. This confirms what Rachel Carson said. That every child needs the “companionship of at least one adult who can share it, rediscovering with him the joy, excitement, and mystery of the world we live in.”

Personally, I had all the pre-conditions for biophilia as a child. I am grateful to have had a loving, secure home environment and security in my outer world. And somehow, without these type of deep childhood experiences, biophilia flourished in me. I guess, in addition to a suburban childhood, two camping trips at the beach with a friend’s family somehow did the trick.

It was around this time that I can look back and say, indeed, I was already passionately connected to the natural world. In those vulnerable pre-teen years, I was with group of friends when it was oh-so-cool to throw litter on the ground. But I would not have it. I spontaneously yelled at a friend who did just that. And I was so not cool! But I felt compelled to stand up and call her out. What happened? Well, she did pick up the wrapper, and perhaps it is one of those moments that cemented our friendship, which we have 45 years later.

Recognizing how much is required for a child, an adult, to develop a “biophilic personality” is humbling. And because it is my personal mission to help others develop a deeper bond to the natural world, I am grateful to have taken the time to understand the psychology behind it.

Can adults nurture a dormant biophilia?

Lots of research says, yes! Adults can reignite their dormant biophilic personality.

Positive exposure and interaction with nature improve our feelings of connection to the earth and each other. I’ve witnessed many forest bathing sessions where a light is sparked inside some participants and even surprises them. That light can grow with a little mindfulness.

And with the growth of biophilic design, the creation of more biophilic buildings is contributing to greater attention to, and affection for, nature. Biophilic spaces contribute to greater personal wellbeing, and potentially, a drive to more “wild nature” in their lives.

<https://www.luminous-spaces.com/>

Notes:

¹ “Biophilia as Evolutionary Adaptation: An Onto- and Phylogenetic Framework for Biophilic Design. By Giuseppe Barbiero and Rita Berto”
[https://www.frontiersin.org/articles/10.3389/fpsyg.2021.700709/full#:~:text=The%20concept%20of%20biophilia%20was,death%20\(Fromm%2C%201964\).](https://www.frontiersin.org/articles/10.3389/fpsyg.2021.700709/full#:~:text=The%20concept%20of%20biophilia%20was,death%20(Fromm%2C%201964).)

FIVE MINUTES WITH ... DR CHARLIE EASMON IN HARLEY STREET

Charlie Easmon

“Why in your opinion do we need Biophilic Design in healthcare facilities?”

Humans need to connect with nature. Blandness is not our default. Several papers have confirmed that healing improves with access to natural light and images of nature if not actual nature.

Do you think there is enough biophilic design in the NHS as it stands?

Sadly not. There are still too many white walls and white ceilings. Corridors are often vast and impersonal. It can feel like you are in a prison camp. The smells do not remind you of plants and forests which they could do.

What is the difference generally in private healthcare? Is it better generally? The design is better for sure?

Private health care is great for speed of access and choice. It is not best for emergencies where the NHS has traditionally been excellent. Private hospitals must be better at service and design as expected by those paying. Some but not all private facilities have adopted Biophilic design and more can be done.

What would you like to see the NHS including in their environments (for patients, families and STAFF too)?

Better varieties of food that respect different cultural traditions. More plants or Biophilic designs in spaces. Imaginative art. Family fun rooms to de stress. Staff and patient rooms with board games. Facilitated introductions between patients i.e. Mr X is ill but he works or worked in a similar area to you etc.

More acknowledgement of the staff as people. More awareness in design and food. More acceptance of cultural differences in styles. Better and more Biophilic design all around.

Your work abroad, is it different in the different places you have worked?

The world is fortunately varied. Some cultures have deeper respect for all health care staff. I love Japanese respect, formality and design. Public hospitals in some countries have been disgraceful with awful smells and people/children sharing beds.

Anything else, call for change?

Health care costs are 66% staff costs. Staff should feel loved and encouraged to stay. The humanity of staff should be taken into account and flexibility of work should respect their needs as carers of children or elderly relatives and the occasional bereavement. If staff are having to use food banks something has gone wrong with the pay structure, and this should be addressed. Staff ideas for better service should be listened to and encouraged. Spaces should be designed to make staff feel good about their place of work.

Based in Harley Street, London's epicentre of healthcare, Dr Charlie Easmon MBBS MRCP MSc Public Health DTM&H DOccMed is Medical Director of Your Excellent Health Service, President of The International Association of Physicians for the Overseas Services (IAPOS) www.iapos.co.uk, Co-founder of YEHS WE Care and Co-founder of Global Health Action Strategies & Solutions (GHASS)

www.ghass.co.uk

What Are the Benefits of Biophilic Design on Healing?

“Natural design elements are emerging in buildings worldwide. Some people have grown used to a blank, sterile environment, but biophilic design offers many benefits to inhabitants. They realize there are better alternatives to empty walls and minimal interior decorating.”

Rose Morrison

Biophilic design can introduce better healing with natural elements and an improved look. Incorporating it in hospitals and doctors' offices could give patients more benefits than you would expect.

How can biophilic design help a patient's healing process? Here's an in-depth look at the benefits and how to introduce them to your facility.

The Stress of Health Care

Many people report feeling nosocomophobia — otherwise known as a fear of hospitals. Other phobias can influence this, such as an aversion to needles, disease or pain. Patients may find any number of things to be afraid of in a hospital, which can increase anxiety and make their stay unpleasant. Health care facilities are meant to be beacons of healing but can often be sources of immense stress.

Hospital staff also report high rates of negative feelings in the workplace.

Nearly half of frontline workers say they have felt stressed since the beginning of the COVID-19 pandemic. Almost one-quarter also express feelings of anxiety and depression. It would be difficult not to feel this way when working in such heartbreaking conditions. Staff may feel confined by the clinical environments they work in.

Patients may also experience iatrophobia. This is the fear of doctors and medical care. Going to the doctor's office may be routine for some, but it can be dreadful for others. In fact, one study shows that this phobia can affect a person's decision to seek treatment. Doctors are there to help their patients be healthy, so not seeing one could lead to many adverse effects.

Stress saturates the medical field. The environment is high stakes in nature, but biophilic design can help mitigate some of that anxiety. Nature is a wonderful force for good, and bringing it into health care spaces could assist patients and staff alike.

The Benefits of Biophilic Design on Healing

Many studies have proven the positive effects of nature on the human mind. However, with modern interior design and increased times in the workplace, getting time outdoors can be challenging. Biophilic design can do a lot to increase patient and physician health.

1. Improved Stress Reaction

Many people are using natural environments to de-stress from work and city environments. Calming down during anxious moments is vital when reducing these negative feelings. Research has shown that biophilic design has had a positive effect on people in stressful situations.

Researchers analyzed people's anxiety levels in different virtual reality office spaces. On average, those in biophilic environments had improved recovery times compared to those in other areas. Exposure to nature significantly affected the first four minutes of this time. The study introduced the idea of using VR to improve stress reactions for patients with limited mobility.

2. Faster Healing Times

Higher stress levels can affect how a patient heals. People with increased anxiety or depression had more extended hospital stays, according to one study. In comparison, those who stayed positive experienced less chance of rehospitalization. Stress affected wound healing more than medical status and demographics. This study shows significant relations between healing and negative moods.

Research proves biophilic design can reduce stress, and it could also improve healing times. Patients who feel more relaxed and optimistic may heal faster and avoid infection. They might even have better outcomes from surgery. Placing more nature in medical spaces could help people recover from operations and wounds quicker.

3. More Pain Relief

Biophilic design could also lead to less pain. People experiencing chronic pain and chemotherapy said natural environments lowered their pain levels. Patients with views of trees also required fewer pain-relief drugs. Even art can make people feel better while in a health care facility. Those who saw brick walls or interpretive art often had more negative reactions and less agreeable notes on their charts.

Exposure to nature affords many benefits to patients, including less stress, quicker healing and pain reduction. All could contribute to a more positive mood, allowing them to return home faster than before. Hospitals and doctors' offices could become gentler environments for patients if they use biophilic design. This will improve people's experiences and outcomes.

Ways to Incorporate Biophilic Design in Health Care

Natural design can be more than placing plants around a waiting room. You find many more curved lines and soft edges outside rather than harsh angles. Using more delicate lines can give off a more relaxed feeling, whether you're getting new decor or remodeling.



Additionally, constructing with more natural materials can help bring the outdoors in. Hardwood or wood-replicating floors create a gentler environment. A few plants — real or fake — can add some green that helps patients feel more at peace.

Consider purchasing or building a plant wall if you're looking for a [design element incorporating decor and greenery](#). This style takes foliage out of their pots and displays them beautifully as living wall decorations. They are a great way to include nature in waiting and care rooms.

You could include even more natural environments by creating marine-themed designs. Fish tanks and water-inspired art can draw interest from patients of any age. The soft blues and purples could also help patients relax before, during or after receiving care.

Make sure there are also plenty of windows. They're helpful for any plants you choose and are an essential part of biophilic design. Windows provide views of the outdoors and allow natural light in. You could use a combination of thin and thick curtains to adjust the light to patient comfort levels.

Use Biophilic Design to Heal Patients

Research has proven natural elements in decoration have many benefits. They improve healing and relieve stress and pain. This is extremely valuable for the experiences of everyone in doctors' offices and hospitals. Use biophilic design to create a better atmosphere for workers and patients that spend time in these facilities.

[Renovated.com](#)

THRIVING WORKPLACES, ONE BREATH AT A TIME A MEDITATION FOR READING

“There is a dimension of life, of awareness, that you can discover and rest within that is silent and deep, and, in perfect balance with it, there’s a kind of wisdom that says, ‘Yes, here are the inevitable changes on the surface, and here’s the stillness of awareness underneath it all.’”

Jack Kornfield

Deborah Kempson-Wren

My meditation practice gave me a precious connection to that place of inner peace and stillness when I was undergoing treatment for two separate cancers in 2012 – 2014.

There was one time when all the veins in my arms were so sore and bruised from having been used so many times that there were none available for the latest drip I needed, and so a specialist nurse was called to insert a cannula into one of the delicate veins running across the top of my foot. I had recently come out of my 8th surgery in 18 months and had two drains coming out of the side of my body – I was weak, awash with needles and felt saturated in pain.

The nurse left me in search of someone to help and in those moments of alone time, with tears in my eyes I searched to find the peaceful place inside me to help bring a halt to all the panic thoughts in my head. I closed my eyes and focused on my breath – in – and – out – one breath at a time. Slow slow ... slowly does it ... one

breath at a time. Here I could always find my place of refuge into precious calm and stillness, and this is what sustained me through those years.

If you find yourself caught up with fears or worries, take a few moments to immerse yourself in the words of this short meditation script to embrace the great resourceful space of peace that is within us all.

~~~~~

Let’s begin by gently closing your eyes, or lowering your gaze, and taking a couple of really deep breaths.

As you take a great inhalation - feel the crown of your head lift up to the sky – creating space in your body and a sense of arriving into now.

As you exhale – long and slow through the mouth – try and relax your jaw – your neck – and your shoulders – gently releasing any tension you may feel.

On the next deep inhale as you fill your body with air – breathe into the whole length of your spine – creating a real sense of openness in your posture.

And on the exhalation – drawing your belly back towards the spine – pushing out all of the old air and any tension and having a sense of letting go - releasing – dissolving – untangling.

Then, letting your breath fall easily into its own natural rhythm, turn the gaze of your attention inwards to fully focus on the movement of the breath in your body – becoming fully attentive to the feeling sensation of the breath as it moves in – and out – in – and out –experiencing your breath carefully and tenderly – and noticing how stable - and how reliable it is – in – and out.

As you become more deeply immersed in the inner exploration of the breathing sensation inside, imagine yourself as a curious observer – directing your attention to witness more deeply and more intimately every detail of the breath sensation – in – and out – in and out – observing with a very light touch – as you breathe.

Noticing how the breath in your body is always creating a field of changing and floating sensations –feelings of pulsing – vibrating – tingling – and how this dance of energy manifests the aliveness that is you.

As you breathe – in – and out...

And then with each exhale – soften not only on the surface, but also deep within – noticing how the movement

of the breath glides within you to bring a welcome sense of healing and nourishing – taking some moments to rest in this soothing elixir of the breath – in – and out – in – and out –

And as you bathe and linger in this healing balm of the breath – perhaps you might choose to embrace a sense of warm appreciation for the nourishment you feel in your body as it is rocked and cradled through the constant rhythm of the breath – in- and out..

Now as you continue to soften with each exhale – let your heart rest easy and dive more deeply to follow your breath into the quiet space inside of yourself – dropping into stillness ... into silence ... underneath these words – underneath the currents of your thoughts – so that you might attend to this moment being lived right now – witnessing your own aliveness and moment to moment experience.

And breathe....

Let the cloudiness of your mind created through pain or worry dissolve - and find some ease in full and rounded presence as you settle into the embrace of your own awareness – the inner atmosphere and inner aliveness of simply being here in this moment.

And you may find how deep within us – in these moments of quiet - it is possible to hold the seeds of balance and resilience – the ability to embrace grace and ease in the midst of pain.

And breathe....

[www.managingourselves.co.uk](http://www.managingourselves.co.uk)



# Planted in Nature

*“Sam Peters is an award-winning journalist, and is now co-founder of Planted with his wife Deborah Spencer who launched the spectacular designjunction we all love. For both of them, nature is a healer on many levels.”*

## Sam Peters

**For us, bringing more nature-based design into healthcare settings makes complete sense to improve the health outcomes for patients while providing happier, healthier and more productive workplaces for the overworked staff in hospitals and care settings.**

From a personal point of view, I know the huge psychological health benefits that can be derived from connecting with nature, having taken enormous comfort from gardening and spending time in the woods near where we live on the Wiltshire and Dorset border following the death of our three-month old nephew in 2014. In many ways, that tragic experience was the catalyst for my wife Debs and I to set up Planted, having experienced first hand the importance of being able to connect with nature whilst grieving.

We are also huge supporters of the Maggie's cancer charity, who use biophilic design and nature to create calm and caring centres for cancer patients and

their families to aid recuperation and help alleviate stress for those experiencing the trauma of cancer. Their RIBA award winning West London centre, adjacent to Charing Cross Hospital, was inspired by Richard Rogers' concept of a heart nestled in the protective wrap of a building's four walls, while the garden is sensitively designed by Dan Pearson.

You can find out more about the mental and physical benefits of biophilic design by attending our next Planted Country event in partnership with the National Trust at Stourhead, June 9-11, or visit [www.planted-community.co.uk](http://www.planted-community.co.uk).

Sam mentioned Maggie's Cancer Care centres, we did a podcast with Dame Laura Lee, Chief Executive of the centres, called [Why Biophilic Design should be essential in Healthcare](#).

Search “podcasts Journal of Biophilic Design Dame Laura Lee”





# BIOPHILIC CITIES

Wouldn't it be amazing if we could walk or travel to our hospitals along a calm, tree-lined, flower-abundant route? Where we could hear birdsong, see squirrels play in the trees and in the grass as we pass and see the seasons change as snowdrops push up through the soil in early spring, right through to the glorious golds of autumn leaves.

In the summer or in hot climes, we could be sheltered from the sun's heat with beautiful tree canopies, and we can wait for public transport in comfortable rounded havens shielded from the elements when it's raining and cold.

When we walk, we could have the option to walk on gravel to remind us of the sea. There might be a water feature which pools beautiful clear water into a collection bowl which is teeming with life, from fish to newts to plants and dragonflies. A reminder that there is a flourishing, that there is life and health and positivity.

Instead, what we have now, are congested concrete streets, noise and cacophony from the roads, and public transport which can be erratic and dumps us a distance from the hospital doors. Or if we drive, the car parks at least in the UK, we have to pay for, the buildings are square, grey and impersonal. Signage screams officialdom and control. When we enter the buildings the entrance gapes imposing at us, and the doors yawn as we immerse ourselves in even more grey cacophony.

It feels like we are factory fodder. So imagine also, what it must be like for the people who work there. Their journeys to work, EVERY DAY. Not just when they are sick, but every day to their place of work. Add to that the stresses, sadness, and time limits imposed on them throughout the day and we should wonder why we don't make more spaces for nurses, doctors and support staff to unwind and be.

There is a lot going on in the Healthcare space, and researching content for this issue, I was so excited to hear about all the amazing projects that are going on, from the NHS Forest project to nature-prescribing. One thing though that is clearly a missed opportunity is the greening of cities with the main purpose being for the HEALTH of the residents, the workers, and the families who live in a city.

There are urban greening projects and city design programmes taking place all over the world, for instance in Birmingham, Cambridge, Barcelona, San Francisco, Wellington and elsewhere, and we will be looking at Cities in detail in our next issue of the Journal of Biophilic Design.

But I would argue that there is so much more EVERY city, every town, every village and community can do, IF we consider greening our spaces for the purpose of improving the HEALTH of our inhabitants to be a priority. There is a preventative aspect here, more trees and public spaces, the healthier the air, the less pollution (and therefore all the pollution-related illnesses), the better our minds are (helping reduce stress-related illnesses), the more likely these spaces will be used by more people (helping reduce isolation and depression and associated illness), the safer they will be (helping reduce physical and mental abuse and the health conditions related to such attacks) and so on.

It is likely that most of our readers will already be of the opinion that we need more green in cities, so my question to you is, what can we do to help bring about a more emotional connection to the benefits of biophilic design in cities? This emotional connection needs to reach those who make the planning decisions, who look at the economics of planning and construction and those who are also genuinely looking to do the right thing but don't know where to start.

What would you suggest we do?

Write to me at [editor@journalofbiophilicdesign.com](mailto:editor@journalofbiophilicdesign.com)



# DESIGNING CITIES FOR THE HEALTH OF THE PEOPLE

**Professor Chris Rogers**<sup>1</sup>

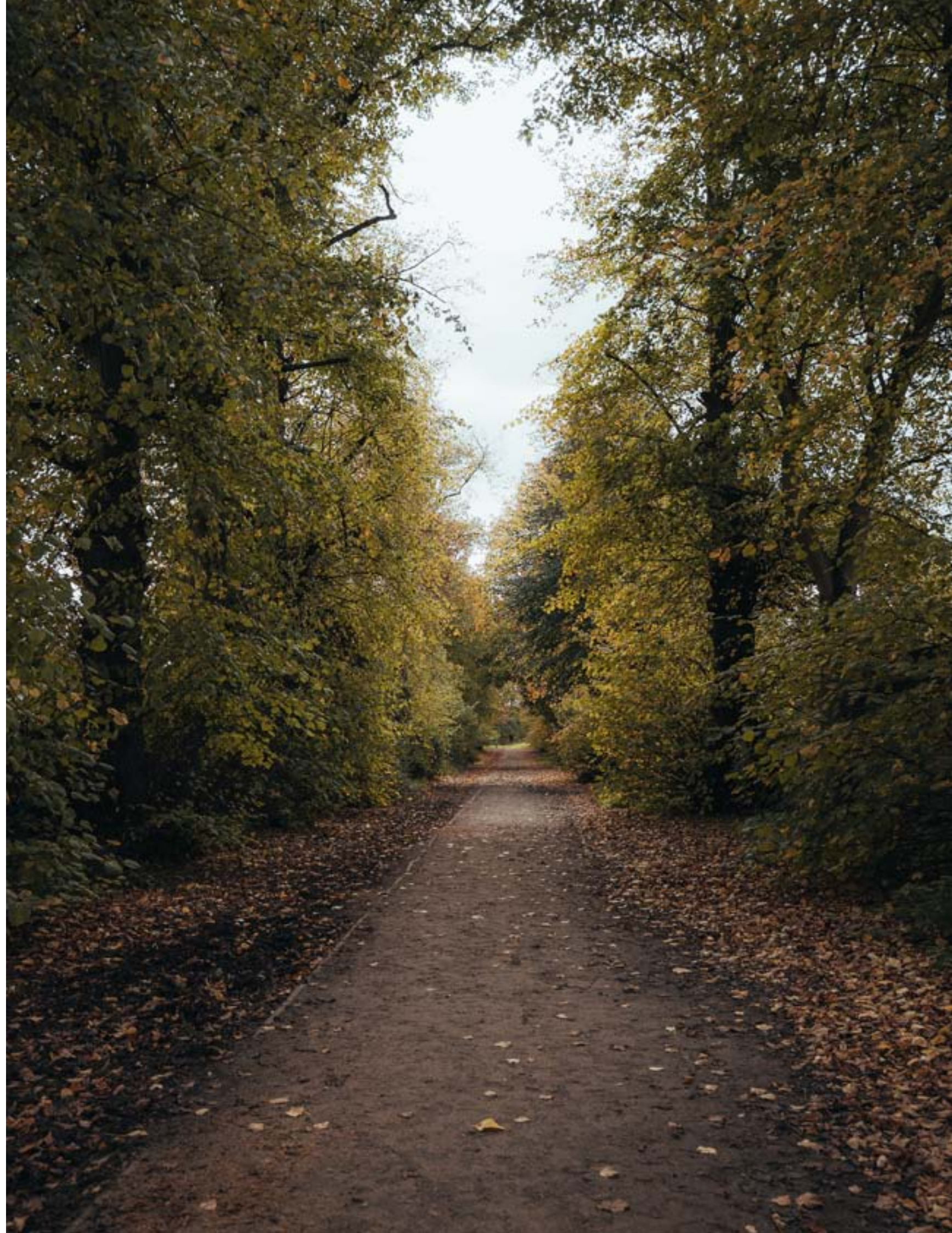
*“Cities should be places that positively contribute to the health and wellbeing of people. To achieve this, those who govern cities must understand the health and wellbeing implications of the decisions they make.”*

The design and operation of cities and their infrastructure systems both cause and exacerbate non-communicable diseases (NCDs) in people, yet this is not an inevitable side effect of city living. While many argue we already know of the changes needed to improve cities and people’s physical and mental health and wellbeing, the business models and governance regimes seem unable to deliver change. This is because business models prioritise productivity, connectivity (to enhance productivity) and resilience (to maintain productivity), *not* health and wellbeing.

Most NCD *risk factors* affect many NCDs, and most NCDs have a range of *contributing factors*. Tackling environmental and behavioural risk factors that predispose people to these has the potential to reduce the development and progression of a wide range of NCDs, including cardiovascular (circulatory) diseases (heart disease, stroke), dementias, many cancers, and common mental disorders. People with poor mental health have substantially raised mortality, primarily from physical diseases<sup>2</sup>, leading to NCDs being reframed as ‘socially transmitted conditions’<sup>3</sup>.

A wide range of environmental exposures and behaviours contribute to the development of NCDs. Air pollution causes and exacerbates respiratory diseases (asthma, chronic obstructive pulmonary disease), heart disease, stroke, lung cancer, obesity, diabetes, and dementia<sup>4</sup>. Asthma is more prevalent in children in damp, mouldy, poorly-ventilated housing. Noise increases blood pressure and thus hypertension; reduces concentration; and interferes with educational attainment (a major predictor of adult health<sup>5</sup>).

Physical inactivity (e.g. lacking active travel) increases obesity, diabetes, blood pressure, heart disease, stroke, some cancers, and depression, and reduces wellbeing<sup>6</sup>.









Social isolation and loneliness each increase mortality<sup>7</sup>, heart disease, stroke, and common mental disorders<sup>9</sup>, which in turn can increase social isolation. Community severance, the barrier effect of busy roads or infrastructure, reduces access to the goods, services, and social networks important for good health and wellbeing<sup>8</sup>.

Large social networks benefit people's health to the same degree as stopping smoking<sup>9</sup>. Obesity increases the likelihood of developing diabetes; both increase the risks of developing cancer, dementia, circulatory disease and chronic kidney disease (as does hypertension).

**However, there are vital, unexpected second-order effects.**

Smoking is one of the most important risk factors for all the physical NCDs. Prevalence is much higher among more deprived populations and those with poor mental health. One impact of improving people's environment and wellbeing will be to help smokers in deprived areas become more mentally able to realise their commonly-held ambition to cease smoking. Martin *et al.*<sup>10</sup> have shown that proximity to greenspace both helps smokers to stop and non-smokers from starting smoking; their prior work showed that access to greenspace reduced cravings for alcohol and unhealthy foods, in addition to improving health and wellbeing. These important impacts exemplify both the complex interconnectedness of the issues and the enormous potential benefits in terms of reducing the upstream causes of NCDs. What is needed now is guidance on how to bring about the necessary

changes to infrastructure systems and cityscapes.

Cities are complex organic, emergent, adaptive systems shaped by their local contexts, including their geography, history and access for trade centred progressively on rivers, canals, railways and roads. Each city is, therefore, unique. Overlaid onto the different cityscapes are intra-city infrastructure systems that support 'urban metabolism' (the movement around the city of things and resources such as water, sewers, drainage and gas pipelines, electricity and telecommunications cables, waste collection, roads and railways) and the city's social systems (education, health, work, retail, etc.). Researchers recognise the critical importance of cities to societies and their role in shaping health and wellbeing outcomes<sup>11</sup>, positioning cities as upstream determinants of NCDs. However, research to date has sought to address the various issues that impact health and wellbeing and NCDs in cities individually, not collectively. There is a need to *address the full complexity of NCD determinants in cities by addressing the whole system, not parts of it.*

Cities should be *places that positively contribute to the health and wellbeing of people*. To achieve this *those who govern cities must understand the health and wellbeing implications of the decisions they make – and they must* empower and enable all those who shape cities and infrastructure systems to become effective deliverers of health and wellbeing.

<https://www.birmingham.ac.uk/staff/profiles/civil/rogers-christopher.aspx>

**Further Reading**

<sup>1</sup> <https://www.birmingham.ac.uk/staff/profiles/civil/rogers-christopher.aspx>

<sup>2</sup> Walker et al (2015). Mortality in Mental Disorders and Global Disease Burden Implications: A Systematic Review and Meta-analysis. JAMA Psychiatry 72, 334.

<sup>3</sup> Allen, Feigl (2017). Reframing non-communicable diseases as socially transmitted conditions Lancet Glob. Health 5, e644-46.

<sup>4</sup> RCP, RCPCH (2016). Every breath we take: the lifelong impact of air pollution.

<sup>5</sup> Stansfeld (2015). Noise Effects on Health in the Context of Air Pollution Exposure. Int. J. Environ. Res. Public Health 12, 12735–12760.

<sup>6</sup> Kyu et al (2016) BMJ i3857.

<sup>7</sup> Holt-Lunstad et al (2015). Loneliness and Social Isolation as Risk Factors for Mortality: A Meta-Analytic Review. Perspect. Psychol. Sci. 10, 227-37.

<sup>8</sup> Anciaes *et al* (2015). Travel Behav. Soc. 15, 88-101.

<sup>9</sup> Holt-Lunstad et al (2010). Social relationships and mortality risk: a meta-analytic review. PLoS Med. 7, e1000316.

<sup>10</sup> Martin *et al.* (2020). Neighbourhood greenspace and smoking prevalence: Results from a nationally representative survey in England. Social Sci. & Medicine. Online.

<sup>11</sup> Naylor, Buck (2018). The role of cities in improving population health: international insights. London: King's Fund.





# GREEN SPACE

*“Green social prescribing refers people to local, non-clinical, nature-based activities to help improve their physical and mental health.”*

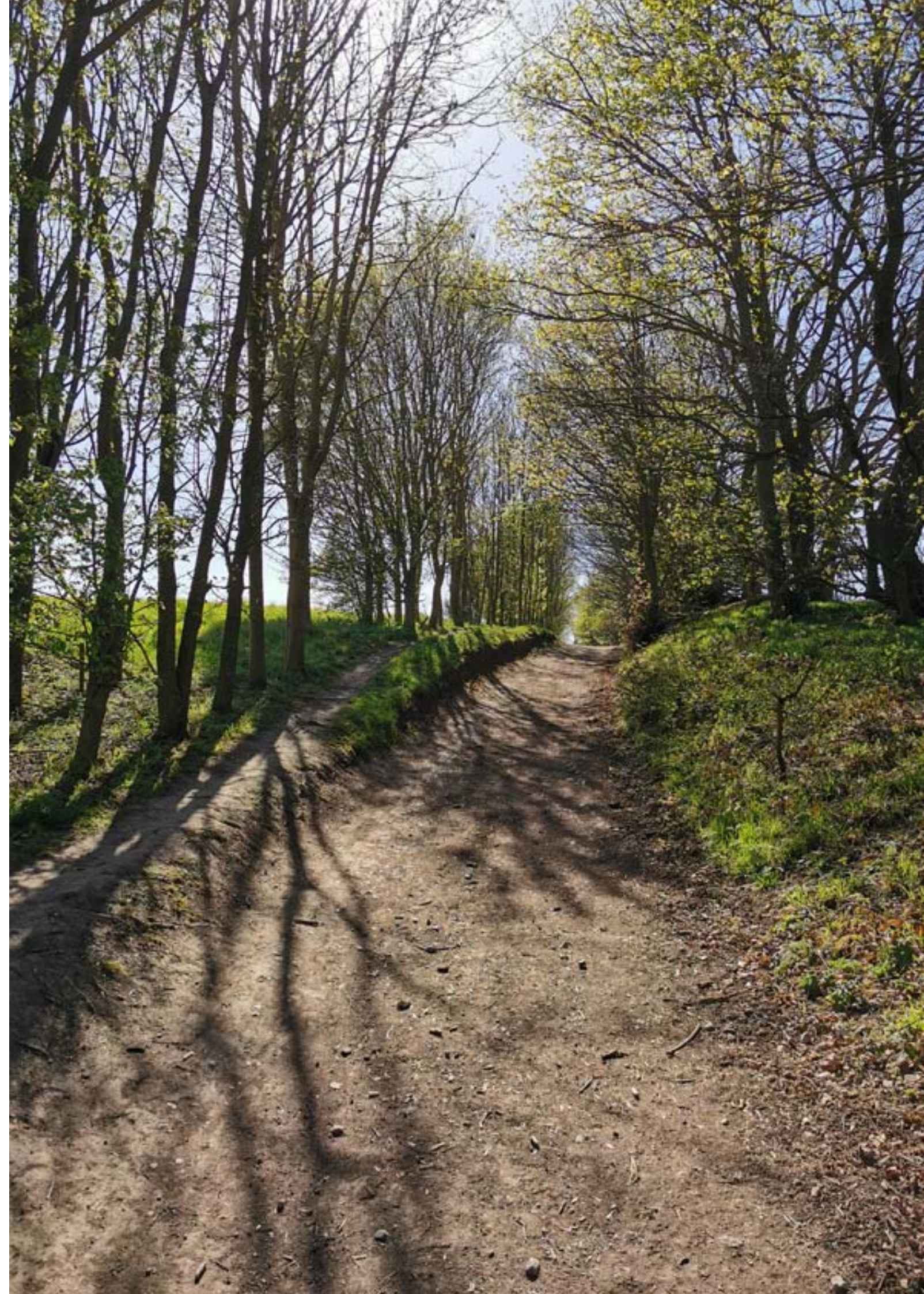
**Kate Lisle**

GreenSpace is part of a national test and learn pilot project, working to build a network of trusted groups and organisations to embed green social prescribing throughout Nottingham City and Nottinghamshire. At the start of the project we held discussions with Social Prescribing Link Workers and Healthcare teams who informed us that what they needed in order to embed green social prescribing was information: they needed to know what opportunities were available locally for their clients and to know that they were referring people into safe space.

To address this, one of the first things we did was to set up the GreenSpace Trusted Provider scheme. The trusted provider scheme ensures an organisation has relevant policies, procedures and risk assessments in place and is committed to helping people in their community. Within the information that providers supply is the level of mental health need that they are able to support within their

organisation. The Mental Health Levels were produced in collaboration with the GreenSpace Mental Health Lead, based at Highbury Hospital in Nottingham and they range from Level 0, which refers to a person who is well and looking for an activity to support and maintain their mental wellbeing, to Level 4, which refers to a person who may be in crisis or has long-term mental ill health and requires the support of multiple agencies to manage their wellbeing. They also provide information about the cultural and gender mix of the groups, the size of the groups and the languages spoken within the groups, so that people can select an activity where they will feel comfortable and feel that they are represented.

Collating all so much information about the different providers and green social prescribing opportunities available around Nottingham was a mammoth task, and the need for an easily accessible means of storing and sharing it spawned the idea for The Big Green Book.











The Big Green Book is a directory of nature-based activities and opportunities for green social prescribing around Nottingham City and Nottinghamshire. It is designed not only for social prescribers and healthcare workers, but also for the general public and it contains a wealth of information about different providers in the city and county, organised by location, to help them to choose an activity that is suitable for their needs. Anyone wanting to make a referral contacts the organisation directly to arrange a visit. The Big Green Book can be accessed here: [The Big Green Book | \*nottinghamcvs.co.uk\*](https://www.nottinghamcvs.co.uk)

The outcome of the project is still being evaluated, however, we have received feedback that The GreenSpace Trusted Provider scheme has had a really positive impact on the organisations involved, giving the teams the opportunities to review and update their policies and procedures with the support of the Nottingham Community and Voluntary Service. More organisations now have designated safeguarding leads and many have received business support from NCVS as a part of this process. Another benefit that has been reported is that by ensuring certain documents are in place, some groups have found it easier to apply for funding.

Most importantly, there has been a huge benefit for the individuals taking part in a wide range of nature-based activities, with clients reporting that green social

prescribing and nature-connectedness has had a really positive impact on their life.

*“I met new people – it’s given me confidence to come out of my comfort zone”*

*“Being outside is always good for your mental health and it helps that there is a specific time and day to make you go outside for an hour, otherwise it is too easy to put it off!”*

*“I have felt more relaxed when I am in the allotment it helps with my mental health problems it’s like magic!”*

*“I feel calm when I’m around nature. It’s when I’m around negativity that brings on my stress”*

The benefits of green social prescribing are being discovered far and wide across the country through the national test and learn pilot, so why not head into a green space and discover them for yourself?

#### **GreenSpace Project Team**

Amanda Chambers –  
*GreenSpace Project Manager*

Laura Armitage and Kate Lisle –  
*GreenSpace Project Officers*

<https://www.nottinghamcvs.co.uk/voice-and-partnerships/greenspace>

<https://nottsguidedwalks.co.uk/pdf/>



# TINY FORESTS, BIG IMPACT

**Ross O’Ceallaigh**

The health benefits of time spent in nature are well known. Study after study tells us that a walk in the park or even just a view of trees from our window will reduce our risk of disease and help us to heal faster. Forests seem to have a certain magical quality, best illustrated by the Japanese practice of *Shinrin-Yoku* (“Forest Bathing”), which involves spending time in and fully experiencing a forest. However, these healing experiences can be rare for those living in cities, where pristine natural habitats have given way to concrete and manicured lawns. Bringing forests back into cities is a challenge for many reasons, not least because land ownership can be so piecemeal. It’s hard to find a plot of urban land big enough to establish a true forest on. This is where Tiny Forests come in.

Tiny Forests (a.k.a. Mini-Forests) is another Japanese concept spreading the power of forests around the world. They are exactly as the name suggests: small pockets of biodiverse, native forest that

can thrive on sites as big as a tennis court. The ‘Miyawaki Method’ of afforestation, named after the Japanese botanist who invented the technique, throws out the rule book for urban tree planting. Rather than planting saplings in plastic tubes spaced generously apart in a line (typical of British parks), the Miyawaki Method invites us to mimic the messiness of a natural forest.

‘Whips’ (very young trees) are planted just 30cm apart in a random fashion. Importantly, these tiny forests are never composed of a single tree species. They will generally contain a variety of native tree species – species that have been around since the last Ice Age. This chaotic assemblage of plants are then mulched heavily with organic material like leaf litter to keep moisture in, weeds down and soil protected. The idea is to kickstart a forest ecosystem, then step away and let nature do its thing. After 3 years of light maintenance, Tiny Forests promise to be self-sufficient and maintenance-free.



Journal of Biophilic Design  
**BIOPHILIC CITIES**

Thanks largely to Akira Miyawaki himself, there are many thriving, mature Tiny Forests in Japan that boost biodiversity, protect infrastructure from storms and bring joy to local communities. In recent years, the methodology has spread and Tiny Forests have been planted in India, Pakistan, France, the UK and elsewhere around the globe.

Since learning about the concept, I have been on the lookout for an opportunity to plant a Tiny Forest. On a gloomy October morning I finally got my chance when the environmental non-profit Earthwatch were planting their 150th tiny forest in the UK. So I hopped on the train to north London with my gardening gloves, not

really knowing what to expect.

I arrived at the planting site in a local park early, so the Earthwatch team put me to work tagging whips with ID numbers. We tagged 100 trees so in years to come local volunteers can measure the tree’s survival and growth and log it in a database for monitoring. This will tell the team about the health of the forest and allow them to estimate how much carbon dioxide the trees are absorbing.

For this forest, at least 8 different tree species were selected (I lost count), including oak, holly, lime, beech and rose. To qualify, species need to be native and proven to thrive in the local area.











By 10am, around 60 volunteers from the local area and across London had shown up. After a short demonstration (dig a hole, stick the tree in, cover over) we each took a shovel and got to work planting. By 11am we had planted 300 trees. Another 30 minutes and we had mulched the site heavily. That's how you plant an urban forest in 1 hour and have a lot of fun in the process! Many hands make light work. In the afternoon, another batch of volunteers arrived to plant the other 300. Yes, we planted 600 trees in total, in an area the size of a tennis court.

Some people are understandably skeptical of Tiny Forests. It challenges much conventional wisdom about tree planting and urban green space management. Although well established in Japan, the Miyawaki Method is relatively new to the English-speaking world and there is virtually zero academic literature on the technique. Information about the method largely exists in blogs, a few books and the brains of Miyawaki evangelists. Let's hope that as more of these brilliant little ecosystems pop up (Earthwatch has planted 150 in just the last two years) we will see more investigation, experimentation and acceptance.

Our newly planted tiny forest in north London doesn't look very impressive yet. But it should soon explode with growth and offer local people the opportunity to experience the health benefits of a forest for years to come.

<https://greenurbanistpod.com>



*Photography by Ross O'Clealaigh*

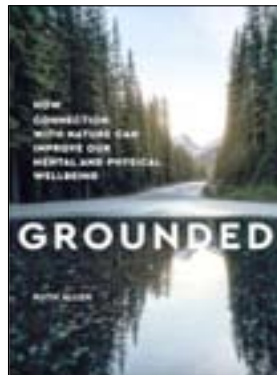


# BOOK REVIEWS

Each issue you will find some excellent book recommendations, suggested by the dazzling book and gift shop Folde in Dorset

## Folde Dorset

Bestselling nature therapy books



### Grounded: How connection with nature can improve our mental and physical wellbeing, Ruth Allen

How do we understand nature? Benevolent and supportive? Wild and threatening? Reassuring or unpredictable? We all have a different experience of, and relationship with, nature. Reflecting on

nature's unknowable and mysterious qualities, outdoor psychotherapist Ruth Allen explores how we can therapeutically benefit from a deeper connection with nature, finding within it balance, stillness, solitude, resilience, contentment, activity, fearlessness - and our own wild voice.

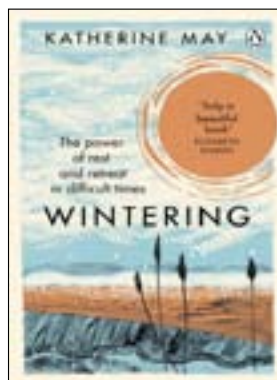
Published by Wellbeck Publishing Group (£16.99)  
<https://uk.bookshop.org/a/8995/9781787395862>

### Everybody Needs Beauty: In Search of the Nature Cure, Samantha Walton

Everybody is talking about the healing properties of nature. Where has this come from, and what does 'going to nature' mean? Where is it – at the end of a garden, beyond the tarmac fringes of a city, at the summit of a mountain? Drawing on history, science,

literature and art, Samantha Walton shows that the nature cure has deep roots – but, as we face an unprecedented crisis of mental health, social injustice and environmental devastation, the search for it is more urgent now than ever.

Published by Bloomsbury Publishing (£9.99)  
<https://uk.bookshop.org/a/8995/9781526621023>



### Wintering: The Power of Rest and Retreat in Difficult Times, Katherine May

Wintering is a poignant and comforting meditation on the fallow periods of life, times when we must retreat to care for and repair ourselves. Katherine May thoughtfully shows us how to come through

these times with the wisdom of knowing that, like the seasons, our winters and summers are the ebb and flow of life.

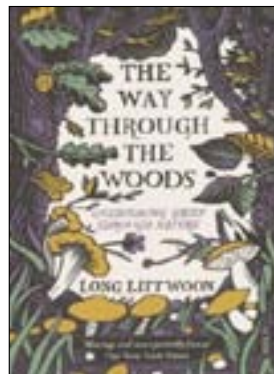
Published by Ebury Publishing (£10.99)  
<https://uk.bookshop.org/a/8995/9781846045998>

### The Way Through the Woods: Overcoming Grief through Nature, Long Litt Woon

Everybody is talking about the healing properties of After losing her husband of 32 years, Long Litt Woon is utterly bereft. For a time, she is disoriented, aimless, lost. It is only when she wanders deep into the woods and attunes herself to Nature's chorus that

she learns how the wild might restore us to hope, and to life after death.

Published by Scribe Publications (£9.99)  
<https://uk.bookshop.org/a/8995/9781911617389>



### Winter Swimming: The Nordic Way Towards a Healthier and Happier Life, Susanna Soberg

Whether in lake, lido, river or sea, we know the benefits of swimming outdoors and in nature - environmentally friendly and accessible, it can influence our happiness, our energy and our inner tranquility, and give us that winter glow. Danish scientist Dr Susanna Soberg leads us step by step into the icy water and explains the "cold-shock response", the massive endorphin rush as

our body reacts and adapts to very cold temperatures through the winter season. Not only do our circulation, heart, lungs and skin respond positively, but our immune system, metabolism and mental health too. This beautifully illustrated exploration of cold-water traditions in Scandinavia and around the world shows how it can have a significant positive impact on our physical and mental health, confidence and well-being, providing such a boost to body and soul.

Published by Quercus Publishing (£22)  
<https://uk.bookshop.org/a/8995/9781529417463>

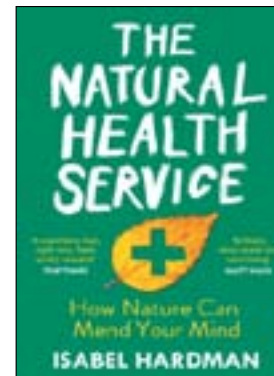
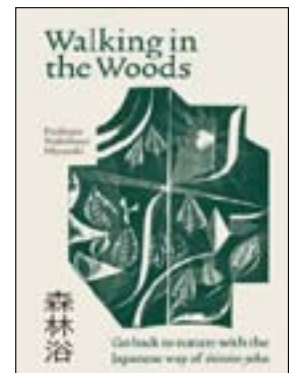
### Walking in the Woods: Go Back to Nature with the Japanese Way of Shinrin-Yoku, Yoshifumi Miyazaki

'Forest bathing' or *shinrin-yoku* is a way of walking in the woods that was developed in Japan in the 1980s. It brings together ancient ways and wisdom with cutting edge environmental health science. Simply put, forest bathing is the practice of walking slowly through the woods, in no hurry, for a morning, an afternoon or a day. It is a practice that involves all the senses and as you gently walk and

breathe deeply, the essential oils of the trees are absorbed by your body and have an extraordinary effect on positive feelings, stress hormone levels, parasympathetic nervous activity, sympathetic nervous activity, blood pressure, heart rate and brain activity.

In this wonderful book, by the leading expert in the field, science meets nature, as we are encouraged to bathe in the trees and become observers of both the environment around us and the goings on of our own minds.

Published by Octopus Publishing Group (£10.99)  
<https://uk.bookshop.org/a/8995/9781783254149>



### The Natural Health Service: How Nature Can Mend Your Mind

In 2016, Isabel Hardman's mind, in her own words, 'stopped working' as she fell prey to severe depression and anxiety. She took time off on long-term sick leave and despite several relapses has returned to work with a much improved ability to cope. She has since become one of the UK's most prominent public voices on mental health. She credits her better health to her

passion for exercise, nature and the great outdoors – from horse-riding and botany to cold-water swimming and running. In The Natural Health Service, she draws on her own personal experience, interviews with mental illness sufferers and psychologists, and the latest research to examine what role wildlife and exercise can play in helping anyone cope with mental illness.

Published by Atlantic Books (£9.99)  
<https://uk.bookshop.org/a/8995/9781786495921>

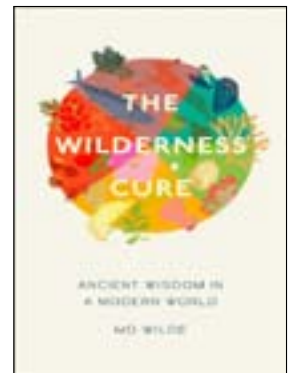
### The Wilderness Cure: Ancient Wisdom in a Modern World, Mo Wilde

Mo Wilde made a quiet but radical pledge: to live only off free, foraged food for an entire year.

In a world disconnected from its roots, eating wild food is both culinary and healing, social and political. Ultimately, it is an act of love and community. Using her expert knowledge of botany and mycology, Mo follows the seasons to find nutritious food from hundreds of species of plants, fungi and seaweeds, and in the process learns not just how to survive, but how to thrive.

Nourishing her body and mind deepens her connection with the earth - a connection that we have become estranged from but which we all, deep down, hunger for. This hunger is about much more than food. It is about accepting and understanding our place in a natural network that is both staggeringly complex and beautifully simple. *The Wilderness Cure* is a diary of a wild experiment; a timely and inspiring memoir which explores a deeper relationship between humans and nature, and reminds us of the important lost lessons from our past.

Published by Simon & Schuster (£16.99)  
<https://uk.bookshop.org/a/8995/9781398508637>



<https://www.foldedorset.com>



# MAGIC BRUSH OF BIOPHILIA

At the end of every podcast we ask the same question: “If you could paint the world with a magic brush of Biophilia, what would it look like?”  
For this issue, we asked people to focus on healthcare.

*How would YOU like to see biophilic design brought into our healthcare system?*

**Professor Emeritus Derek Clements Coombe**

**We need to:**

- Biophilic design should be on prescription.
- LAs must plan well-being gardens in all neighbourhoods.
- We need more Allotments.
- Garden Centres to be renamed to include health and wellbeing.
- Bluewater areas should be a priority too in planning processes.
- More trees and planted areas in shopping areas.
- Adopt prevention is better than cure policies.

- Have more local awareness programmes on diet, exercise, etc with examples and case studies which demonstrate results, something like Dr Michael Moseley on the BBC – LAs to be involved.
- Create the best environments for good quality sleep.
- Sustainable Urban Drainage systems to be used.
- Biophilic Design to be in school curricula.
- Being in Nature seen as a prescribed approach to health.

<https://derekcroome.com>

(You'll be pleased to know there is a new Natural History GCSE in the UK. Have a listen to the podcast the JBD (Journal of Biophilic Design) did with Mary Colwell).

## Painting Hospitals with a magic brush of Biophilia

Hospitals and healthcare settings are essentially places to aid healing so I think biophilia needs to play a much bigger part in this area of interiors. It can really support us psychophysically. Studies have proved that patients in this environment recover more quickly after operations and that staff feel more productive, calm, and happy in what can be a pressured environment.

My approach to this design would be optimising any mood-boosting natural light via large windows. Taking advantage of views of greenery, stretches, of water and skies, or if an urban setting then window boxes and living walls. Skylights would also be used where necessary. Murals and artwork of natural settings such as the sea, forestry, and animals for rooms with limited light and children's wards.

Glassed light courts containing miniature gardens within the building would be beneficial, both as a meeting and relaxation point or for exercise activities. I would include

sensory plants, scented herbs, and colourful flowers along with a water feature that creates a calming atmosphere.

Colour is a global language with green being very balancing and ideal for recovery plus it is well known to lower blood pressure and reduce anxiety and aggression. Combined with an earthy palette, this will also help people rest and sleep. Using brighter natural hues where needed to evoke energy.

As well as being aesthetically uplifting, carefully selected house plants should purify the air along with good, fresh air ventilation systems which not only connect us with the outdoors – they also would absorb sound on noisy wards. Wood-panelled nurse stations would also offer this solution.

Materials used in biophilic design are often naturally anti-bacterial or allergen free and have great longevity – but are also recyclable so this is another positive of going in this direction, given that we are so aware now of our planet's needs.

Lucy Gleeson Interiors

<https://lucylovesya.com>

**What would the world look like, if YOU had a magic brush of Biophilia? Email us and let us know.**



# FINAL WORD

**Dr Vanessa Champion**  
*Editor*

Valuing our health is sometimes one of the last things we consider. Maybe we don't think about it until it's too late. If you do one thing today, just take a moment to think about yourself. Are you happy and healthy, are you getting out as much as you'd like to? Don't neglect yourself in an effort to do and be everything to everyone else. As they say, when you fly, put your own mask on first before you assist others. While we might not be flying as much, it's something we can take on board in our own flight path of life. Take care of yourself, it's important. Without your own health and wellbeing, how can we be strong enough to help those we love or to continue making a difference in the world?

Health comes in many shapes and forms. It is of course physical, the health of your body and mind as well as the health of our beautiful planet. When we choose to live in harmony with ourselves and those around us, we resonate peace, happiness and healing across our friendships, professional lives and our families. We all have our ups and downs, and some of us may be experiencing, it seems, more downs than ups, reach out to those you trust, and share whatever is troubling you. The old adage 'a problem shared is a problem halved' is quite true. It helps lift the burden. It takes most of us a long time to really open up and trust, and it always starts, like a long-distance swim, dipping your toe in the water, and slowly allowing the healing power of water to support you.

I think this is what I love most about Biophilic Design, in all its guises. It is not just beautiful, uplifting, awe-inspiring and is good for our planet, but it brings the healing power of nature right to where we are. With all the research and science, we now have under our belt (and this Journal goes some way to help bring that research, expertise and inspiration right to your fingertips) we know that surrounding ourselves with direct and indirect patterns of nature brings health right to our doorstep, desk or hospital bed.

I set up the first Journal of Biophilic Design podcast series and the Virtual Nature Walls company as a result of seeing first-hand, how views of nature help bring about healing, reduce blood pressure, delirium and aid recovery in an intensive healthcare setting. I wanted to share the learning I was discovering with more people. Just as in nature, initially the idea rested silently, then grew shoots, and is blossoming, connecting a wonderful network of amazing people, advocating, practising, sharing and creating nature-inspired spaces for us all to live and thrive in.

Our Journal is just a conduit in helping connect these beautiful dots of life.

For me, Biophilic Design is about people, it's about how we connect to each other, to nature, to life, to ourselves, to the wildlife around us, to the plants and trees, to the animals and insects, and to our planet.

Thank you for taking the time to read our Journal, please do reach out to our writers, follow their social media, go see them speak at conferences and, most importantly, take time to make time to reconnect yourself to the heartbeart of our planet and the natural world around you. Bring it close, surround yourself with reminders of the beauty of nature every day and flourish.

[www.journalofbiophilicdesign.com](http://www.journalofbiophilicdesign.com)





# *Journal of* BIOPHILIC DESIGN

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