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Nine Minds

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Inner Lives on the Spectrum

Daniel Tammet

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Author's Note

This is a book about the neurodivergent present, its past and possible futures, as told through the true stories of nine contemporary men and women on the autism spectrum. They come from England, Wales and Ireland; Canada, Australia and the United States; from France, Nigeria and Japan. They are children of the nineties and the eighties, of the seventies, sixties, fifties and forties. They have found fame in Hollywood, confronted head-on the world's violence, earned a doctorate in psychology, entered national politics, solved a homicide case, performed orthopaedic surgery, published a breakout novel, learned to see with the ears and to speak through a computer device. Together they form a unique group portrait of neurodiversity.

In collecting these stories I have thought about the many years of medical progress and societal change that made this project possible. Increasingly specialists understand autism less in terms of disorder, a problem to be solved, and more as a natural cognitive difference – infinitely variable – found in between 1–2 per cent of the general population. It was not so long ago, however, that these lives were deemed unfit for

literature; if they went into print at all, it was often only as a list of symptoms in some doctor's case study. A reader could be forgiven then for believing that they possessed no vivid hopes or fears, no dreams or sense of destiny, none of the depth and complexity on which a universal story depends. Of course, in this they were not alone: LGBT and Black stories, for instance, were for a long time similarly erased or marginalised. If, today, these and other minorities and minoritised communities are finding their voice and rightful place on bookshelves, the significant gaps where neurodivergent stories should be, while narrowing, still remain. It is precisely in order to fill such a gap that this book exists.

Over the past twenty years now I have written the stories, beginning with my own, of those who perceive the world in radically different ways. In that time my writing has evolved across genres – memoir, essay, fiction, poetry, literary reportage – the better to capture and illuminate for the general reader the many intricacies of the neurodiverse experience. I am ever grateful to all those who entrust their stories to me, who honour me with their faith that I will locate the form and the words that I hope can do them justice. As I work to recreate their lives on the page, drawing on extensive research, in-depth interviews and my writer's intuition to set scenes, articulate thoughts and reconstruct dialogue, my goal is that they become characters but never caricatures. I intend to show their layers, their capacity to grow and change, their quest for meaning. Occasionally I show sides of themselves they might never have noticed or understood before.

Nine Minds was researched and written over a period of four years, 2019 to 2023, based on hundreds of hours of conversations. Coinciding with the Covid pandemic, these moving and

fascinating exchanges took place over email and video call – a mode of communication often privileged, as it happens, by neurodivergent people. The men and women I reached out to had previously spoken in the media about their neurodiversity, which in most cases is how I first came across their stories. From the outset, as I listened, asked questions and scribbled a mountain of notes, my ambition was to recreate the rich inner worlds they described so precisely and evocatively (to which end, my explicit presence in these narratives, while varying from one to the next, is minimal). Worlds so much richer than the dry, bland accounts that continue to appear in print about minds on the spectrum, in texts captive to neurotypical ideas of autism written in neurotypical words. Where, for example, a scientific article might mention 'highly restricted, fixated interests', the men and women I exchanged with spoke instead of their 'passions'; where a press report would refer to a neurodivergent man's 'eccentricity', I discerned rather his willingness to transgress social codes.

Evading such limiting clichés, defying outdated prejudices, the nine minds that I portray testify each in their own way to the singular power and beauty of the autistic imagination, and to the daring freedom with which they invent their lives.

Vaughan

'And of course, each fracture has its own personality,' Vaughan said to the intern beside him, halting at a bed in the orthopaedic unit of South Health Campus. 'Let's see what we have here, for example, shall we?'

The elderly inpatient gamely lifted her left arm to both men, as if on cue. The bony arm and transparent skin added to the general impression of great age, though in fact she was only five years older than Vaughan – seventy-nine.

Vaughan took in the bruised hand, reckoned the impairment, noted the occasional flinch. He sensed the sadness in those downcast fingers; how dejected they looked.

'A nasty fall,' he said to his young colleague. 'We get a fair few like them this time of year. Optimists raring to get out and about, mistaking April here for spring.'

The trainee surgeon had been staring thoughtfully at the ailing hand and wrist. 'Do you even get spring in Calgary?' he asked quietly. His accent was American.

Young surgeons, and getting ever younger, came from all over to train under Vaughan, who was known as one of the very best hand and wrist surgeons around.

The patient said, 'Black ice in the parking lot.'

'That would do it,' said Vaughan. 'You have osteoporosis, I assume?' He assumed right.

The woman sat up as she listened to the older surgeon say to the younger, 'What are your thoughts?'

'Distal radius fracture.'

'Radiographs are normal,' Vaughan said. He was testing the American.

'Umm,' said the trainee. 'Yes, but distal radius and scaphoid fractures can sometimes be radiographically occult.'

This was good. 'Why might we think that's the case here?' Vaughan prodded.

'The patient's age and sex. Osteoporosis.' And together these factors heightened the clinical suspicion for fracture.

'Very good. Next step?'

'CT or MRI without IV contrast to exclude or confirm fracture.'

There'd been no MRI back when Vaughan was starting out. His own mentors had had to rely on the incomplete picture given by X-rays and physical exams.

'Or cast the arm and repeat radiographs in ten to fourteen days.'

At that moment the woman leaned back on her pillow and the mentor and his young charge reassured her and lowered their voices as they left the unit.

Vaughan had long excelled at this form of mentoring – what researchers call cognitive apprenticeship, in which thought processes are voiced and discussed and experience is shared. It was ironic how sharply this professional excellence contrasted with Vaughan's personal life, which had long been messy. Messy, he thought to himself, was an understatement. Sometimes he

wondered why no cognitive apprenticeship exists for learning to be a son or a father, a husband or a human being. All his life his only choice had been to teach himself to pass as neurotypical (a word, like MRI, not in any of his old undergrad textbooks), though he hadn't always pulled it off. But his endurance had told, and in a career spanning fifty years medical advances had transformed many lives and, more recently, his own self-understanding.

Now, nearing well-earned retirement, he looked back on his life and career, took stock and followed his memories where they led him.

*

In another life, he thought, he'd have been a geographer. The drawing of maps, sinuous treks, modelling landforms would have filled his days. He was born in a valley, not in Canada but in a village called Llangattock – in the south of Wales – as ruggedly Welsh a landscape as you could ever hope to find, as Welsh as his surname, which was Bowen, and though he left with his family as an infant, the misty hills and the ever-changing light had become a part of him and stayed with him always thereafter.

Vaughan remembered better Walton-on-Thames, the market town south of London where his mother, a reverend's sudden widow, had found work teaching schoolchildren religious education. The transplant of the Welsh valley family to an English suburb succeeded, but not without rendering the Bowen brothers conspicuous. Their mother said things that were funny to English ears. She said 'daro' if she dropped something and what sounded like 'dew dew' for 'well, well'. Vaughan did not speak like this. His accent was his own. He only mumbled

and blushed when he started primary and promptly learned that he was fatherless. The English boys meant no harm by it – might their Welsh counterparts have been crueller? The boys in Walton simply meant to ask what it was like, but Vaughan had no way of answering. He'd never thought to consider it. Several of the older boys almost envied him and half regretted not being fatherless themselves – they fantasised fathers who had swollen up from the sting of a bee, sleepwalked off a cliff or been struck down by a Rolls-Royce. As if the glamour of such a passing might set a son apart.

No old man, they said, to give them a clip on the ear or worse.

Certainly Mrs Bowen knew how to hold a classroom, and at home she could tell off for two. She had four young sons to feed and clothe and she expressed her love in never-ending instructions: '*Ych a fi*, go and wash your hands! Pass me your coats! Fetch some mint and apples from the garden!' She made every shilling of her salary go as far as possible.

With little money for toys, Vaughan and his brothers spent their free hours rambling about the town and outlying fields. He thrived on the fragrant air which smelled of recent rain and of grass crushed underfoot. In his memory, sunlight accompanied him across the browning grass beside the railway station as he walked parallel to the tracks. More so than his brothers he'd delighted in treading the same ground that carried these tracks for miles. The first time out here – sixty-something years ago, back when his life was only a life and not yet a story – an exiting train chugged past him bound for London. Full of sudden wonder, he stopped near the tracks and waited for the next one to pass. Presently he heard a clanking of rods and felt the air start to shudder and caught sight of the growing train

fogging the air with its white puffs of smoke. He could taste the train – it tasted of smoke and hot metal and his own dry mouth.

He would have happily stood there all day until he ran out of trains to spot but he recalled then that he had a mother and dinner and a bath to be returning to.

In retrospect, it had been the beginning of everything: his whole life he could trace to that encounter with trains – so startling and stimulating. From that moment on he'd begun to catalogue data, classify, subdivide. Many an afternoon and weekend, he stood near the station and consigned all the passing trains' names and numbers, wheels and sizes to a little notepad, and the thrill never waned as the familiar, delicious smoke approached and the platform became the scene of a minutely timed drama. 'Union Castle,' he wrote in biro under 'Name' and the date – 16/4/61 – along with the locomotive's number, 35002, and its wheel arrangement, 4–6–2, while brakes groaned and a whistle flared and passengers clambered down or boarded.

He was also learning to dissect space and time, in railway stops and timetables.

Sometimes, for a treat, when family tickets were going cheap, his mother took her boys on a day trip to Southampton. 'Hurry up,' she'd shout as they ran with their bags along the platform, 'or we'll lose the train.' They ran with heavier bags in the summer, when the Pembroke Coast Express transported the Bowens from Paddington to Swansea, to the hill overlooking Mumbles Bay where the grandparents lived. As they rode, all along the track quarter-mile posts reared up and whipped past, and from his window seat Vaughan counted the seconds between the posts to gauge the speed.

He'd hardly told anyone before Anu – Anu Sharma-Niwa, his psychologist in Calgary – that one of the reasons he'd gone on to study medicine in Edinburgh was so he could thunder up and down the coast aboard the *Flying Scotsman*. The journey always swift and sleek. Now that was what he called a train! He'd catch the 10 a.m. out of King's Cross, with only the one stop in Newcastle. Sitting back, absorbing the steady hum of the diesel electric engine, watching the world roll by at 100 miles an hour.

Anu, whom he'd found online in 2012 at the collapse of his marriage of thirty-four years, proved a worthy successor to Frank, the doctor who had rescued him from his first breakdown in the seventies. She listened sedulously as Vaughan told her all about the trains and everything else besides, session after session, following which she'd found the words – words unavailable or unthinkable in Frank's day – to explain that he was a savant and in a career perfectly tailored for him. 'Autism?' he'd repeated, seated for the first time in decades on the patient's side of a desk. Autism: a retarding mental illness that renders children unable to function in society. Or so he'd been taught during his early seventies medical training. How inaccurate those textbooks had been. How misguided.

And so he had discovered in himself this enlightening autism, this savantism, at the age of sixty-three. It clarified so much, fed his self-discovery and confidence.

So that, ten years on from these early sessions with Anu, he could relate everything again to a youngish man named Daniel, corresponding freely with him, sharing all manner of details which had never before left his psychologist's office, because this Daniel Tammet, aside from being a writer, was also what doctors called an autistic savant. The writer understood things

about him that others might not have. Vaughan was excited at the thought of seeing his story put into print. Then, hopefully his ex-wife, with whom he remained on good terms, would come to a clearer idea, on reading it, of the often awkward, silent, confusing man who had loved her as best he could during all those years.

Years that had rolled by at the speed of life.

The day after their rounds of the orthopaedic unit, Vaughan and the American put on gown, gloves and mask and positioned themselves around the operating table. The American observed in silence while Vaughan worked. The older surgeon's gestures were deft and graceful. His patient had been put at ease with anaesthesia, and between the surgeons and the nurse there was no distracting small talk. The masks and the music – something delicately classical playing low – heightened Vaughan's absorption in his task.

Head bowed, eyes focused, all his attention went to the slumbering hand in front of him. That morning he'd tended to a young and muscular forearm which for years had lobbed and served and sliced drop shots; in its place now lay a middle-aged thumb hampered by arthritis. Where the incision had been made, he could see past layers of skin and fat to the basal joint. The sight was familiar, blood and bone had never aroused any squeamishness in him; he was fascinated by the body's intricate networks of nerve, artery and tissue, all those inner parts that go unseen and on which our visible surfaces depend. What things of beauty, of nature's ingenuity, the violin strings that are the tendons! And the wrist bones shaped like a boat (the

scaphoid), a crescent moon (the lunate), a pyramid (the triquetrum) – three among the twenty-seven bones in the human hand. In his mind's eye, he could picture each one of these small bones in three dimensions, he could visualise their every binding ligament and every muscle, the galvanising sparks and the irrigating scarlet threads.

'See the joint surface here?' Vaughan said to the American, as he extracted the bone fragments one by one. 'That's the arthritis.'

Minutes later, 'See here, the cartilage has all worn down.' Then, addressing the nurse, 'Give me a little traction, please.' Then, to the American again, 'Now I'm opening a channel in the trapezium.'

He was repeating the one he'd just opened in the trapezium in his mind's eye. Deep into the joint he drilled. Close by, surrounded by forceps and scalpels and scissors, the implant to replace the patient's lost bone shone bright. It was made of titanium – strong yet light and ductile and practically, most enviably, unbreakable.

The operation took just over an hour and was a complete success. Vaughan peeled off his scrubs and soaped his hands and smiled. He had barely stepped out from the operation room when he saw a woman approach him with a sheet of paper. He nodded when she said something about a schedule, less to signal assent than to cover his confusion. The woman thrust the sheet into his hands, turned on her heels and went back to her office. Only then did he realise she was his medical office assistant of twenty-plus years, and his face burned in embarrassment. He'd tried memorising her hairdo, and the comfortable jumpers she

favoured, for all the good it had done him. At least she had been with him long enough to understand. From his earliest days, his memory for faces had been dreadful. He always imagined his assistant sitting attentively behind her desk, or busy with the phone. Without her desk, and walking to boot, he struggled to recognise her.

✻

Sometimes he wondered whether it had been quite the same for his grandfather, this near-illiteracy when it came to reading the expression on a face.

Vaughan's resemblance to his mother's father was in no way physical. He remembered a very short man, bow-legged (rickets was his medical opinion later on). It was rather his grandfather's unusual mind that he'd inherited. A trained surveyor's feel for geometry. A talented retailer's head for figures. An eye for minute detail. Not that he understood this for a long time. John Sydenham Richards of Swansea, known in those parts as JSR, or as Papa by his grandchildren, was already an old man when the Bowens spent their summers visiting the grandparents. He was something of a local character, a staunch pillar of the community: he put the Richards into Manning, Martin and Richards, wholesalers formerly of Union Street. 'Matting, Mats and Rugs' proclaimed their slogan. They also sold linoleum, Acme wringers, Newmaid suction sweepers, paints and cloths. Inventorying would have been for Richards, the director, what trainspotting and medicine would become for his grandson.

It had never occurred to Vaughan to make these connections until quite recently – until, that is, the day back in the UK when a brother showed him one of their grandfather's many

diaries. He showed him 1939. It was pocket-sized and filled with meticulous, vigorous handwriting. Every page was not only dated but also timed. Vaughan's brother flipped the pages to July, to the eighteenth, which had separate entries for 8.30 a.m., 9.15 a.m., 12.50 p.m., 3.23 p.m., 3.30 p.m., 4.45 p.m., 6.32 p.m., 6.34 p.m., 6.35 p.m., 6.37 p.m., 6.38 p.m., 6.40 p.m., 7.00 p.m., 7.10 p.m., 7.30 p.m.

On 18 July 1939 their grandfather and his wife May were holidaying in Bergen, Norway.

'4.45 p.m. Harbour of Bergen. Loads of fish being transferred to a ship for England. All motor cars on Quay appear to be American. Passed customs in shed. Walked along Quay to Hotel Rosenkrants,' he had written.

'Keep reading,' said Vaughan's brother, his voice almost hushed. 'Papa counted everything!'

'Room No 309. Lady's Gent's cloakroom. Sitting room. 3 couches. Writing table. 3 tables. 2 armchairs. 2 chairs. 1 writing stool. Telephone. Cabinet. 19 lights. 2 reading lamps. Sewing materials. 3 radiators. 2 twin beds. Bath. Wash up. Lavatory (W.C.). 4 Drinking glasses. 6 towels.'

In the day's next entry, timed 6.32 p.m., their grandfather had described going up the 'Floibanen or funicular railway' where he'd met an Australian tourist and enquired after her name, maiden name, occupation and address. (Mrs Freida Moyle. Miss Freida Walker. Calculator Bookkeeping Machine Expert. 20 Queen Street, Melbourne.) 'Beautiful view of Bergen,' he'd jotted down then, just before noting the ticket fare: '1.50 Kr each return. 3.00 Kr two persons.'

But for these diaries, passed down to his brother, Vaughan would have known nothing of his grandfather's inner life – and of how much more than blood they shared.

He thought of his grandfather's father who had launched the family business in the 1870s. His great-grandfather had left a rural hamlet for Swansea to set up as a wholesale grocer and butter merchant. Between father and enterprising son, the name of Richards had traded proudly in the city for a hundred years. Vaughan liked to think that certain autistic traits – tremendous focus, attention to specifics, imaginative somersaults – had played their part in the family's flourishing.

His mother had not inherited her father's strange mind. It seemed to Vaughan that there was more Richards in him than in his grandfather's eldest daughter. A chatty woman, his mother, always at ease with herself and other people and leery of spending much time alone. It was possible that her son's inwardness and intense gaze intimidated her. Chatty as she was, she never opened up to him. Or maybe, just maybe, she had, or had tried, and he'd simply not understood.

There were times as a boy he'd wanted her to assuage the distress, the confusion, inside him with a well-chosen sentence. He'd wanted her to make everything clear in his head so that he might breathe more easily. But the times were flat against that; very few people talked about feelings in the fifties, the early sixties. Except perhaps the gossips. Language back then was strictly policed. Always you minded your language, watched your p's and q's.

When Vaughan turned nine the distance between mother and son grew miles wider. He became a boarder at a free independent school for fatherless boys in Hertfordshire. Year-round he lodged there till he went up to Edinburgh at eighteen, returning to his family only for the long school holidays.

One summer, he returned to an empty house. He was twelve or perhaps thirteen. The holidays hadn't arrived yet

in Walton-on-Thames and he walked to the school where his mother taught. She left the blackboard and told him to wait for her in home economics, where the children were busy baking bread. He was getting tall as well as lean, with a long fringe and bright eyes, and the girls had looked up and smiled as he joined them to knead the dough. No need for him to follow a recipe. Vaughan often assisted his mother in the kitchen. She baked a marvellous teisen lap – sweet and buttery with a hundred raisin eyes. Standing beside her at the counter, he would observe the flour as it snowed. 'Pass the whisk,' then 'pass the spatula,' she would say and he would pass her the one, and then the other, quick, quick. He'd hear the regular clinking in the mixing bowl. Feel the dip of a spoon. Feel important, like those Sundays when he broke the skin on the rice pudding.

The smell of the bread baking in the classroom. A warm, homely, informal smell. It tortured him, the memory of it, weeks later, as the autumn term loomed. Not even the prospect of riding the railway out of Waterloo could lift his spirits in the slightest. How he despised his school, its cold dorms and colder housemasters (with names like Clotworthy), the plummy voices which droned on and on for what seemed to him like days, the frightening rifle target practice. To say nothing of the awful beatings. And indeed not one word was breathed of any of this during visits home. Only as an adult, nearing thirty, would Vaughan start to articulate what he'd been through, the damage done to him, confiding in a doctor in the Canadian hospital where he worked after immigrating. Until then, he'd supposed the fault lay somehow with him, and felt the ordeal far too shaming in any case to ever mention.

Before this doctor, Frank, he'd dared not address any man by name. 'Sir' and 'Professor', and later 'Doctor' had been the

rule: 'Dr Bowen?' 'Yes, Dr Green?' or 'Yes, Dr Smith?' And as for calling his mother by her first name, well, perish the thought!

'Call me Frank, Vaughan,' the doctor had said gently. In 1976, if memory served him right. That year, and over the following years, Frank would lead Vaughan out of the darkest caverns in his mind, just as Anu would decades later.

Even now he felt twinges of regret at losing touch with Frank after moving to another city. He had always been bad at looking people up, asking after them. He'd learned of the doctor's death in 2004 from a years-old obituary republished online. In 2004 he might have thought to call his mother in England with the news. Remember Frank? Dr Frank Coburn? Not a chance. By that time, she was always losing her train of thought.

The memory of mother's teisen lap. Where had that come from? And why did it have to remind him – of all things – of his boarding school thrashings? Spoons and spatulas. Clotworthy. Frank's kindly gaze.

Vaughan had always been dexterous – he could pick up and repair a shattered vase, shard by shard, repair a hand bone by bone. But the fragments of a mind – that was something else altogether. So hard to grasp and reassemble.

Of the thousands of patients he'd treated down the years, several had left Vaughan puzzled. In his memory, two – a young woman, and an older man – stood out most sharply.

The young woman had come in one day with a forearm needing surgery. His assistant had recognised her as a recent patient, ushered her into his office and handed him her file. Vaughan proceeded to inspect the young woman's forearm.

According to the file, he had operated on her months before, but there was a problem. She had no scar.

'Oh, that was my twin,' the young woman said.

Were the two sisters so identical, Vaughan wondered afterwards, that they had developed the exact same low bone density in the forearms? Or, had the scar on one, throwing off their symmetry, incited the other to undergo her sister's operation?

The older man – a driver in his fifties – had had his wrist crushed in a collision. The wrist had necessitated a big operation, lasting hours, but no sooner had the man's anaesthesia worn off than he discharged himself, saying only, 'I have an urgent flight.' The sole address he'd left was a box number in a Chinese city. He had no healthcare insurance so Vaughan did not get paid.

Then, one day, eighteen months later, Vaughan's assistant phoned him. 'You will never guess what just happened,' she said. Did he remember the man with the Chinese address? Well, he'd just left a bulging unmarked envelope for him with her, which she'd opened. Inside was the fattest wad of used $20 bills.

Was there anything more confounding, more impenetrable, Vaughan wondered, than the human mind?

Dr Frank Coburn was Head of Psychiatry at the University of Saskatchewan and Vaughan a young resident surgeon at the campus's teaching hospital. Vaughan was training under a British missionary whose specialty was the spine. The doctors Coburn and Bowen knew each other only in passing, as one more name on a door or a tag.

The life of the hospital was stimulating and purposeful and at times happier than the gruelling work and proximity to illness might suggest. Vaughan derived a deep satisfaction from mending bones spalled by illness and injury.

But his surgical prowess masked an inner turmoil – an early marriage, to an American student he'd met in Edinburgh, was failing fast. Her family had never approved of him; they refused to ascribe his quirks, as others did, to being British.

Fatherless from boyhood, Vaughan's notion of a husband, or a prospective husband, had been formed by the movies' square-jawed leading men. He asked himself where on earth these Bonds and Bogarts had learned their amazing insouciance, their worldliness, and presumed that the answer was the crowded and exotic bars he'd never set foot in.

He felt woefully underprepared for adult life. He tried to make sense of the 27-year-old breadwinner he had become, of the couple he formed with this young and bright American. Who was she exactly? The question weighed on him. His wife was an increasingly pressing source of bafflement: one minute she could be sitting on their sofa laughing, a beat later, tearing up. She seemed always to be telling him or pleading with him to listen. Vaughan would expend a tremendous effort to converse with her, but his remarks invariably fell flat, and when she complained he did not know why or what to say or do next. He wasn't at all big on hugs – try as he might, he would never be Bogart to her Bacall. One frustrating evening, one of many, exasperation seized his wife and drove her to yell at him, 'What's wrong with you?'

What indeed? Vaughan did not know himself. He sensed himself unravelling. Some days he went out of his mind, or rather, he went further and further within it, turning this way

and that, taking wrong turns, following thoughts that grew murkier, until he felt lost and afraid.

Over the months that followed, during which his discomposure steadily increased, he trudged through his hospital rounds, ate without appetite, slept fitfully, didn't open letters, didn't return neighbours' waves, didn't call on colleagues after shifts, went from slim and fair to thin and pale to gaunt and ashen.

In his weakened state the border between present and past became porous. Years of repressed mental struggles could no longer be contained. The tiniest reminder of his past caused Vaughan's throat to contract abruptly: a stranger's schoolmaster-like gait, or the overheard words of some argument between boys, at other times simply the scent of rain like the rain in Walton would trouble him no end. A few footsteps, a mouthful of words, a hint of a downpour – all it might take to set him off, even if they amounted to nothing more or in fact were only his imagination, which pained him all the same and just as much.

Vaughan had heard good things from his patients about Dr Coburn. But still he refrained from acting until one day after a long shift when the still lucid part of him telephoned up to the hospital's fifth floor and told Coburn's secretary that it was urgent.

'I told the lady on the phone that it was for one of my orthopaedic patients,' Vaughan explained to the psychiatrist. 'The fact is, I'm the person who needs to consult you.' And then, encouraged by a nod, he started to ramble. After a while his feeble voice trailed off. Eventually his unfocused eyes rose to meet the doctor's short grey beard and thick glasses and high bald forehead.

'You were miles away there, Vaughan.'

'Dr Coburn?'

'Call me Frank, Vaughan.'

*

In Frank's office silence was for Vaughan not a rebuke but an encouragement. In the privacy offered by its bare walls he could speak his mind. He at last unburdened himself, talking freely, taking a decade of nightmares and inexplicable headaches up to that room on the fifth floor. He described how some days he felt like he was inside a chill, black tunnel where he saw not the faintest pinprick of future light.

Frank tried him on tranylcypromine for the depression and lithium for the mood swings but far better than either of these, and without their side effects, proved to be the talking. Much of the talk returned to the English boarding school Vaughan had long attended. Vaughan described how he'd followed the other boarders' example of putting on a brave face and voice at all times. If some of the classmates had teased him for his aloofness, many more had ignored him. With his slender, agile fingers he'd played first flute in the school orchestra – the regular rehearsals, along with the chapel and library, had kept him out of the way of most bullies.

But there had been no getting away from the masters.

'They weren't all rotten,' said Vaughan. Those who taught the sciences, in particular, had found in him an able, responsive student. And often in the middle of geography he'd experienced a lightness rising in his chest like bread in a hot oven.

Taking up his pipe, drawing on it, Frank managed to get Vaughan on to the subject of the Colonel. A few times before, he had mentioned this man only to hastily switch to something else.

The Colonel had been Vaughan's housemaster when he entered sixth form, Frank learned. Vaughan had soon become the object of this Colonel's volcanic temper; years later, he

could still hear him barking, 'Bowen!' The teenager would respond too slowly to some comment. Or play too quietly in the marching band. He would look the wrong way or say the wrong thing. Whatever the excuse, he'd jump out of his skin at the Colonel's bark and flinch at what was coming. Those big, ugly, bulging veins on the fist gripping the rattan cane.

The burning sting of it.

Long, throbbing indentations on his back and buttocks.

As if the Colonel intended to pound out of him his difference.

Beat out of him everything that made Vaughan Vaughan.

The Colonel drunk on his own anger, seeing double.

When, oh when, would the whistling cane stop?

For two years, all through sixth form, far more beatings than Vaughan cared to recall. They had left their indelible mark on him. Regardless of the years, then decades, that elapsed, he would be able to relive the scene as if it were yesterday. The Colonel would be long dead by now but still he continued to cast his violent shadow over Vaughan's thoughts. Nevertheless, and thanks to Frank, Vaughan had acquired means to discern and clamber out of the shadow.

As he spoke and Frank listened, Vaughan found himself thinking how lucky he was to be working at this hospital in Saskatchewan, among the prairies where he had spent his gap year as a farmhand. The summer before that year, by a similar twist of fate, Vaughan had discovered his vocation on a hiking holiday in Wales. A rare friend at the boarding school had accompanied him, and as they made their way across the limestone cliffs in Gower each tossed out ideas about their future.

'I'm going to be a doctor,' his mate said rather proudly. His father was a physician in the Royal Army Medical Corps, a man who had travelled far and wide and seen service in places

that sounded brimful of adventure. The son's evident pride could not help but touch Vaughan, and as he walked beside his friend he let himself imagine what it might be like to live and work far away overseas. The thought of healing others, he realised, appealed to him, for reasons he would be unable to explain fully to his friend or even to himself. And just like that, Vaughan began to wonder whether he too should follow in this unknown man's footsteps. By the time he came back to Walton his decision was firm. He would abandon his plans to enrol in geography; he would bring his youthful intelligence to bear on the human body rather than on the earth. The former, he intuited, would absorb his mind most completely.

For all Frank's efforts on the fifth floor, Vaughan's health continued to deteriorate. After his wife moved out, he was admitted to the hospital's psychiatric unit. Fortunately his fellow surgeons were understanding. They would wait until he could resume his service. At his lowest ebb, Vaughan became for a brief time catatonic, losing the power of speech, before improving enough to return to Frank's office and then to his medical duties.

His recovery was slow, however, and there would be relapses. Frank, faced with Vaughan's third admission, invited him into his home instead. Mrs Coburn made tea as the two men settled into armchairs and let the radio – *As It Happens* – do all the talking. Sitting back, the family's red setter at their feet, they could have been father and son.

When Vaughan was well enough, the Coburns drove him to their summer cabin on Wakaw Lake. The green of poplars rested his eyes, the breadth of blue sky buoyed his spirits, and all around him a soothing peace reigned supreme. When Frank talked, as they strolled beside the shining lake, or in the cooler evenings as they kept warm before a crackling wood stove,

he said nothing about the hospital. Instead he related light, amusing stories of his children's time at camp.

By the end of Vaughan's month with the Coburns, his physical and mental health had gone from strength to strength. He felt up to resuming surgery at the hospital. Frank was supportive but remained vigilant. There was still, he cautioned Vaughan, a long way to go. And indeed Vaughan might have regressed once again had Frank not called Vaughan's mother in England and alerted her to the depth of her son's problems.

Vaughan himself hadn't managed to tell his mother much about his plight; whenever he'd called long-distance she'd spent half the time fretting aloud about how expensive each of the minutes must be. As soon as she came off the phone with Frank, she brought forward the flight she had already booked for the off-season. She flew over on the next available plane and for several months set up quarters in her son's apartment.

There was only so much she could get out of him – Vaughan had never been a great talker. He was relieved when, with his permission, she took her many questions to Frank. One sunny afternoon, when she and Vaughan had come out to the cabin, Frank took her out in his canoe on the lake. They were gone for quite some time.

Frank may have saved Vaughan's life; certainly, he salvaged his career. And the young surgeon gained further stability when, following his divorce, he met and later married the operating-room nurse with whom he would raise a son and daughter.

Vaughan, by the 1980s, was performing regular operations in a country where there were few hand and wrist specialists. He

was admired by his peers; they'd witnessed him innovate techniques to mend the smallest bones and graft skin. Soon he was earning a reputation as *the* hand and wrist man to be consulted. Patients came to him from miles around. Quite a number were tanned farmers from the surrounding prairies, their clothes and limbs dramatically snatched by a tractor's rotating shaft, rushed in and hoping to be reunited with a severed thumb or fingers.

'It pretty near tore my whole hand off,' they'd grumble in a voice husky with pain and embarrassment.

Other men, when winter came, had reached inside a clogged snowblower without thinking. Vaughan repaired each mangled hand, skilfully replanting the amputated digits, fusing together the tiny veins so that the blood went only where Mother Nature intended.

Women arrived at his hospital with different complaints. Pregnancy induced in some a tingling numbness in the fingers. Vaughan explained that the nerve passing through the wrist's carpal tunnel had become compressed by the body's swelling. He reassured them that this compression usually ceased in the weeks and months after delivery.

'But if ever it persists, or worsens, then you must come back and see me,' said Vaughan. 'You mustn't wait. We will find the right treatment for you.'

When presented with stiff and swollen hands by older women he never presumed, just because these patients were getting on, that their discomfort was ageing's due. As Vaughan examined them intently and asked many thoughtful questions, it struck the women how undivided his attention was. They were unused to a surgeon taking so seriously a woman's pain, her female ailments. Both men and women appreciated how courteous and unassuming he was.

After practising surgery for a time in Saskatoon, in 1993 Vaughan set up the Hand Program at Toronto Western Hospital. His career later took him to Stanford University and later still to Calgary.

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Vaughan had pictures in his mind of his white-haired mother holding court in Norfolk. She had retired there in the eighties to live near her two older sons. Vaughan and his wife and children, whenever they'd been over in the UK, had called on her. It had been a great help to him, having a wife who always knew what to say at social gatherings.

'Oh, these are fabulous,' he recalled his wife saying of his mother's biscuits which were sending their crumbs everywhere.

'Where are my manners?' exclaimed his mother, who had been pouring milk for the tea. 'I'll fetch the plates.' No, no, she didn't need any help, she insisted, shooing her daughter-in-law away from the kitchen. Having returned with the plates, she sank low into her armchair and told them stories about the village. Then she gave an account of a cruise she had taken the summer before last – or had it been the summer before that? – to the Middle East. Vaughan knew that he ought to ask his mother some polite thing or other about her cruise but he wasn't quite sure what.

'Must have been nice and hot over there,' said his wife.

'You can say that again.'

'Did you get seasick at all?'

'Oh, no. I was too busy for that.' There had been nightly lectures on the ship, she added, like the one given by a professor

on Greek mythology. Zeus. The nine Muses. The Minotaur. Very informative.

Vaughan was content to leave the conversation to the two women. It was pleasant to listen to his mother's still-strong voice, her whole being seeming to shout with her usual vitality. But then it occurred to him that his mother was repeating herself, which was unlike her. She was back to the exact same stories about the village.

'Sorry, but we have to be getting back,' he interrupted.

Only some while after that, on another day over in Norfolk, did it become clear to Vaughan that there was something very wrong with his mother. She'd made no fuss then when he went to the kitchen for the crockery and milk. When he opened the fridge door, he saw that the milk wasn't there. The shelves for the cheese and butter, the ones for meat or fish, and the bottom drawer for the fruit and vegetables, were also empty.

He'd flown to Canada by the time the results of his mother's neurological exams came back. The dreaded 'A' word. The next time he had seen her in Norfolk she was living in residential care. He'd flown over on his own, on one of those packed flights that made his temples throb. What a relief, then, arriving at the home, to discover the converted Georgian mansion that housed it, majestic calm in stone form and set in acres of parkland.

Shown around by a member of staff, he went to the large, light-giving windows. The country views, he thought, would have recommended the place to his older brother who had chosen the home.

Their mother's room was situated at the rear, in a separate wing built of brick for the residents with dementia. The voice of Vera Lynn – forever the voice of a bright young up-and-comer – carried down the corridors. Along the walls, old posters of

Cunard cruises to New York invited reverie and reminiscence. On this and every visit that followed to this wing, Vaughan would step out of 1999 (or 2003 or 2007, the final time) and into the forties.

The forties had coincided with his mother's youth, her early years as a wife and mother, and hearing the period's songs, viewing its posters, helped to revive her. Momentarily, she recovered possession of her confidence, her old ease surfaced. She might respond sensibly to some remark and move around with renewed grace. But, always, Vaughan noticed beneath the grace the tremendous effort, and he saw himself in that effort. The minute after, that ease – and with it the mother he had always known – would be gone.

The final time he had sat with her, she was ninety years old and she was nine years old. She was talking to him in the incomprehensible Welsh she'd used with her parents in Swansea. From the reclining chair in her room, his mother was telling him something breathily – an unabating singsong, deferential. He realised then that he was her father – she was addressing her father. How he wished he could understand her.

A hand on her lap grew agitated and he reached over and squeezed the plump cushion of her palm in reassurance. He was searching his mind for the only Welsh he had, words he'd taught himself for this moment.

Dwi'n caru ti.

I love you.

A few days ago a calendar reminded Vaughan of his forthcoming retirement. He hadn't needed any reminding but there it was in

black and white: 26 June 2024. Fifty years. Half a century to the day since he'd graduated with his Edinburgh medical degree.

He'd always enjoyed looking ahead, not only days or weeks but into the following year, looking ahead and seeing all the lined-up events that promised to keep his life full and bustling. Whereas spring 2023 had yet to reach Calgary (still treadmill weather here in April), already in his mind he was halfway into 2024.

His operating days were not over just yet, he thought. He was good for one more year at the hospital. His body in shape, fit enough to run marathons and compete internationally in duathlons. They helped to clear his head.

Today was Monday. Vaughan was up by 4 a.m., as was his habit. The writing of case reports monopolised his early mornings, after which he got into his office by eight. Monday was consultations day. These consultations involved new patients and for this reason tended to overrun. Vaughan liked to take his time with each patient, to inspect every part, each nook and cranny of a person's medical history. To leave no stone unturned.

Patients, he knew from experience, rarely volunteered the most useful information about their illnesses. It took Vaughan's probing questions to gently winkle these details out of them. No, they did not experience any wrist pain. Yes, they sometimes felt a stiffness in the small joints. Yes, the stiffness was worse in the morning. No, they were not diabetic. Then he would inspect their fingers and close his own around a pen and fill in the long form in their file with the necessary particulars.

They were like anyone else, the men and women who came each Monday into his office, never thinking about their hands until compelled by illness or accident. All those years during

which they mistook a phone's rising to the ear and a jar's unscrewing and a hardcover's page-turning for natural events, then a strange twinge or a sudden ache would make the book a brick, the jar a safe, the phone a wet bar of soap.

What kind of pain, Vaughan would want to know. But the deep intimacy of their pain made his patients inarticulate. Often they could only compare it to another kind. Like a toothache, one man might say. Like a raging toothache, but in the knuckles.

For some patients, the next step would be a splint, or hand rehabilitation exercises. For others, further examinations – a scan or blood test. Occasionally, Vaughan undid a misdiagnosis – recognising personal variations on an anatomical feature as normal and only simulating disease.

After another long Monday in his office, in his thoughts Vaughan returned to the summer of 2024. His near-future retirement. Perhaps he would travel to Llangattock, his birthplace, to mark the occasion. He could see himself doing that. He imagined himself walking down the brow of the hill to join a guide and explore the caves beneath, the labyrinthine passageways, among Europe's most extensive. Relentlessly he would grapple through them, tackling their elusive twists and confounding turns, feeling his way along the calcite walls in the semi-dark as spelunkers do. He would not falter. He would feel like he had been here many times before.

Kana

Dear Ms Seiko Noda, Minister of Loneliness. So began the letter Kana had spent several days writing in her head (horizontally, and left to right, the letter being in English, the language she preferred to think in) and continued, after the necessary preliminaries:

I applaud your ministry's recent creation and its aim to tackle the spiralling problem of loneliness in the country.

On the government's website, I notice that it does not mention who might be more vulnerable to loneliness. Research has shown that 'disabled' people can be lonelier than 'non-disabled', autistic people particularly so. Autistic people do not 'have a disability', but they are 'disabled' when others around them do not understand their differently wired minds nor accommodate for their needs. Making accommodations confers on them no additional merits, but simply permits them to be on a level playing field with everyone else.

A lack of understanding from others leads to loneliness, just as much as the absence of social relationships. Addressing this would go a long way towards alleviating loneliness in the nation. This could include diminishing the stigma around autism in Japan and

bringing the correct knowledge of autism and autistic loneliness to the wider society . . .

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Where was she now? Nowhere. In the no-woman's land between sleep and waking. She opened her eyes, looked up at the ceiling, down at Sky. No, wait, that was impossible. Sky was in heaven. She closed tight and then opened her eyes again, and saw Levi. The schnauzer puppy wagged her white tail as Kana hauled herself out of bed.

As always, she was up with the first pink of dawn and the city's sparrows she heard from her window as they balanced on the telephone wires, chirping. As she looked out, she remembered that in her dream she'd been a mouse, a dancing mouse in a circus. She recalled distinctly her scurrying to reach the mouse troupe from which she had been separated for some unknown reason. Scurrying, her mouse's heart hammering, because the troupe would be waiting to start. They would not start their dancing without her.

Slippers padded along the corridor, a soft tap at the door preceded its opening, and her mother smiled into the bedroom.

'The tea's ready,' Hiromi said.

Despite her time in America, and many months in Britain, Kana still took her tea green. No milk or sugar.

On her way to the kitchen she passed through the living room. Long and wide as six tatami mats, the room seemed more spacious since she and Hiromi had finished packing most of their belongings into boxes. It was September 2021, and they were leaving the mainland and their home of thirty years, Utsunomiya, for Okinawa. They were moving to an apartment

near the American Village and the harbour and counting down the days until their departure. They would take a taxi to the airport, saying a last goodbye to the paddies, cornfields and orchards, whose changes rang in the seasons. Farewell to the mountain views and the smell of cows through the car windows as they drove.

Thirty years of life slimmed down to a dozen or so boxes. Hiromi was a single parent, Kana an only child. There was hardly anything, or anyone, to keep them here. Kana's father, who had left their lives years ago, was helping to pay for the move. Her mother, a make-up artist turned aesthetician, would find new clients on the island.

The two women sat down to breakfast: bagels, for Kana, and *amazaki*, a fermented rice drink, for Hiromi. They hadn't yet packed away their chairs and table.

'A writer contacted me the other day about a book he's working on,' said Kana. 'A British man living in Paris.' She was familiar with his work. She gave his name in Japanese for her mother's benefit: Danieru Tametto.

What sort of books had this Tametto-san written, Hiromi was curious to know, and why was he contacting her. 'Is it something to do with your research?'

Kana flushed; she nodded. 'Research' was the kind of word that sounded fine when she said it but pretentious when others did. She was twenty-seven years old, and while she felt strongly about her work, she was the last person who would ever make a fuss about it. Which was why the enquiries from this British writer, like those from the American reporter before him, had been as big a surprise to her as they were to her mother. A reassurance, too, that she really might be on to something.

She was a researcher in loneliness. She measured and

dissected it with considerable zeal, even passion, because it was a young field of research, fast-expanding, increasingly vital, and also because she had often known first-hand the ache of feeling alone. If anyone – the British writer or the American reporter or someone else – were to ask her how she measured a thing like loneliness, she could answer: the same way you measure the wind. By its observable effects on our world. You could identify and grade the various forms of loneliness, just like we identify and grade a dozen kinds of wind – running from light air and fresh breeze to gale and hurricane.

'0' – Contentment – being wholly at ease in the world
. . .
'3' – Mild isolation – aloneness is noticed regularly, living and work spaces seem excessively large
'4' – Moderate isolation – aloneness is unpleasant like body odour, days feel very long
. . .
'6' – Estrangement – sense of not belonging, being unlike others, connection is difficult
. . .
'8' – Severe exclusion – sensation of being cut off from others by an invisible wall
. . .
'10' – Forsakenness – empties life of meaning, all possibility of connection seems lost

Daughter and mother spent the rest of breakfast talking about Kana's research. 'I know how important this is to you,' Hiromi said. 'Your life's work.'

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Kana's present work had begun three years earlier with an application letter for the research position of her dreams, at University College, London. After two weeks of waiting (and pacing, and nail biting), the centre's response seemed on track to becoming the slowest in the history of email and Kana's hopes were oh-so-close to evaporating. And then, well, you can fill in the rest. Fully worth the wait, the mail that came back from Dr Laura Crane. And, as it proved, a turning point.

During their video conference Laura had smiled a lot and called Kana's CV impressive. A science degree from North-eastern University and a Master's in Counseling Theory from Boston College. A distinction received in her Postgraduate Certification in Autism and Asperger's Syndrome at Sheffield Hallam University.

'I see that you would like to investigate loneliness in autistic adults using mixed methods during your PhD research with us at CRAE. Your input as a researcher with lived experience of autism will be especially valuable to us.'

This was what had attracted Kana to CRAE – the Centre for Research in Autism and Education – one of the few sites in the world where neurotypical and autistic scholars worked together to enhance science's understanding of autism. The team had a core principle: that autistic people should be central to the production of knowledge about the condition.

'We found your choice of research topic very interesting,' Laura continued. 'As you know, many scientists have long believed that autistic people prefer to be on their own and therefore rarely, if ever, feel lonely.'

These beliefs, Kana knew only too well, were flat-out wrong.