

Introduction

I'm not going to mince my words: I suffer from depression and have done for twenty-five years. Some days my brain feels as though it is mired in a dark quicksand of negativity; on others, layers of thick greyish cloud seem to descend, weighing down my thoughts and burgling my motivation. However the depression manifests itself, I find it difficult to move, and the urge to stay nestled indoors beneath a quilt and near to Netflix is strong. I know that if I do force myself to get up from the sofa, then the gloom can lift a little, and if I step outside and walk in the wood behind our cottage, the dreich thoughts may not leave entirely but they certainly retreat to the wings. For me, taking a daily walk among plants and trees is as medicinal as any talking cure or pharmaceutical. I know this sounds like an advice leaflet from a Victorian sanatorium, and there are echoes of the bracing strictures of a previous age here, but only in the last year have I realized quite how beneficial being in a green place can be, even if it is only for five or ten minutes. Simply getting out of the house and seeing the blackthorns and lime tree opposite our cottage induces a response in me that I can only describe as a neuronal sigh of relief: an unseen, silent reaction in the brain that is simultaneously soothing and curative.

Of course, I am not the first to have noticed the consolation of walking outdoors. Literature is peppered with references to striding in the countryside as a means of easing melancholy, inspiring creative thought and hastening recovery. The nineteenth-century

Danish philosopher, poet and theologian, Søren Kierkegaard, exalted a daily stroll: ‘Every day I walk myself into a state of well-being and walk away from every illness; I have walked myself into my best thoughts, and I know of no thought so burdensome that one cannot walk away from it.’ Elizabeth von Arnim wrote one of my favourite novels, *The Enchanted April*, in the 1920s, and her feelings on walking through the countryside echo my own: ‘If you go to a place on anything but your own feet you are taken there too fast, and miss a thousand delicate joys that were waiting for you by the wayside.’

When I walk the half-mile or so from our front door to the entrance of the village wood, follow the mown paths that trail between the trees and begin to notice the plants going to seed or coming into flower, seek out the yellow-striped grove snail shells part-hidden in the chalky soil and catch sight of a muntjac deer as it scampers away, the mental relief I felt at seeing that lime tree opposite our cottage is multiplied many-fold. I become engrossed in every leafy, creeping or flying inhabitant of the wood, and with each detail that draws my attention, with each metre I walk, the incessant clamour of daily concerns seems to become more muffled and the foggy pall of depression begins to disperse.

I remember squatting on my haunches as a small child near my paternal grandparents’ house in North Wales, gazing at a tangle of bluebell buds, hawthorn leaves, spikes of ground ivy and seedlings of cleavers beneath a hedge, wondering at the patterns they made and the innumerable shades of green on display, and being enchanted. From an early age it was the sight of these small but complex botanical jumbles that first shifted my neurons into a mode of elated awe. I remember thinking that it felt as though a bubble was expanding in my mind. It helped to distract from difficult days, then as it does now. If a moth or a beetle entered the scene as I watched, intent upon

some journey or task, then the feelings of wonder became more intense. A very small story was unfolding in front of me: I was seeing a snapshot of that creature's life and I felt thrilled and privileged to witness it. I will still squat, aged forty-six, to examine humble yet exquisite collections of plants or lichens growing on the pebbles of Dungeness or the small creatures that dart about in rock pools. The nineteenth-century poet John Clare called this 'dropping down', and he did it too, sitting among wild plants to see the natural world from the point of view of a snipe in its nest. This physical and mental immersion in nature informed and inspired his verse.

The sight of a path curving gently through hazels, a great stand of beeches, the sweep of the white sands and calm water of Shell Bay in Dorset, or the monumental yet softly cat-like Howgill Fells in Cumbria, is undeniably uplifting and beautiful. The promise of seeing a blue tit or a wild orchid may draw us outside, and innumerable passages in literature urge us to take to the countryside if we wish to send melancholy packing, but is there a scientific basis for the positive feelings that nature seems to confer? Might there be measurable changes in our brains and bodies when we walk the Downs or step into a bluebell wood in May? There are. Joint research from the University of Madrid and the Norwegian University of Life Sciences published in 2007, for instance, showed that simply seeing natural landscapes can speed up recovery from stress or mental fatigue, and hasten recovery from illness. Studies published in 2017 from the University of Exeter have demonstrated that the presence of vegetation in an urban landscape diminishes levels of depression, anxiety and perceived stress levels in city dwellers, and the same raft of work showed that time spent outdoors alleviates low mood.

More recently, popular attention has been caught by a concept from Japan and China called *Shinrin-yoku* or 'forest

bathing'. It is a common practice that began in the early 1980s, involving spending time in a wood or forest to 'bathe' in the atmosphere for the benefit of mind and body. Around a quarter of the population of Japan have tried this therapy at forty-eight officially designated forest bathing trails, and when I first read about it I was thrilled. It is the process I have just described: it is what I do most days to alleviate my low mood, yet continents away in a different culture this process of botanically-based self-medication is used by millions of people to ease the symptoms of both physical and mental illness. It is no more unusual to seek out trees and plants when feeling unwell in Japan than it is to nip to the chemist for some ibuprofen in the UK.

In recent years, follow-up research aimed at understanding the *Shinrin-yoku* phenomenon has shown that walking in a green space has a direct positive effect on several systems in our bodies. Blood pressure decreases, levels of the stress hormone cortisol drop, anxiety is alleviated and pulse rates diminish in subjects who have spent time in nature and particularly among trees. Levels of activity in the sympathetic nervous system, responsible for our fight or flight response to stress, drop away, and the activity of a particular kind of white blood cell called natural killer (NK) cells, which can destroy virally infected and certain cancerous cells, increases when humans spend time in a woodland environment. These biochemical changes lasted for up to a month in the subjects who took part in these studies; the effects were not observed when they spent the same length of time in a city. The mental sigh of relief I feel when I see the trees opposite our cottage is not simply caused by my fondness for looking at bonny bosky views; I am experiencing real physiological responses that affect my body and mind.

What are the biochemical mechanisms by which wild places alleviate depression and improve health in humans?

Further research is beginning to provide tangible clues. Many plant species produce volatile compounds and oils, collectively known as phytoncides, in order to fight infection from viruses and bacteria. Studies from the academic groups that examined the *Shinrin-yoku* phenomenon have shown that inhalation of phytoncides triggers some of the same effects on our immune, endocrine (hormonal), circulatory and nervous systems. These oils do not have to be highly scented to have an effect on our bodies and most aren't. The fresh 'green' smell of a hedgerow in May is a combination of phytoncides from many different plants. We inhale them without realizing it when we spend time in a wild place.

We see further clues when we interrogate serotonin levels. Serotonin is a compound that carries signals between nerve cells in our brain, and the levels of this neurotransmitter are diminished in depressed patients. It is not yet clear whether this shift in serotonin is a cause of low mood or one of its effects, and there are certainly other mechanisms in the brain that are involved in the regulation of mood, but there does seem to be a link between serotonin and mood in humans, and interacting with the natural world has been shown to influence serotonin levels. Indeed, just being outside can make a difference: when sunlight hits the skin or the eye's retina it triggers the release of serotonin, and on brighter days higher levels are released. It is the lower levels of sunshine between November and March that leads to winter depression or Seasonal Affective Disorder (SAD) in some individuals. I am prone to this form of transient seasonal sadness and it can make the winter months especially challenging.

Another, more surprising, way in which interacting with the natural world influences our serotonin levels comes from the soil. When humans come into contact with benign soil bacteria

such as *Mycobacterium vaccae*, proteins from its cell wall trigger a further release of serotonin from a specific group of nerve cells in our brains. So it seems that a bit of weeding can be good for more than just your herbaceous borders.

Finally, when we take some light exercise, such as walking, endorphins are released into the bloodstream. These are neurotransmitters that diminish the sensation of pain and induce a mild euphoria: a gentle, natural high. Combine these with the effects of light from the sun, compounds from the plants and benevolent bacteria from the soil, and it seems that walking in a garden, field or wood is like reaching into an invisible natural medicine cabinet. The science is still progressing, and there is clearly much more to discover, but I'm fascinated by the idea that the balance of the chemistry of my brain, and my hormonal and nervous systems, are changing as I linger among trees and plants and that this can impact the tone of my thoughts and my mental health. I have felt the curative effects of my surroundings as I walk in a wild place innumerable times, and it is reassuring to know that there is something I can do to help myself on dark days.

For me, it is the combination of experiencing the large-scale elements of a landscape, then casting my eyes down to examine the intricate minuscule world that exists on a tree stump or along a grass verge, that makes the biggest difference to my state of mind. When I am walking, my mind enters a state of very careful noticing. I seek out collections of plants, empty snail shells, berries and seed heads. As I do so I feel as though I'm swimming in the small details I see, so deeply do I become immersed in my surroundings. I feel strongly that this is an ancient foraging instinct; it distracts and seems to muffle worries and root my mind in the present as I walk. I use it as a sort of wild yoga, and my searching results in small seasonal collections

of common plants, flowers and nature finds that I photograph and hoard.

The book that helps me to decode the medley of plants I see on my walks and put names to leaves and flowers is one I found in my grandad's bookcase in 1978. The dust-jacket drew me in: it was covered in a beautiful array of wild roses, their hips and leaves. I opened it at random and entered a botanical wonderland. Many of the plates in *The Concise British Flora in Colour* resemble the base of a hedgerow in March or a woodland floor in mid-June, and I was enthralled by them and still am. Its author, Reverend William Keble Martin (1877–1969), began painting watercolours of the wildflowers of Britain in his twenties and was eighty-eight when the book was published. He dedicated most of his life to creating this exquisite book and over 1,400 of his small paintings cover its plates. Individually, they are quietly beautiful, botanically accurate, and have helped thousands of people identify something they may have found in a field on their holidays or growing between paving stones up their road. Together, though, the collection of paintings on each plate is astonishingly beautiful.

It is the intricate, sometimes tangled arrangement of Keble Martin's paintings that draws me in and ensures that I keep returning to the book's pages. He composed each plate almost as though the plants are competing for light and finding their space in a jumbled patch on the edge of a cemetery or on a piece of waste ground. If you look skywards while standing in a wood you will notice that the branches of trees do not overlap. Their growth stops short, leaving a small gap between the branches of adjacent individuals, giving a tantalizing hint at the existence of inter-tree communication: a sort of agreement between neighbouring trees that enables them to maximize the harvesting of light in a limited space. Keble Martin's plates covered in collections of wildflower

paintings present a sort of miniature version of this ‘crown shyness’. The way the specimens are set out in this book speaks of hundreds of hours studying the manner in which wild plants grow in relation to one another.

Keble Martin’s beautiful, naturalistic compositions mean that on days when my depressive thoughts are overwhelming, simply looking at the plates in *The Concise British Flora in Colour* can bring some of the relief I feel when I’m out in the countryside. I open it when depression has frozen my mind in a kind of mental winter, and it allows me to peep into spring without leaving the living room. This book is an antidepressant made of paper and ink.

The drive to be among, gaze at and in some cases bring home plants, insects, shells, birds and mammals and the things they leave behind is accompanied by a compulsion to record my sightings and finds in some way. Photography often answers this need, but I frequently feel the need to draw certain species that I become particularly familiar with. I wonder if this might be a version of our ancestors’ urge to paint images on the walls of their shelters or caves of the animals they observed and hunted, such as those at Lascaux in France. Perhaps those paintings were intended to show the immense respect the painters felt for those animals and the awe they inspired; this is exactly why I take up pencil or pen after my walks. The cave paintings may also have been driven by gratitude felt towards some of those species for providing a source of food. I must emphasize that I do not eat any of the creatures I paint – no voles were barbecued in the making of this book – but if I see a robin I am exhilarated; that sighting can help to alleviate melancholy, and I am keen to paint the robin in order, perhaps, to hold on to that effect for a little longer.

In my first book, *Making Winter*, I wrote about the benefit to mental health of time spent in creative activity; I find that making

a simple sketch of shepherd's purse, a watercolour of a goldcrest or gathering specimens to make a herbarium of common botanical finds is as soothing to my mind as the walk itself. Making a passable pencil likeness of a sparrowhawk can be as effective at diverting my mind from difficult, dark thoughts as the encounter with the bird that inspired it, and the gently repetitive process of looking and drawing is far more important than a perfect result. The beneficial effects of nature sightings and the time I spend recording what I have seen seem to be synergistic in some way. I could not write a book about a year of nature walks without including my drawings, paintings and photographs.

When I spend time in a wild place or a garden and notice the small details of the plants, trees and wildlife that inhabit it, the symptoms of my depression are eased, and this has become a way in which I self-medicate. At no point would I suggest that standard treatments for this condition be replaced by dawdling near a dog rose: I rely on antidepressants and talking cures to prevent my illness from becoming overwhelming, but depression varies in its grip on my mind, depending on the season and on daily stress levels. I have found that the basal level of respite provided by antidepressants and therapy is sometimes insufficient to prevent my thoughts falling down a well. It is at these times that I find walking among hazels and hawthorns can help to dial down cortisol levels and cause the shift in neurotransmitters that I need to fend off the black dog. Walking several times a week, even on days when I feel well, seems to have a cumulative effect and can help to make the dips in mood less vertiginous.

Going for a walk among trees or in a field is something you can do if life is generally all right, to help you to get through the usual doldrums and jaggedly stressful days that do and will arrive. When life is incessantly exhausting, has thrown you a terrible gluey lump of pain and you feel dreadfully, dingily sad, a leafy

place and the sight of a bird in it can divert and begin to heal the mind. It's something you can do if you have a deadline that feels like doom, your to-do list is as long as the M4 or you are waiting for antidepressants to take effect. My hope is that if low mood has you pinned to your sofa or bed and you feel as though you are wading through the treacle of sadness, reading about what I have seen, seeing the photographs and illustrations in this book, and perhaps venturing out to seek a wrinkle or a weasel of your own, may bring some relief. Walk; walk or wheel yourself outside if you can; seek out green, where furred or feathered things might be, even in your back garden. It really will help.



This is a book about what I see when I venture outside our cottage over the course of a year, both on days when the effort needed to do so seems too much to surmount and when all is well and the sunshine and birdsong call to me. None of the sightings I describe are terribly unusual: there are no close encounters with golden eagles and I don't make friends with a Scottish wildcat. Apart from a tiny orchid that I shinned up a hill to find, the species I write about in this book are relatively common and many can be seen in urban parks. I've written about how standing among a carpet of jewel-like autumn leaves, finding some newly emerged catkins, or spotting a sparrowhawk skimming across a stubble field, can bring solace. As the novelist Alice Walker wrote: 'I understood at a very early age that in nature, I felt everything I should feel in church but never did.'

If you would like to read in more depth about the research mentioned in this introduction, there is a list of further reading at the back of the book.