

Awake

Many years ago now, in the Blue Mountains outside Sydney, I was invited to a dinner to celebrate the birthday of a friend. There were eight women at the dinner, some of whom I did not know, around a long trestle table covered with a white sheet and many small candles. Between courses one of the women, Rachel, told us the story of the birth of her second child. After she finished, there was silence; it was hard to know what to say.

Not long after that dinner I moved with my family—my partner, our son and me—back to Melbourne. But I kept thinking about Rachel's story. I did not know why, but it was like a bit of grit: I found myself growing ideas around it. I spoke to the friend who had hosted the dinner, who gave me a phone number. For months afterwards I put off calling, afraid she would not want to talk publicly about what had happened. But when I rang her one April evening from my home in Melbourne, she said yes.

Rachel Benmayor's story—of a general anaesthetic that failed; a caesarean birth endured conscious, paralysed and in agony; and a near-death encounter with what she saw as a great, implacable consciousness—became the starting point for this book, although the story had, in the way of all stories, begun long before.

We spoke by phone over two nights: Rachel in the house that she and her husband, Glenn, were renovating in the mountains, me squatting on the floor next to the filing cabinet in our Melbourne home office; she in her soft New Zealand lilt—the flattened vowels and unexpected upward inflections—me in a series of vague half-forays, repetitions and mmmms. It didn't matter. She wanted to talk. She spoke at a rhythmic, even pace, as if describing a familiar dream or film, slowing sometimes, at others clearing her throat or coughing, but rarely stopping except when I interjected. I could not quite remember what she looked like except for an impression, incomplete as it turned out, of softness—brown curls, a shortish figure, an open, appealing face. Something quiet about her, almost arrested. All of which merged over the phone into the steady forward tread of her voice.

'So,' said Rachel, 'I remember going onto the operating table. I remember an injection in my arm, and I remember the gas going over, and Glenn and Sue [*her midwife*] standing beside me. And then I blacked out. And then the first thing I can remember is being conscious, basically, of pain. And being conscious of a sound that was loud and then echoed away. A rhythmical sound, almost like a ticking, I guess, or a tapping that was just like a march and it just went round and round and round and I could hear it.

'And pain. I remember feeling a most incredible pressure on my belly, as though a truck was driving back and forth, back and forth across it.'

Rachel had been admitted to hospital, eight and a half months pregnant, a few days earlier. Her blood pressure had risen rapidly and her doctor had told her to stay in bed and get as much rest as possible before the baby came. But her blood pressure kept rising—the condition, known as pre-eclampsia, is not uncommon but can lead to sometimes-fatal complications—and the doctors decided to induce

the birth. When her cervix failed to dilate properly after seventeen hours of labour, they decided instead to deliver the child by caesarean section. Rachel had hoped to have an epidural injection into the base of her spine so that she could be awake for the birth. But she was in a smallish country hospital and that day there was no one available to perform the procedure. Instead she was told she would have to have a general anaesthetic. She remembers her disappointment. She remembers being wheeled into the operating theatre. She remembers the mask, the gas. And then she woke up.

A few months after the operation someone explained to Rachel that when you open up the abdominal cavity, the air rushing onto the unprotected internal organs gives rise to a feeling of great pressure. But in that moment she still had no idea what was happening. She thought she had been in a car accident. 'All I knew was that I could hear things...and that I could feel the most terrible pain. I didn't know where I was. I didn't know I was having an operation. I was just conscious of the pain.'

Gradually she became aware of voices, though not of what was being said. She realised she was not breathing, and started trying to inhale. 'I was just trying desperately to breathe, to breathe in. I realised that if I didn't breathe soon, I was going to die.'

She didn't breathe and she didn't die. She didn't know there was a machine breathing for her. 'In the end I realised that I couldn't breathe and that I should just let happen what was going to happen, so I stopped fighting it.' By now, however, she was in panic. 'I couldn't cope with the pain. It seemed to be going on and on and on and I didn't know what it was.' Then she started hearing the voices again. And this time she could understand them. 'I could hear them talking about things, like about people, what they did on the weekend, and then I could hear them saying, *Oh look, here she is, here the baby is*, and things like that, and I realised then that I was

conscious during the operation. I tried to start letting them know at that point. I tried moving, and I realised that I was totally and completely paralysed.'

It occurred to Rachel that she was close to death. 'I was just beginning to go mad with the pain, and I knew that it was going to kill me. It was a funny feeling, I just knew that I couldn't cope. And I knew that they weren't going to hear me, or realise what was happening.'

Then she remembered something someone had said to her many years before. Faced with great pain, the only thing to do was to go into it, not to try to get away from it. It is not the sort of advice most of us want to follow—until, perhaps, there is no choice. 'So I consciously turned myself around, and started feeling the pain and going into the pain, and just letting the pain sort of enclose me. There was a feeling of going down, a feeling of descending, and I just went further and further down, deeper and deeper into the pain.'

I asked her if the pain lessened as she went into it. Rachel laughed, but not humorously. No, she told me, if anything the pain got stronger. 'But I just kept on going down, down, down. And then I started feeling like I was going through something, like through the pain, and then I got to a point where the pain was there, and nothing had changed, except I no longer really cared about it.'

'It was like I could be conscious to other things, because my consciousness had turned itself off from the pain. And then I realised that I was in a really amazing place, and I realised that I was very close to dying. I felt like I only needed to move a little bit deeper and a little bit further and across something, and that I would be dead.'

In that place, said Rachel, she felt the presence of people she had known, and some she had not, all the while still hearing the voices around her in the operating theatre: *Oh look, look, it's a little girl. Just pull her up a little bit higher. Look it's a little girl. Glenn, look, you've*

got a little girl. Isn't she big? Oh she's urinating on Rachel. Quickly. She's urinating. We'll have to cut the cord.

But Rachel was gone. 'I was way away from there. I could hear it, but I was just a long way away.' She felt safe. 'I was so relieved to not...to have found this place where the pain was happening in my body but I knew that I couldn't tune into it—that I had to stay where I was, otherwise I wouldn't survive, so I stayed in that space.'

Some years after this conversation I visited the Melbourne office of an anaesthetist called Kate Leslie. She was crouched in a tiny cubicle furnished with twin filing cabinets in pink and taupe. Her windows looked out along a diminishing cream brick wall punctuated by other similar windows. It was a room distinguished mainly by its drabness, though brightened on this particular day by the strains of classical music drifting from further down the hall.

'Elgar,' said Leslie, dipping her head in the direction of the sound. She was not actually crouched. It was more that there was something about her that made the room seem small around her. Not only was she quite tall, but she had a vitality that made her seem bigger still, so when I think of her now I have the impression of her scrunched like an oversized Alice into a space she had already outgrown. There was something rakish about her, too, with her denim jacket, hippy skirt and tall black boots: you might have picked her as a rock chick. In fact, she had recently been involved in a study that would help make her quite famous in anaesthetic circles, at least in the circle interested in experiences such as Rachel Benmayor's. None of which you would have known from her office, or her demeanour, which was appealingly direct and forthright. If I was going to have an anaesthetic, I decided, Kate Leslie would be an excellent person to do it.

So, imagine for a moment that I'm the patient and that Kate Leslie is indeed my anaesthetist. Once I have been wheeled into the

operating theatre (I may already have had a sedative pre-med to relax me), Leslie will attach a cuff to my arm to measure blood pressure, a small clip to my thumb to measure the amount of oxygen in my blood, and leads to my chest to monitor my heart rate. Then she will hook me up to a drip that will deliver an infusion of drugs designed to put me to sleep, make sure I don't feel pain and relax my muscles.

'So [*this is Leslie*] as depth of anaesthesia gets deeper, the first thing is that you start giggling a bit or your voice is a bit slurred; you know it's like you've had a couple of drinks—or a few drinks actually—and if I say to you “Hey Kate,” and you go, “Huh?” you're awake. Your eyes aren't closed, there's nothing I have to do to bring you into consciousness. But you won't remember anything. You won't remember a conversation. But if I stick a knife in, you'll remember.

'And then the next thing is that your eyes close, but if I go, “Kate”, you'll wake up.

'And the next thing is, your eyes are closed, but if I went [*poking motion*] “Ka-ate” you'll wake up (we poke them, you know, and they wake up). All of those things are conscious. You're unconscious when you don't respond to command or mild prodding.'

'So you *poke* them?'

'All the time,' said Leslie. 'When they're going to sleep, we say, “You're going off to sleep now,” we stick the anaesthetic in and then we go, “Ka-ate”; we test your eyelash reflex—she brushed the tip of her finger across her eyelashes—'and it's gone.'

From the patient's perspective—mine—in about thirty seconds I, or at least the 'I' that I know, should cease to exist. Once I am unconscious Leslie may switch me to an 'inhalation' anaesthetic (a gaseous mixture of, say, nitrous oxide, oxygen and another drug called sevoflurane) that I will breathe in through a mask. A tube will probably be put down my windpipe: this is known as intubation. I may also be attached to a ventilator that will breathe for me during

the operation. When I am unconscious and can feel nothing, the surgeon will begin. This, at least, is how it is meant to be.

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Later, after she had re-entered her body, and after her daughter, Allegra, had been lifted from her womb; after she had been stitched up again ('I could feel them stitching, and then they'd push down. Push, like tapping and pushing down on my uterus.');

after the nurse had bellowed at her, and her husband had finally come, and she had told him to write down the 'messages' she had received; after she had told her family doctor ('the conversations they'd had, and the fact that they'd found a fibroid in me') and her doctor had started to cry; Rachel Benmayor began to shake.

'I started feeling my body just going into spasm from shock, and I started shaking. And they got really scared and they took me over to—I asked to see Allegra, all I wanted was to see Allegra—so they took me over and they gave me Allegra and I just remember holding her. And you know that newborns have such a black stillness in their eyes, and I just sort of held her in my arms and I felt like she'd just come from where I had been.'

The chances of this happening to you or me are remote—and, with advances in monitoring equipment, considerably more remote than twenty-five years ago. Figures vary (sometimes wildly, depending in part on how they are gathered) but big American and European studies using structured post-operative interviews have shown one to two patients in a thousand report waking under anaesthesia. More, it seems, in China. More again in Spain. Numbers are impossible to come by, but twenty thousand to forty thousand people are estimated to remember waking each year in the US alone. Of these only a small proportion are likely to feel pain, let alone the sort of agonies described above. But that tiny figure far exceeds the

number of people having operations at all prior to 1846. And the impact can be devastating.

For Rachel, sleepless and terrified in her small room in the small hospital in the Blue Mountains, it was the beginning of years of nightmares, panic attacks and psychiatric therapy. Soon after she gave birth, her blood pressure soared. ‘I was in a hell of a state.’ At times, she said, she felt the only thing keeping her on the planet was Allegra, who she clung to as if for her life. ‘I’d just hold her and look at her and feel calm.’

Then the fear would start again, and with it her blood pressure would soar or plummet, making her even more afraid. ‘At one o’clock one morning I remember them calling Elizabeth, my GP, and her holding me all through the night because I was so scared. And then finally I got up and I rang my mother in New Zealand and I just started crying. I howled and howled.’ For weeks after she returned home she would have panic attacks in which she felt she couldn’t breathe. Although she says the hospital acknowledged the mistake and the superintendent apologised to her, beyond that she does not recall getting any help from the institution. No explanation or counselling or offer of compensation. It did not occur to her to ask.

I have wondered a lot over the years in which I have been exploring anaesthesia what it was in Rachel’s story that not only drew me but has kept me pinioned to a topic about which, eighteen years ago, I knew and cared next to nothing. I wonder too, though not as deeply or as often, about what happens when a person like Rachel hands her story over in good faith to a person like me. It is a transaction in which we have both invested a degree of trust. But in the end her investment has been greater, as has her risk. Her story is hers—but in my retelling of it I have also made it mine. I will endeavour to represent it fairly,

but I have chosen it and framed it through my own lens. I have made it fit my own purposes, or at least the purposes of the story I want to tell—that wants to be told. Rachel's story in turn has its own percussive force, a vibration that has minutely and conclusively reordered the particles from which I assemble, moment by moment, my own sense of self. It is a story that has grown on the back of other stories—hers, her daughter's, those of the anaesthetists and scientists and patients I have since spoken with, my own—and that has changed each of us in the telling.

The psychologist who I saw regularly in the lead-up to my spinal surgery once said she felt that the process of writing this book functioned in my life both as an anaesthetic and as the means to wake myself up. The form massaging the content, she said, or the other way around. That content (this content) has announced itself insistently and in ways and forms that I—or the part of myself that likes to think I am in charge—would not have chosen. But part of the process of both the counselling and the writing has also been the realisation that it is not always 'I' who makes the choices—and along with that realisation, the slow erosion of my faith in the ascendancy of my conscious mind.

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A counselling room in Darwin. I am in my early thirties. I have come to talk about—*what?* I don't remember now. It doesn't matter, because it is not what I talk about anyway. The counsellor is a young woman (it is a women's health service), and instead of the thing I thought I was coming to discuss I start to tell her about something that happened when I was a child. I tell her that in the week of my second birthday my parents—he twenty-six, she twenty-five and four months pregnant with my younger sister—went on a holiday to Europe and left me for ten days with another family. Like my parents,

they were Australians living in London, and he, like my father, was a journalist, and they, like my parents, had one or two small girls, and were kind, so there was a connection. I remember none of it. This is a story told to me by my parents.

Yet as I surprise myself by telling this small story to the rather startled young woman at the Darwin women's health centre, a wail rises out of me and keeps on rising, a serpentine eruption that once it has begun takes over entirely, an umbilicus of grief that coils into the room, silencing the counsellor and leaving me slippery and panting with fright and mucus and tears. When it is done, the young counsellor looks scared. She does not know what to say and nor do I. She suggests that I find someone with more experience.

I tell this story because throughout the process of writing this book I have felt, obscurely, persistently, the tug of other stories/part stories/fragments, that have lain submerged in my own memory or perhaps in my body. Eroded landmarks (or watermarks) around which I have navigated; through which I have organised my story of self; whose presence remains all the more potent for their near-invisibility.

Embedded in this remnant topography, sometimes in the foreground, often far off, are recognisable features: that counselling room in Darwin, a love affair, an illness, a birth, a death. Stories that go back further, too; that concern my mother and my father and their parents before them. And eddying around them the ghosts of feelings: guilt/grief/loss.

I did not invite them. But I name them here because these are the ghosts I bring to the writing of this book, and without them this book could not, does not, exist. And because, in the end, while I go on about 'anaesthetists' and 'patients' and 'scientists' and 'subjects' and all of the rest, these neat segmentations are simply people who carry with and within them their own remnant topographies, their own

memories and fears and propensities that influence the decisions they make every moment of every day, including the ways in which they might offer or administer, or analyse or conceptualise, or research or study, or submit to or embrace the process we know as general anaesthesia.

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When I first did an internet search of the term ‘anaesthesia awareness’ more than a decade ago, I found this quote in an introductory anaesthesia paper on a University of Sydney website: ‘There is no way that we can be sure that a given patient is asleep, particularly once they are paralysed and cannot move.’

Last time I searched, the paper had been adjusted slightly to acknowledge recent advances in brain monitoring but the message remained the same. Just because a person appears to be unconscious does not mean they are.

Equipment can fail—a faulty monitor, a leaking tube. Then there are certain operations—caesareans, heart and trauma surgery—that require relatively light anaesthetics: there the risk is increased as much as tenfold. One study in the 1980s found that close to half of those interviewed after trauma surgery remembered parts of the operation, although these days, with better drugs and monitoring, the figure for high-risk surgery is generally estimated at closer to one in a hundred. Certain types of anaesthetics (those delivered into your bloodstream rather than those you inhale) raise the risk if used alone. Certain types of people, too, are more likely to wake during surgery: women, fat people, redheads; drug abusers, particularly if they don’t mention their history. Children wake far more often than adults, but don’t seem to be as concerned about it (or perhaps are less likely to discuss it). Some people might simply have a genetic predisposition to awareness. Human error plays a part.

But even without all this, anaesthesia remains an inexact science. An amount that will put one robust young man out cold will leave another still chatting to surgeons. ‘In a way,’ continued the original version of the introductory paper, ‘the art of anaesthesia is a sophisticated form of guesswork. It really is art more than science...We try to give the right doses of the right drugs and hope the patient is unconscious.’

I tracked down the paper’s author, anaesthetist Chris Thompson, at the Royal Prince Alfred Hospital in Sydney. It was a quick encounter, as he was in surgery that day. We met in a small waiting room outside the operating theatre. He was still in his scrubs and surgical mask, and my first impression was of a pair of eyes so startlingly intense that for a moment I could not speak. Without the mask, Thompson turned out to have a handsome regular face in which the eyes—I think they were blue—assumed more manageable proportions. He was quick to reassure me that anaesthetists are very good at giving the right doses of the right drugs. Today’s specialist anaesthetists train for twelve to thirteen years. They can put you to sleep in seconds, keep you that way for hours and wake you up again in minutes. They administer increasingly specific drugs in increasingly refined combinations; they have equipment to monitor your physical responses and are trained to look out for signs—such as tears or sweating or increased heart rate or blood pressure—that you might be more awake than you look. Applied anaesthesia, he said, was a blend of technical skill, compassion and science. ‘Experience is far more important than knowledge alone.’

Chris Thompson was in every way reassuring. He was knowledgeable and articulate and engaged. But a strange thing happened on both of the occasions that I spoke with him. I went into a kind of trance. I don’t think it was just his eyes; perhaps it was the cadence of his voice, or the rhythms of his speech, or the things he was saying,

some of which were quite technical. He would talk and I would try to focus, to lean in, to concentrate, and instead I would find myself drifting. When I tried to form words or sentences they sounded as if they came from somewhere else, or as if someone else were saying them. It was bizarre. When I think of Chris Thompson I think of him as Mr Anaesthesia.

Anyway, all of this training helps explain why the death rate from general anaesthesia has dropped in the past thirty years from about one in twenty thousand to one, maybe two, in two hundred thousand; and the incidence of awareness from one or two cases per hundred to one or two per thousand. But it doesn't change the fact that anaesthesia is still, in some senses, as close to alchemy as to arithmetic. 'Obviously we give anaesthetics and we've got very good control over it,' another senior anaesthetist told me early in my research, 'but in real philosophical and physiological terms we don't know how anaesthesia works.'

Things have moved on since then (in physiological if not philosophical terms), but while 'anaesthetic cocktail' seems a whimsical euphemism for a potentially lethal sleeping draught, it is closer to the truth than we might like to imagine. Anaesthetists have at their disposal a regularly changing array of mind-altering drugs—some inhalable, some injectable, some short-acting, some long, some narcotic, some hallucinogenic—which act in different and often uncertain ways on different parts of the brain. Some, like ether (a volatile liquid that vaporises into a gas), nitrous oxide (better known as laughing gas) and, more recently, ketamine, moonlight as party drugs. ('If you have an inclination to travel take the ether—you go beyond the furthest star,' wrote American philosopher-poet Henry David Thoreau after inhaling the drug for the fitting of his false teeth.) Different anaesthetists mix up different cocktails. Each has a favourite recipe. An olive or a twist. There is no standard dose.

That said, today's anaesthetic cocktails have three main elements: 'hypnotics' designed to render you unconscious and keep you that way; analgesics to control pain; and, in many cases, a muscle relaxant ('neuromuscular blockade') that prevents you from moving on the operating table. Hypnotics such as ether, nitrous oxide and their modern pharmaceutical equivalents are powerful drugs—and not very discriminating. In blotting out consciousness, they can suppress not only the senses, but also the cardio-vascular system—heart rate, blood pressure: the body's engine. When you take your old dog on its last journey your vet will use an overdose of hypnotics to put him down. Every time you have a general anaesthetic, you take a trip towards death and back. The more hypnotic your doctor puts in, the longer you take to recover and the more likely it is that something will go wrong. The less your doctor puts in, the more likely that you will wake. It is a balancing act, and anaesthetists are very good at it. But it doesn't alter the fact that people have been waking during surgery for as long as other people have been putting them to sleep.

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Some years after meeting Chris Thompson I would find myself following an archivist in a red cap to the top of a white building on the grounds of the Massachusetts General Hospital. Jeffrey Mifflin, a courtly man with a meandering sentence structure and slow, sweet smile, had agreed to show me the domed amphitheatre that from 1821 until 1867 functioned as the hospital's sole operating theatre. 'They liked to have operating rooms on the top floor,' he explained, 'because patients, before anaesthesia, tended to scream and the other patients found that unsettling.'

It was here, on Friday October 16, 1846, that a packed, sceptical audience witnessed the first successful public demonstration of ether

anaesthesia. It was also, as it turned out, the occasion of the first recorded incidence of what is known today as accidental intraoperative awareness—not that the audience would know it.

Dentist William Thomas Green Morton, who had rushed in late after putting the final touches to his newly built gas inhaler, hurriedly administered ether to twenty-year-old Edward Gilbert Abbott. The boy duly passed out, after which surgeon Dr Warren made an incision several inches long in the left side of his neck and inserted a ligature to stop the blood flow to a benign tumour, before stitching him up. ‘Gentlemen,’ he announced triumphantly, ‘this is no humbug.’

That comment was aimed at the previous person who attempted to demonstrate the possibility of pain-free surgery, Morton’s former business partner Horace Wells. Recognition for the discovery of surgical anaesthesia entailed a bitter struggle among claimants—variously naïve, venal, pompous and idealistic—from around the globe. For most of them it ended very badly, and you won’t meet them in this book. The matter is still not settled. But if life were a little kinder it would be Wells credited as the founder of modern anaesthesia, not Morton—who, confided Jeffrey Mifflin, ‘if the truth be told, was not very knowledgeable about anything’.

Mifflin himself was knowledgeable about many things. The next day I followed him on a tour through the nearby Mount Auburn Cemetery, past the grave of the poet Henry Longfellow, whose wife Fanny was the first woman to use ether during childbirth, and who the following day would take himself back to the same practitioner, a dentist named Nathan Keep, to have a tooth pulled (‘My brain whirled round and I seemed to soar like a lark spirally into the air’); past the grave of Charles Jackson, Morton’s mentor and another claimant for the title (‘An unpleasant and irascible man,’ said Mifflin, ‘though I shouldn’t say so’); past graves marked by lambs for children,

and broken staffs for young men; (his own grave, said Mifflin, would have a dog and a book, 'because I love dogs and books'); and finally to the grave of William Thomas Green Morton, a suitably overbearing column with the inscription: *Before whom in all time surgery was agony*. Horace Wells' body is interred beneath a different monument in a different cemetery some distance away, where his son placed him as if to keep the pair apart.

It was Wells who, nearly two years before Morton's great day, sat fascinated in a hall in Hartford Connecticut where a Dr Gardner Q. Colton was demonstrating the 'amusing' effects of laughing gas to an appreciative audience. After a brief lecture on the properties and effects of nitrous oxide, Colton invited some of the men onto the stage to try for themselves, among them Wells and a Samuel Cooley. Fifty years later Colton would recall that, 'When Mr Cooley got under the influence he began to dance and dash around and ran against some wooden settees and thereby jammed his legs.' Wells asked after him. Cooley said that he had felt nothing. At the end of the performance, Colton recalled Wells approaching him. 'Dr Wells came to me and said, "Why cannot a man have a tooth extracted and not feel it under the effects of the gas?" I said I did not know. "Well," said he, "I believe it can be done."'

Wells, reputedly an excellent dentist, proposed that they test the theory on one of his own decayed teeth, and the next day Colton took a bag of gas to Wells' office, where he was also met by another dentist, John Riggs. 'I gave Dr Wells some of the gas,' recalled Colton, 'and Dr Riggs took out his tooth. Wells clapped his hands and exclaimed, "It is the greatest discovery ever made. I did not feel it so much as the prick of a pin." That was the first tooth ever drawn without pain.'

Today, nervous patients can still find dentists who will administer nitrous oxide—laughing gas—to ease the stress and pain of dental procedures. But for Wells, the pain was to come. Soon after

the tooth-pulling experiment, and having practised on several other patients, he arranged a public demonstration of his new technique before a group of students at a rented hall in Boston. The demonstration was a disaster. A nervous Wells set out to extract a tooth from the mouth of a student volunteer but seems to have given too little of the gas. The student moaned or cried out as the tooth was pulled and the audience, dubious from the start, now heckled and jeered. 'Humbug!'

Morton, a former student and one-time partner of Wells, was in the audience that day; he had even lent Wells some tools for the occasion. Entrepreneurial, persuasive, with the mercenary acumen of a modern pharmaceutical company, Morton already had behind him a series of questionable business transactions and angry creditors. 'He was kind of an opportunist,' said Mifflin, 'and not very well educated, always seemed to be looking for some angle [whereby] he could make money.' Wells' supporters would later argue that Morton had not only learned from Wells' mistake, but had appropriated the idea itself, only modifying it to be used with ether. Morton insisted he had come to his realisations independently; his mentor Charles Jackson later claimed to have given him the idea. Either way, on Friday, October 16, 1846, beneath the glass-domed roof of the circular operating theatre now known as the Ether Dome, Morton succeeded where Wells had failed. By December that year, ether anaesthetics had been administered in Paris and London. By January, even the sceptical French surgeon Velpeau had acknowledged it 'a glorious conquest for humanity'.

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It is a beautiful room, the Ether Dome, light settling in a sphere upon the tiers of curved benches and the empty space at the centre. The event is depicted in a large gilt-framed painting that hangs

there today. A group of dark-coated men is gathered around an unconscious Gilbert Abbott—his mind having been chemically detached from his body in the service of medicine—while others in frock coats and flouncy ties look on from the benches above. The painting was finished in 2001, commissioned by the hospital from an artist named Warren Prosperi. This was not, Mifflin explained, the famous 1882 work by Robert Hinckley that depicts the same event and now hangs several kilometres away in the portly opulence of the Harvard Medical Library. That painting, while dramatic, was not entirely accurate. Hinckley, perhaps carried away with the sense of occasion, had added a few extra observers.

Mifflin had helped with the research for the new painting, going through various archives including the one at Massachusetts General over which he presided, digging out old drawings and portraits of the men known to have been there on the day. He was also among the modern-day hospital staff who in 2000 dressed up smartly and posed as surgical staff and onlookers to help the artist recreate the moment. 'I'm in the top row there, on the far right in the last row,' he told me, pointing. Then, almost as an afterthought: 'My head is cut off.'

If you look you will see a torso that may well be Mifflin's, though it is hard to tell. The distinctive Mifflin head with its tufts of grey and its opinions and musings ('Under a spreading chestnut tree,' he murmured absently at Longfellow's grave) had been detached, this time in the service of art.

In the excitement following Morton's coup, the newspapers were full of it. What they didn't mention, which surgeon Henry Bigelow would later record in an article in the *Boston Medical and Surgical Journal* was this: 'During the operation the patient muttered, as in a semi-conscious state, and afterwards stated that the pain was considerable, though mitigated; in his own words, as though the skin had been scratched with a hoe.' While there was no doubting that it

was a great improvement on the alternative, Gilbert Abbott's mind had not, as it turned out, been detached from his body; not fully.

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Paradoxically, anaesthetic awareness—at least the sort of awareness experienced by Rachel Benmayor—is a side effect of progress. Until the 1940s it was very easy to know if a patient was conscious or in unendurable pain. If you cut into a person who was not fully anaesthetised, they would let you know. In fact, the likelihood of awareness was pretty low, because doctors had to give a lot of anaesthetic to quell the body's unconscious reflexive movements. 'It's much easier to make someone unconscious than to make them stop moving,' the Royal Prince Alfred's Chris Thompson told me. Long after a person loses awareness, their body may still flinch from the knife. The problem for early anaesthetists was how to keep the patient still enough to operate safely, without giving so much anaesthetic they killed them.

It took until 1942 for Canadian anaesthetists to act on what Sir Walter Raleigh had known in 1596—and the indigenous people of South America for much longer—that the poison curare, derived from a native plant, caused paralysis. The neuromuscular blocking drugs developed since then have revolutionised surgery, particularly abdominal and chest operations where muscle contraction had made cutting and stitching almost impossible. The brain/body still broadcasts its storm warnings along the wiring of the central nervous system, but the blocking agents prevent the muscle from getting the message. By deactivating the muscles, anaesthetists can use lighter, safer anaesthetic doses, while still keeping the patient unconscious.

Muscle blocks are now common: they are used in nearly half of all general anaesthetics in Britain alone. But there are trade-offs. The drugs disable the muscles between the ribs so that patients are

no longer able to breathe for themselves and must be ‘ventilated’ with a machine (basically a hi-tech bellows), meaning the anaesthetist needs to insert a breathing tube into the patient’s windpipe. And, in quelling the body’s unconscious reflexive movements, the blocks also make conscious movement impossible.

This doesn’t have to be a problem, particularly if you are not in pain. About half the people who wake unexpectedly during surgery are apparently OK with it. Some are intrigued. One Italian woman who woke peacefully during the caesarean birth of her first child told researchers she had been happy simply to have been present for the arrival of her baby. But the muscle blocks also take away the ability of people like Rachel Benmayor to defend themselves. To compensate, anaesthetists still routinely overestimate the amount of anaesthetic that should be given by an estimated thirty per cent. This has costs, both financial and physiological. And even then it does not guarantee that no one will be aware.

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In my study I have a row of old glass photographic negatives that lean against the window, a series of blurred and receding landscapes I picked up at junk shop. Individually they are hard to read, but grouped together they make patterns I find pleasing and restful. If I now take the glass plates and lay them on top of each other, something else begins to happen. Plate by plate the patterns deepen and darken, an accumulation of negatives that might in time reveal itself in a three-dimensional outline—a boulder, a heart, a horse’s head—or alternatively and eventually darkness.

When I think about anaesthesia I think sometimes about darkness, but I think also about that dark reveal. I think about layers of silvered glass that in time will blur or liquefy (and eventually fragment and float apart); a lipid emulsion that both sinks and separates,

and that must in the end rise and be reconstituted. A fluid mosaic.

This is not what I think about when I think about Rachel Benmayor. When I think about Rachel I imagine a single clear pane pressing down on her, through which she can see and hear and feel but through which she can neither be seen nor heard nor felt. It looks like anaesthesia but it is not.

Anaesthesia
Sample Chapter