



BY ERIC HEIL

Green Time

SWIFTS TWITTER OVERHEAD IN ERRATIC SPIRALS as we look up into the majestic spread of the century-old sycamore. Its pale, white limbs, trimmed with tender emerald shoots, emerge from the rough patchwork-brown trunk like a luna moth emerging from her cocoon. The creek slides southward with a murmuring chatter, and in the distance a pileated woodpecker announces his presence with staccato drumming on a fallen poplar. Does this sound soothing? Perhaps you are yearning to sit back, stretch your legs, take a deep breath, and recline in the tall grass for a summertime snooze. Now, gently insert thirty-one ten-year-old boys into the picture. Bodies clamber up the sycamore, rocks are lobbed into the creek, one intrepid young herpetologist lunges after a water snake amidst ecstatic squeals of terror and delight from his neighbors. Other boys are splashing their way upstream as the next bend beckons.

Perhaps the populated picture is less serene, but fortunately, it is fairly familiar to The Heights lower school. There is something about being outside, and even better, in a natural setting like Cabin John Regional Park, that sets our troubles to rest and helps us enjoy life. Our senses are heightened, we become intrigued, and we are transported out of ourselves. After one such “creeking” excursion a member of my class frankly observed, “This was the best field trip ever!” His superlative merits scrutiny. We didn’t spend any money, it took us about fifteen minutes from classroom to creek, we didn’t need any special gear or know-how, but these boys had the time of their lives. Why? Because they had “green time.” Most of us have experienced firsthand the therapeutic, enlivening, and contemplative effect nature has. We organize vacations to visit areas of natural splendor, their images adorn our device desktops, and we recall with fondness the bucolic forays of our childhood.

I grew up in a very scenic area of northern California in the heart of the wine country. Even today, everyone seems to know everyone else. St. Helena was a veritable paradise for my five siblings and me. Along with friends, we ranged freely about town, into Sulphur Creek, across Bartolucci Bridge, and up to the wooded hills surrounding the Napa Valley; most of our family vacations entailed camping. I went on to major in biology at the University of Dallas and then work in no less than three zoos where I practiced animal husbandry and conducted research. So, I am a somewhat biased (not to mention spoiled rotten) person when it comes to the appreciation of natural things. However, a growing body of evidence shows humans, and especially children, are truly suffering due to a deprivation of exposure to nature. This is a modern trend, and unless it is consciously addressed, serious ills will befall our young people.

How is it that humans, and especially children, are spending less and less time outside? It seems so logical that children, and especially active young boys, need to be outside. Perhaps without realizing it, we are falling into a pattern of indoor internment. Even the time our children do spend outdoors can be vitiated by the fact that they are participating in organized activities that restrict their freedom to explore nature and be restored. Richard Louv famously diagnosed this phenomenon in his book *Last Child in the Woods* (2005). Louv draws our attention to a Nature Deficit Disorder, or NDD, from which many children suffer. For various reasons, children are being deprived of the outdoors. As a result, they are experiencing an increase in attention disorders, obesity, and depression. More recently, Florence Williams wrote an entertaining and masterful summary of this topic titled *The Nature Fix* (2017). She cites the growing body of scientific evidence supporting what most of us inherently know – that nature is good for us. We are happier, healthier, and more creative when we spend adequate stints in nature. Is all this accurate? Is there really a green bullet, if you will, that can eliminate most of the challenges we see with childhood growth and development? Are we really indoors so much?

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Humans have trended towards cities and away from natural settings in the past century. According to a recent study, Americans are spending roughly 7% of their time outdoors. We spend 87% of our time in buildings, and 6% in closed vehicles. We are inside more, and increasingly, we are urbanites. In *The Nature Fix*, Williams notes that, according to the World Health Organization, 2008 marked the first year in which more humans lived in cities than in rural areas. Children, both urban and rural, are out of nature for other reasons too. Fear is perhaps the overarching issue here. The list is long, but it includes fear of: strangers, ticks, mud, bugs, snakes, wetness, muddiness, ickiness, getting sued for neglect, breaking arms, burning oneself, moose attack, drowning, stitches, cuts, scrapes, heat, cold, riptides, bullying, abduction, poison ivy, rabid raccoons, and so on. An important thing to ponder, however, when we tally all these dangers, is whether we also consider the tremendous benefits that accrue in nature?

Children themselves can be the ones who put up barriers. A recent bipartisan study asked teenagers why they didn't spend more time outside, and 80% cited discomfort (e.g. heat, bugs); 62% said they didn't have a way to get there; and, 60% said there weren't any places close to them. However, 66% of the same population surveyed have had a personal experience in nature which made them appreciate it more. The fact is, many children are not encountering the great outdoors. We may say: So what? A native New Yorker may tell you the city holds its splendors as well, and we can always watch *Planet Earth* if we want to experience nature. Plus, there are no ticks in our living rooms. How important is our direct connection with nature?

In recent years, two major theories have arisen with regard to human interactions with nature: the Biophilia Hypothesis and Attention Restoration Theory. Much of the scholarship and research regarding the effects of nature on humans in the last decade has followed one of these frameworks. The Biophilia Hypothesis was popularized by the biologist E.O. Wilson, most notably in his book *Biophilia* (1984). The basic notion is that living things have an urge to affiliate with other forms of

life. Wilson argues that we evolved in nature, and we are best suited to thrive there. Nowhere do we use our senses more fully than when immersed in nature. A corollary is that, when this biophilic urge is thwarted, we suffer. Researchers, therapists and educators in Japan, Korea, Scandinavia, and the United Kingdom have run with Wilson's idea and actively promote programs facilitating green time. It makes sense that we long for natural settings; that is the environment in which we develop, both as a species and as individuals. Whether you are an agnostic, provisional deist like E.O. Wilson (who sees our suitability for nature as an inevitable result of developing from it), or you are a churchgoing believer who sees Creation as a uniquely made habitat where humans can flourish, this biophilic vision seems salutary.

Attention Restoration Theory, or ART, was formulated and popularized by Stephen and Rachel Kaplan in the 1980s. Central to their theory is the understanding of voluntary, or directed, attention. Originally defined by William James in the late 1800s, directed attention is that which requires effort and concentration. We use it while doing a task that is important to attend to, but not otherwise interesting (e.g. paying taxes, filling out a spreadsheet, completing a math problem set, etc.). Distractions must be ignored, and focus is maintained through effort. Directed attention can also be described as the ability to voluntarily manage focus and direct our thoughts while regulating emotions and behaviors. This is an

inhibitory function of the brain that is vital to the sustained work requisite for serious undertakings. However, our ability to sustain directed attention is not limitless. With overuse of the brain's inhibitory attention mechanism, which handles incoming distractions while maintaining focus on a specific task, we experience directed attention fatigue. If that fatigue is chronic, we end up stressed out, anxious, depressed, or apathetic.

It may be helpful to consider a young man of fifteen years struggling to focus on his homework while a TV is on in the background, or his cell phone continues to chime with texts and Snapchat stories from peers. The torrent of distractions will exhaust the directed attention, and work that could be completed in hours can stretch to days, or be abandoned altogether. Screens certainly factor into the nature deficit disorder conversation, but we can leave that for another time. Regardless, our reserves get sapped and we need a break.

Fear not, there is good news! Directed attention is contrasted with involuntary attention, or fascination, which does not require a sustained act of the will and allows the person to attend to subtle stimuli in the surroundings that fascinate and engage without fatigue. When involuntary attention is engaged, it allows for the restoration of directed attention. Many things can prompt this state of fascination – the basilica of Santa Maria Maggiore, a well-crafted novel, Mozart's 29th in A Major – but





nature is also one of them. The textures, colors, scents, and sounds of nature are a harmonious serving of stimuli that fascinate, inspire awe, and rejuvenate. One of the key elements nature provides is that of extensiveness, or immensity. A forest, a waterfall, a mountain, or for that matter, a tree, a creek, or a rock – these realities surpass our ability to fully comprehend them, and when faced with this sublimity and mystery, we are renewed.

In *The Man Who Was Thursday*, G.K. Chesterton presents us with an enigmatic representation of “Nature as distinguished from God” (Interview, 1926) through the character of Sunday. Toward the climax of this delightful romp of a novel, several characters pursue Sunday, who rides an elephant through a zoological garden. The hero, Gabriel Syme, is struck by the wondrous incomprehensibility of nature:

As they raced along to the gate out of which the elephant had vanished, Syme felt a glaring panorama of the strange animals in the cages which they passed. Afterwards he thought it queer that he should have seen them so clearly. He remembered especially seeing pelicans, with their preposterous, pendant throats. He wondered why the pelican was the symbol of charity, except it was that it wanted a good deal of charity to admire a pelican. He remembered a hornbill, which was simply a huge yellow beak with a small bird tied on behind it. The whole gave him a sensation, the vividness of which he could not explain, that Nature was always making quite mysterious jokes. Sunday had told them that they would

understand him when they understood the stars. He wondered whether even the archangels understood the hornbill.

We don’t know exactly why we are fascinated, or what is happening to us, but after a walk in the woods or a trip to the zoo, most of us feel much, much better. Indeed, some nature experiences can provide ecstatic moments of epiphany that we never forget. I, for one, vividly recall summiting Mt. Washington this past February with five intrepid Heights men. Donning crampons and ice axes to climb four hours towards a cloud-shrouded summit only to encounter 90-mile-per-hour winds, horizontal icicles, low visibility, and drifting snow refuses erasure. The delicate rime ice on the cairns which marked our path seemed to conceal mysteries we would never unravel, and the sublimity of the raw power of nature left a deep impression on us all. Certainly, there were some lessons in humility, and also prudential refinements that will guide us in future expeditions, but the euphoria and freedom of the hills remain.

Romantic poets, philosophers, amateur naturalists, and landscape architects know all too well the salutary power of natural settings. In *The Nature Fix*, Williams singles out Frederick Law Olmstead as a visionary man who saw the importance of nature in man’s flourishing, long before there was any empirical evidence to back him up. His garden masterpieces, which include New York’s Central Park and the National Capitol grounds here in Washington (as well as my beloved National Zoological Park), are a testament to his understanding that man needs nature, especially in an urban setting. In fact, precisely because we are

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trending towards a more indoor, urban lifestyle, we need nature more than ever.

When we look at the contemporary scientific literature, the findings are striking. Ethnobiologists, physicists, and others have documented the effects of nature on our brains, bodies, and relationships. In *The Nature Fix*, Williams surveys the work that has been done researching the effects of natural stimuli on our olfactory, auditory, and especially visual centers. Apparently, trees produce aromatic compounds called phytoncides that are antiviral and combat cancer. Other compounds found in soil have antibacterial and stress-reducing effects. In Japan and Korea, there are forests designated for groups of people to come and undergo *shinrin-yoku*, or “forest bathing” treatments where they lower their stress levels and blood pressure at rates comparable to some medications. This is done by merely standing, lying, or strolling in mixed hardwood, cypress, and evergreen forests. Similar programs exist in Finland and Scotland where clinically depressed



participants have achieved remarkable gains. Some might argue that the detox from screens and technology which these forest jaunts involve may be a big factor in helping folks find equilibrium, but the biochemistry certainly indicates trees and soil are active ingredients in the equation as well.

One underappreciated benefit to spending time in nature is the soundscape. In urban areas, we are often exposed to unhealthy amounts of noise – traffic, planes, loud conversation in closed spaces. This affects our hearing itself, but it also drains our directed attention. Every loud anthropogenic noise draws our attention and raises our alertness levels (stress hormones spike, heart rates tick up). Regarding silence, Blaise Pascal, in his *Pensées*, categorically states, “All of humanity’s problems stem from man’s inability to sit quietly in a room alone.” We are rarely quiet, and even more rarely enveloped in stillness. This is yet another reason why a break in nature is good for us.

While at the National Zoo, I worked with several biologists who had spent time in Antarctica. One of them related to me a moving experience in a mountainous region of that frosty continent. He found himself in a remote valley, staring down at a small pool with ice crystals floating on the surface. There were no other humans, or living things for that matter, and obviously no flight paths overhead. The silence was so complete he could hear the tinkling sounds the ice crystals made as they gently bumped in the breeze. He found himself weeping, and he did not know why. Silence and the stillness found in nature hold wonders beyond our comprehension. The babbling brook, the gentle wind in the treetops, and the liquid notes of birdsong are the perfect panacea for exhausted eardrums. In fact, Williams dubs water, wind, and birdsong the “trifecta of salubrious listening.”



We are especially attuned to visual stimuli. Vision is the most developed sense for primates, and we find certain colors to be calming (blue, green, brown – earth tones) while others put us on alert (red, yellow, orange). Frances Kuo, William Sullivan, and Andrea Faber Taylor of the University of Illinois at Urbana-Champaign have conducted several studies that bear directly on attention deficit hyperactivity disorder (ADHD) and nature. In one study, Kuo et al. found that a short walk in a park enhanced attention in young adults diagnosed with ADHD, and it did so to a degree comparable to that attained by medication. Why does nature do this? Nanoparticle physicist Richard Taylor credits fractal patterns. Fractals are geometric figures wherein each part has the same statistical character as the whole – similar patterns exist as you zoom in to smaller and smaller levels. Richard Taylor has conducted studies to identify exactly which fractals are most soothing to humans. It turns out clouds and landscapes are exactly the mid-range fractals that resonate best with us. Just a few minutes viewing a natural setting can lead to a boost in alpha waves in the brain which make us feel relaxed and alert.

Perhaps one of the more interesting findings which has emerged from the study of nature’s effect on people is the existence of a dose-response curve: the more we are exposed to nature, the more we benefit. A few minutes a day can have a beneficial impact, and extended exposure leads us to be even more creative, productive, and altruistic.

However, much of the science which has gone into studying the effects of nature on our brains is reductionist, and part of me says, “I don’t need to know the name of the wonder-working phenolic compound that pine trees produce (it’s pinene by the way), I just want to be in the woods!” Most of us do not need scientists to tell us what we can experience firsthand. However, the science certainly comes in handy when convincing our skeptical neighbors as to why our children are out roaming the woods.

So, let’s get back to the boys in the creek. Biochemical benefits aside, there are plenty of developmental advantages to free play in the outdoors. Children are naturally energetic, active, and eager to be awed, and natural settings give them the perfect stage to exercise these endowments. When confronted with an inviting natural setting, such as our Valley, children will run, climb, explore, and build. A ceaseless stream of activity can be found here that is not present even in organized sports, where much of a given practice will see children standing around listening to the coaches. In fact, it should come as no surprise that there has been a recent rise in childhood obesity alongside a rise in team sport participation. But in the wild, children are active. Countless gross and fine motor skills are honed in the woods. Children build confidence, independence, and resilience when they spend time exploring and working outdoors. They are confronted with the elements and learn to cope with all types of weather. They meet strange creatures – some of



which are dangerous – and learn to tread lightly when needed. Simultaneously they are confronted with the beauty, fragility, and perfection of natural things. Here, creativity is composted, and a reservoir of peace and belonging is built up. Later in life, when times of trial and crisis hit, an experience of the awe and beauty of nature can be a solace and source of strength.

William Wordsworth alludes to this in his poem, “I Wandered Lonely as a Cloud,” when he speaks of the inward eye and the recollection of a stunning view of flowers along a windswept lake:

For oft, when on my couch I lie
In vacant or in pensive mood,
They flash upon that inward eye
Which is the bliss of solitude;
And then my heart with pleasure fills,
And dances with the daffodils.

Scenes of natural beauty stay with us. They lift us out of our funk and help us to be optimistic and cheerful. Returning to nature has the same effect. Many people have a favorite place – somewhere outdoors they love to be, oftentimes alone. There is something mystical at play here. Some of our earliest memories can be natural settings such as this, and nature can inspire a nostalgia for our true homeland. Chesterton hits on precisely this point, again, in *The Man Who was Thursday*:

Very gradually and very vaguely he realized into what rich roads the carriage was carrying him. He saw that they passed the stone gates of what might have been a park, that they began gradually to climb a hill which, while wooded on both sides, was

somewhat more orderly than a forest. Then there began to grow upon him, as upon a man slowly waking from a healthy sleep, a pleasure in everything. He felt that the hedges were what hedges should be, living walls; that a hedge is like a human army, disciplined, but all the more alive. He saw high elms behind the hedges, and vaguely thought how happy boys would be climbing there. Then his carriage took a turn of the path, and he saw suddenly and quietly, like a long, low, sunset cloud, a long, low house, mellow in the mild light of sunset. All the six friends compared notes afterwards and quarreled; but they all agreed that in some unaccountable way the place reminded them of their boyhood. It was either this elm-top or that crooked path, it was either that scrap of orchard or that shape of a window; but each man of them declared that he could remember this place before he could remember his mother.

As nurturing as nature may be, a healthy dose of danger is key. Nature has a built-in control of error. The laws of gravity, thermodynamics, earth, air, water, and fire are immutable. A boy who learns to build a fire with flint and steel, tends that fire, and then cooks on that fire, has a much greater appreciation of what it takes to nourish himself and a well-earned respect for the power of an open flame. When we go rock climbing with the boys, they learn to be hyper-focused on their safety and the safety of others. Gravity does not care whether you checked your knots, or whether your partner is spacing out. If you are not careful, serious injury or death may result. Some lessons are best

learned in the crucible, and danger has a way of imprinting experiences in our memory so they will not be forgotten. Danger also has a focusing effect in which our attention becomes so fixated that we cannot attend to anything else. Risky play is therefore a healthy component of green time. If we prevent our boys from climbing, balancing, running, swimming, and yes, going to war on the fourth grade fort, how are they going to handle themselves as men?

True adventure experiences, which necessarily involve both strenuousness and danger, provide an epiphany for participants and can lead to greater self-awareness and confidence. For this very reason, programs like NOLS, Outward Bound, Academy at SOAR, Branching Out (United Kingdom), Higher Ground, and countless others have developed curricula that center on the outdoors and give participants (many of whom suffer from ADHD, depression, anxiety, posttraumatic stress disorder, and other conditions) a chance to focus on a meaningful task and gain a greater appreciation of the world around them and their place in it.

Many types of outdoor play – climbing trees, crossing log bridges, building forts, attacking forts, trail running, creeking – can also hone the boys’ ability to focus. In fact, these activities are almost made for mindfulness. Not only does a boy climbing a tree become acutely aware of his actions and immediate surroundings, but he also forgets what has been bothering him and is more open to caring for those around him. One recent study tested altruistic reactions from people in a nature setting versus those in an urban setting. Those in the nature setting were overwhelmingly more likely

to help a research assistant who had “accidentally” dropped some pens while the group was looking upward. The same dynamic plays out when boys are outside together. They notice each other, and you often see acts of kindness and service. Of course, there are also unkind acts, but those are invaluable learning opportunities as well.

Teachers in the Valley witness the countless interactions that the boys undergo on a daily basis. There are the political machinations of the fort wars, where the construction, supervision, defense, and ultimately demise of log and stick forts provide for numerous roles and ranks to be filled and observed. The boys choose generals, construction chiefs, spies, and allies. Oftentimes they overstep the bounds of decency and someone is injured or offended. Then they have to work out a resolution for these conflicts, and they learn the consequences of their actions. Only rarely do the adults have to step in and correct or intervene. It seems that every game the boys play, be it more traditional or imaginative, involves an intricate set of rules and regulations, and it is through these experiences that the boys mature socially and learn how to treat one another with justice and civility. The social benefits of green time are as evident as the physical ones.

Well, all that sounds fine – sign me up! How much green time do my children need? This stuff sounds pretty good.

Five hours a month. That is a good baseline to shoot for. It boils down to a couple of thirty- or forty-minute stints each week. On a monthly basis, a longer outdoor excursion is ideal, and on a yearly or biennial basis we should all embark on a true adventure. These are the suggestions offered by

Florence Williams, and they line up nicely with what The Heights has to offer: hands-on natural history, several daily outdoor breaks in the Valley, creaking throughout the year, and Curriculum Alive! or Crescite Week on a yearly basis. We are blessed to have our bases covered.

As families, we should seriously consider how much time we allow ourselves and our children to enjoy the great outdoors. In his encyclical *Laudato Si*, Pope Francis notes how his namesake’s legacy challenges us to forge a new ecology: “[St.] Francis helps us to see that an integral ecology calls for openness to categories which transcend the language of mathematics and biology, and take us

to the heart of what it is to be human... Rather than a problem to be solved, the world is a joyful mystery to be contemplated with gladness and praise.” We should continue to do all we can to help our boys experience fully the crash of waves, the ambling of beetles, the cooperation of crows, the roar of the falls, the stillness of night, the brilliance of stars, the permanence of rock, the magnificence of mountains, the loveliness of toads, the bounty of grass, the thrill of thrushes, the majesty of oaks, the music of the spheres, and the glow of loved ones’ faces around the flicker of a campfire. █

Eric Heil teaches in the lower school at The Heights.



Springtime in the Valley

BY TOM LONGANO

Joyous cries of boisterous play
 Hang in air along with spray
 Of spring shot forth from flowers
 Abloom in crowds of colors, towers
 Gleam in sun and blush in shade
 There the children stop to pay
 Due reverence to beings
 Beyond sight; images
 They grasp and lose as fleeting
 Whispers, planted deep as seeds
 In loamy soil, the boy will look –
 I’ve seen it! – his face a book
 Of wonder, awe, or love, or all,
 Then off he runs and on he calls.