Yeyuka a short story by Greg Egan

On my last day in Sydney, as a kind of farewell, I spent the morning on Bondi Beach. I swam for an hour, then lay on the sand and stared at the sky. I dozed off for a while, and when I woke there were half a dozen booths set up amid the sun bathers, dispensing the latest fashion: solar tattoos. On a touch-screen the size of a full-length mirror, you could choose a design and then customise it, or create one from scratch with software assistance. Computer-controlled jets sprayed the undeveloped pigments onto your skin, then an hour of UV exposure rendered all the colours visible.

As the morning wore on, I saw giant yellow butterflies perched between shoulder blades, torsos wrapped in green-and-violet dragons, whole bodies wreathed in chains of red hibiscus. Watching these images materialise around me, I couldn't help thinking of them as banners of victory. Throughout my childhood, there'd been nothing more terrifying than the threat of melanoma — and by the turn of the millennium, nothing more hip than neck-to-knee lycra. Twenty years later, these elaborate decorations were designed to encourage, to boast of, irradiation. To proclaim, not that the sun itself had been tamed, but that our bodies had. To declare that cancer had been defeated.

I touched the ring on my left index finger, and felt a reassuring pulse through the metal. Blood flowed constantly around the hollow core of the device, diverted from a vein in my finger. The ring's inner surface was covered with billions of tiny sensors, spring-loaded funnel-shaped structures like microscopic Venus fly-traps, each just a few hundred atoms wide. Every sizable molecule in my bloodstream that collided with one of these traps was seized and shrink-wrapped, long enough and tightly enough to determine its shape and its chemical identity before it was released.

So the ring knew exactly what was in my blood. It also knew what belonged, and what didn't. Under its relentless scrutiny, the biochemical signature of a viral or bacterial infection, or even a microscopic tumour far downstream, could never escape detection for long — and once a diagnosis was made, treatment was almost instantaneous. Planted alongside the sensors were programmable catalysts, versatile molecules that could be reshaped under computer control. The ring could manufacture a wide range of drugs from raw materials circulating in the blood, just by choosing the right sequence of shapes for these catalysts — trapping the necessary ingredients together in nooks and crannies moulded to fit like plaster casts around their combined outlines.

With medication delivered within minutes or seconds, infections were wiped out before they could take hold, tiny clusters of cancer cells destroyed before they could grow or spread. Linked by satellite to a vast array of medical databases, and as much additional computing power as it required, the ring gave me a kind of electronic immune system, fast enough and smart enough to overcome any adversary.

Not everyone on the beach that morning would have had their own personal HealthGuard, but a weekly session on a shared family unit, or even a monthly check-up at their local GP, would have been enough to reduce their risk of cancer dramatically. And though melanoma was the least of my worries — fair-skinned, I was covered in sunscreen as usual; fatal or not, getting burnt was painful — with the ring standing guard against ten thousand other possibilities, I'd come to think of it as a

vital part of my body. The day I'd installed it, my life expectancy had risen by fifteen years — and no doubt my bank's risk-assessment software had assumed a similar extension to my working life, since I'd be paying off the loan I'd needed to buy the thing well into my sixties.

I tugged gently at the plain metal band, until I felt a sharp warning from the needle-thin tubes that ran deep into the flesh. This model wasn't designed to be slipped on and off in an instant like the shared units, but it would only take a five minute surgical procedure under local anaesthetic to remove it. In Uganda, a single HealthGuard machine served 40 million people — or rather, the lucky few who could get access to it. Flying in wearing my own personal version seemed almost as crass as arriving with a giant solar tattoo. Where I was headed, cancer had very definitely not been defeated.

Then again, nor had malaria, typhoid, yellow fever, schistosomiasis. I could have the ring immunise me against all of these and more, before removing it … but the malaria parasite was notoriously variable, so constant surveillance would provide far more reliable protection. I'd be no use to anyone lying in a hospital bed for half my stay. Besides, the average villager or shanty-town dweller probably wouldn't even recognise the thing, let alone resent it. I was being hypersensitive.

I gathered up my things and headed for the cycle rack. Looking back across the sand, I felt the kind of stab of regret that came upon waking from a dream of impossible good fortune and serenity, and for a moment I wanted nothing more than to close my eyes and rejoin it.

Lisa saw me off at the airport.

I said, "It's only three months. It'll fly past." I was reassuring myself, not her.

"It's not too late to change your mind." She smiled calmly; no pressure, it was entirely my decision. In her eyes, I was clearly suffering from some kind of disease — a very late surge of adolescent idealism, or a very early mid-life crisis — but she'd adopted a scrupulously non-judgmental bedside manner. It drove me mad.

"And miss my last chance ever to perform cancer surgery?" That was a slight exaggeration; a few cases would keep slipping through the HealthGuard net for years. Most of my usual work was trauma, though, which was going through changes of its own. Computerised safeguards had made traffic accidents rare, and I suspected that within a decade no one would get the chance to stick their hand in a conveyor belt again. If the steady stream of gunshot and knife wounds ever dried up, I'd have to retrain for nose jobs and reconstructing rugby players. "I should have gone into obstetrics, like you."

Lisa shook her head. "In the next twenty years, they'll crack all the molecular signals, within and between mother and foetus. There'll be no premature births, no Caesareans, no complications. The HealthGuard will smooth my job away, too." She added, deadpan, "Face it, Martin, we're all doomed to obsolescence."

"Maybe. But if we are … it'll happen sooner in some places than others."

“And when the time comes, you might just head off to some place where you’re still needed?”

She was mocking me, but I took the question seriously. “Ask me that when I get back. Three months without mod cons and I might be cured for life.”

My flight was called. We kissed goodbye. I suddenly realised that I had no idea why I was doing this. The health of distant strangers? Who was I kidding? Maybe I’d been trying to fool myself into believing that I really was that selfless — hoping all the while that Lisa would talk me out of it, offering some face-saving excuse for me to stay. I should have known she’d call my bluff instead.

I said plainly, “I’m going to miss you. Badly.”

“I should hope so.” She took my hand, scowling, finally accepting the decision. “You’re an idiot, you know. Be careful.”

“I will.” I kissed her again, then slipped away.

I was met at Entebbe airport by Magdalena Iganga, one of the oncologists on a small team that had been put together by Médecins Sans Frontičres to help overburdened Ugandan doctors tackle the growing number of Yeyuka cases. Iganga was Tanzanian, but she’d worked throughout eastern Africa, and as she drove her battered ethanol-powered car the thirty kilometres into Kampala, she recounted some of her brushes with the World Health Organisation in Nairobi.

“I tried to persuade them to set up an epidemiological database for Yeyuka. Good idea, they said. Just put a detailed proposal to the cancer epidemiology expert committee. So I did. And the committee said, we like your proposal, but oh dear, Yeyuka is a contagious disease, so you’ll have to submit this to the contagious diseases expert committee instead. Whose latest annual sitting I’d just missed by a week.” Iganga sighed stoically. “Some colleagues and I ended up doing it ourselves, on an old 386 and a borrowed phone line.”

“Three eight what?”

She shook her head. “Palaeocomputing jargon, never mind.”

Though we were dead on the equator and it was almost noon, the temperature must have been 30 at most; Kampala was high above sea level. A humid breeze blew off Lake Victoria, and low clouds rolled by above us, gathering threateningly then dissipating, again and again. I’d been promised that I’d come for the dry season; at worst there’d be occasional thunderstorms.

On our left, between patches of marshland, small clusters of shacks began to appear. As we drew closer to the city, we passed through layers of shanty towns, the older and more organised verging on a kind of bedraggled suburbia, others looking more like out-and-out refugee camps. The tumours caused by the Yeyuka virus tended to spread fast but grow slowly, often partially disabling people for years before killing them, and when they could no longer manage heavy rural labour, they usually

headed for the nearest city in the hope of finding work. Southern Uganda had barely recovered from HIV when Yeyuka cases began to appear, around 2013; in fact, some virologists believed that Yeyuka had arisen from a less virulent ancestor after gaining a foothold within the immune-suppressed population. And though Yeyuka wasn't as contagious as cholera or tuberculosis, crowded conditions, poor sanitation and chronic malnourishment set up the shanty towns to bear the brunt of the epidemic.

As we drove north between two hills, the centre of Kampala appeared ahead of us, draped across a hill of its own. Compared to Nairobi, which I'd flown over a few hours before, Kampala looked uncluttered. The streets and low buildings were laid out in a widely-spaced plan, neatly organised but lacking any rigid geometry of grid lines or concentric circles. There was plenty of traffic around us, both cycles and cars, but it flowed smoothly enough, and for all the honking and shouting going on the drivers seemed remarkably good humoured.

Iganga took a detour to the east, skirting the central hill. There were lushly green sports grounds and golf courses on our right, colonial-era public buildings and high-fenced foreign embassies on our left. There were no high-rise slums in sight, but there were makeshift shelters and even vegetable gardens on some stretches of parkland, traces of the shanty towns spreading inwards.

In my jet-lagged state, it was amazing to find that this abstract place that I'd been imagining for months had solid ground, actual buildings, real people. Most of my second-hand glimpses of Uganda had come from news clips set in war zones and disaster areas; from Sydney, it had been almost impossible to conceive of the country as anything more than a frantically edited video sequence full of soldiers, refugees, and fly-blown corpses. In fact, rebel activity was confined to a shrinking zone in the country's far north, most of the last wave of Zairean refugees had gone home a year ago, and while Yeyuka was a serious problem, people weren't exactly dropping dead in the streets.

Makerere University was in the north of the city; Iganga and I were both staying at the guest house there. A student showed me to my room, which was plain but spotlessly clean; I was almost afraid to sit on the bed and rumple the sheets. After washing and unpacking, I met up with Iganga again and we walked across the campus to Mulago Hospital, which was affiliated with the university medical school. There was a soccer team practising across the road as we went in, a reassuringly mundane sight.

Iganga introduced me to nurses and porters left and right; everyone was busy but friendly, and I struggled to memorise the barrage of names. The wards were all crowded, with patients spilling into the corridors, a few in beds but most on mattresses or blankets. The building itself was dilapidated, and some of the equipment must have been thirty years old, but there was nothing squalid about the conditions; all the linen was clean, and the floor looked and smelt like you could do surgery on it.

In the Yeyuka ward, Iganga showed me the six patients I'd be operating on the next day. The hospital did have a CAT scanner, but it had been broken for the past six months, waiting for money for replacement parts, so flat X-rays with cheap contrast agents like barium were the most I could hope for. For some tumours, the only guide to location and extent was plain old palpation. Iganga guided my hands, and kept me from applying too much pressure; she'd had a great deal more experience at this than I had, and an over-zealous beginner could do a lot of damage. The world of three-dimensional images spinning on my workstation while the software advised on the choice of incision

had receded into fantasy. Stubbornly, though, I did the job myself; gently mapping the tumours by touch, picturing them in my head, marking the X-rays or making sketches.

I explained to each patient where I'd be cutting, what I'd remove, and what the likely effects would be. Where necessary, Iganga translated for me — either into Swahili, or what she described as her "broken Luganda." The news was always only half good, but most people seemed to take it with a kind of weary optimism. Surgery was rarely a cure for Yeyuka, usually just offering a few years' respite, but it was currently the only option. Radiation and chemotherapy were useless, and the hospital's sole HealthGuard machine couldn't generate custom-made molecular cures for even a lucky few; seven years into the epidemic, Yeyuka wasn't yet well enough understood for anyone to have written the necessary software.

By the time I was finished it was dark outside. Iganga asked, "Do you want to look in on Ann's last operation?" Ann Collins was the Irish volunteer I was replacing.

"Definitely." I'd watched a few operations performed here, on video back in Sydney, but no VR scenarios had been available for proper "hands on" rehearsals, and Collins would only be around to supervise me for a few more days. It was a painful irony: foreign surgeons were always going to be inexperienced, but no one else had so much time on their hands. Ugandan medical students had to pay a small fortune in fees — the World Bank had put an end to the new government's brief flirtation with state-subsidised training — and it looked like there'd be a shortage of qualified specialists for at least another decade.

We donned masks and gowns. The operating theatre was like everything else, clean but outdated. Iganga introduced me to Collins, the anaesthetist Eriya Okwera, and the trainee surgeon Balaki Masika.

The patient, a middle-aged man, was covered in orange Betadine-soaked surgical drapes, arranged around a long abdominal incision. I stood beside Collins and watched, entranced. Growing within the muscular wall of the small intestine was a grey mass the size of my fist, distending the peritoneum, the organ's translucent "skin", almost to bursting point. It would certainly have been blocking the passage of food; the patient must have been on liquids for months.

The tumour was very loose, almost like a giant discoloured blood clot; the hardest thing would be to avoid dislodging any cancerous cells in the process of removing it, sending them back into circulation to seed another tumour. Before making a single cut in the intestinal wall, Collins used a laser to cauterise all the blood vessels around the growth, and she didn't lay a finger on the tumour itself at any time. Once it was free, she lifted it away with clamps attached to the surrounding tissue, as fastidiously as if she was removing a leaky bag full of some fatal poison. Maybe other tumours were already growing unseen in other parts of the body, but doing the best possible job, here and now, might still add three or four years to this man's life.

Masika began stitching the severed ends of the intestine together. Collins led me aside and showed me the patient's X-rays on a light-box. "This is the site of origin." There was a cavity clearly visible in the right lung, about half the size of the tumour she'd just removed. Ordinary cancers grew in a single location first, and then a few mutant cells in the primary tumour escaped to seed growths in the rest of

the body. With Yeyuka, there were no "primary tumours"; the virus itself uprooted the cells it infected, breaking down the normal molecular adhesives that kept them in place, until the infected organ seemed to be melting away. That was the origin of the name: yeyuka, to melt. Once set loose into the bloodstream, many of the cells died of natural causes, but a few ended up lodged in small capillaries — physically trapped, despite their lack of stickiness — where they could remain undisturbed long enough to grow into sizable tumours.

After the operation, I was invited out to a welcoming dinner in a restaurant down in the city. The place specialised in Italian food, which was apparently hugely popular, at least in Kampala. Iganga, Collins and Okwera, old colleagues by now, unwound noisily; Okwera, a solid man in his forties, grew mildly but volubly intoxicated and told medical horror stories from his time in the army. Masika, the trainee surgeon, was very softly spoken and reserved. I was something of a zombie from jet lag myself, and didn't contribute much to the conversation, but the warm reception put me at ease.

I still felt like an impostor, here only because I hadn't had the courage to back out, but no one was going to interrogate me about my motives. No one cared. It wouldn't make the slightest difference whether I'd volunteered out of genuine compassion, or just a kind of moral insecurity brought on by fears of obsolescence. Either way, I'd brought a pair of hands and enough general surgical experience to be useful. If you'd ever had to be a saint to heal someone, medicine would have been doomed from the start.

I was nervous as I cut into my first Yeyuka patient, but by the end of the operation, with a growth the size of an orange successfully removed from the right lung, I felt much more confident. Later the same day, I was introduced to some of the hospital's permanent surgical staff — a reminder that even when Collins left, I'd hardly be working in isolation. I fell asleep on the second night exhausted, but reassured. I could do this, it wasn't beyond me. I hadn't set myself an impossible task.

I drank too much at the farewell dinner for Collins, but the HealthGuard magicked the effects away. My first day solo was anticlimactic; everything went smoothly, and Okwera, with no high-tech hangover cure, was unusually subdued, while Masika was as quietly attentive as ever.

Six days a week, the world shrank to my room, the campus, the ward, the operating theatre. I ate in the guest house, and usually fell asleep an hour or two after the evening meal; with the sun diving straight below the horizon, by eight o'clock it felt like midnight. I tried to call Lisa every night, though I often finished in the theatre too late to catch her before she left for work, and I hated leaving messages, or talking to her while she was driving.

Okwera and his wife invited me to lunch the first Sunday, Masika and his girlfriend the next. Both couples were genuinely hospitable, but I felt like I was intruding on their one day together. The third Sunday, I met up with Iganga in a restaurant, then we wandered through the city on an impromptu tour.

There were some beautiful buildings in Kampala, many of them clearly war-scarred but lovingly repaired. I tried to relax and take in the sights, but I kept thinking of the routine — six operations, six days a week — stretching out ahead of me until the end of my stay. When I mentioned this to Iganga,

she laughed. “All right. You want something more than assembly-line work? I’ll line up a trip to Mubende for you. They have patients there who are too sick to be moved. Multiple tumours, all nearly terminal.”

“Okay.” Me and my big mouth; I knew I hadn’t been seeing the worst cases, but I hadn’t given much thought to where they all were.

We were standing outside the Sikh temple, beside a plaque describing Idi Amin’s expulsion of Uganda’s Asian community in 1972. Kampala was dotted with memorials to atrocities — and though Amin’s reign had ended more than forty years ago, it had been a long path back to normality. It seemed unjust beyond belief that even now, in an era of relative political stability, so many lives were being ruined by Yeyuka. No more refugees marching across the countryside, no more forced expulsions — but cells cast adrift could bring just as much suffering.

I asked Iganga, “So why did you go into medicine?”

“Family expectations. It was either that or the law. Medicine seemed less arbitrary; nothing in the body can be overturned by an appeal to the High Court. What about you?”

I said, “I wanted to be in on the revolution. The one that was going to banish all disease.”

“Ah, that one.”

“I picked the wrong job, of course. I should have been a molecular biologist.”

“Or a software engineer.”

“Yeah. If I’d seen the HealthGuard coming fifteen years ago, I might have been right at the heart of the changes. And I’d have never looked back. Let alone sideways.”

Iganga nodded sympathetically, quite unfazed by the notion that molecular technology might capture the attention so thoroughly that little things like Yeyuka epidemics would vanish from sight altogether. “I can imagine. Seven years ago, I was all set to make my fortune in one of the private clinics in Dar es Salaam. Rich businessmen with prostate cancer, that kind of thing. I was lucky in a way; before that market vanished completely, the Yeyuka fanatics were nagging me, bullying me, making little deals.” She laughed. “I’ve lost count of the number of times I was promised I’d be co-author of a ground breaking paper in Nature Oncology if I just helped out at some field clinic in the middle of nowhere. I was dragged into this, kicking and screaming, just when all my old dreams were going up in smoke.”

“But now Yeyuka feels like your true vocation?”

She rolled her eyes. “Spare me. My ambition now is to retire to a highly paid consulting position in Nairobi or Geneva.”

“I’m not sure I believe you.”

“You should.” She shrugged. “Sure, what I’m doing now is a hundred times more useful than any desk

job, but that doesn't make it any easier. You know as well as I do that the warm inner glow doesn't last for a thousand patients; if you fought for every one of them as if they were your own family or friends, you'd go insane … so they become a series of clinical problems, which just happen to be wrapped in human flesh. And it's a struggle to keep working on the same problems, over and over, even if you're convinced that it's the most worthwhile job in the world."

"So why are you in Kampala right now, instead of Nairobi or Geneva?"

Iganga smiled. "Don't worry, I'm working on it. I don't have a date on my ticket out of here, like you do, but when the chance comes, believe me, I'll grab it just as fast as I can."

It wasn't until my sixth week, and my two-hundred-and-fourth operation, that I finally screwed up.

The patient was a teenaged girl with multiple infestations of colon cells in her liver. A substantial portion of the organ's left lobe would have to be removed, but her prognosis seemed relatively good; the right lobe appeared to be completely clean, and it was not beyond hope that the liver, directly downstream from the colon, had filtered all the infected cells from the blood before they could reach any other part of the body.

Trying to clamp the left branch of the portal vein, I slipped, and the clamp closed tightly on a swollen cyst at the base of the liver, full of grey-white colon cells. It didn't burst open, but it might have been better if it had; I couldn't literally see where the contents was squirted, but I could imagine the route very clearly: back as far as the Y-junction of the vein, where the blood flow would carry cancerous cells into the previously unaffected right lobe.

I swore for ten seconds, enraged by my own helplessness. I had none of the emergency tools I was used to: there was no drug I could inject to kill off the spilt cells while they were still more vulnerable than an established tumour, no vaccine on hand to stimulate the immune system into attacking them.

Okwera said, "Tell the parents you found evidence of leakage, so she'll need to have regular follow-up examinations."

I glanced at Masika, but he was silent.

"I can't do that."

"You don't want to cause trouble."

"It was an accident!"

"Don't tell her, and don't tell her family." Okwera regarded me sternly, as if I was contemplating something both dangerous and self-indulgent. "It won't help anyone if you dive into the shit for this. Not her, not you. Not the hospital. Not the volunteer program."

The girl's mother spoke English. I told her there were signs that the cancer might have spread. She wept, and thanked me for my good work.

Masika didn't say a word about the incident, but by the end of the day I could hardly bear to look at him. When Okwera departed, leaving the two of us alone in the locker room, I said, "In three or four years there'll be a vaccine. Or even HealthGuard software. It won't be like this forever."

He shrugged, embarrassed. "Sure."

"I'll raise funds for the research when I get home. Champagne dinners with slides of photogenic patients, if that's what it takes." I knew I was making a fool of myself, but I couldn't shut up. "This isn't the nineteenth century. We're not helpless anymore. Anything can be cured, once you understand it."

Masika eyed me dubiously, as if he was trying to decide whether or not to tell me to save my platitudes for the champagne dinners. Then he said, "We do understand Yeyuka. We have HealthGuard software written for it, ready and waiting to go. But we can't run it on the machine here. So we don't need funds for research. What we need is another machine."

I was speechless for several seconds, trying to make sense of this extraordinary claim. "The hospital's machine is broken — ?"

Masika shook his head. "The software is unlicensed. If we used it on the hospital's machine, our agreement with HealthGuard would be void. We'd lose the use of the machine entirely."

I could hardly believe that the necessary research had been completed without a single publication, but I couldn't believe Masika would lie about it either. "How long can it take HealthGuard to approve the software? When was it submitted to them?"

Masika was beginning to look like he wished he'd kept his mouth shut, but there was no going back now. He admitted warily, "It hasn't been submitted to them. It can't be — that's the whole problem. We need a bootleg machine, a decommissioned model with the satellite link disabled, so we can run the Yeyuka software without their knowledge."

"Why? Why can't they find out about it?"

He hesitated. "I don't know if I can tell you that."

"Is it illegal? Stolen?" But if it was stolen, why hadn't the rightful owners licensed the damned thing, so people could use it?

Masika replied icily, "Stolen back. The only part you could call stolen was stolen back." He looked away for a moment, actually struggling for control. Then he said, "Are you sure you want to know the whole story?"

"Yes."

“Then I’ll have to make a phone call.”

Masika took me to what looked like a boarding house, student accommodation in one of the suburbs close to the campus. He walked briskly, giving me no time to ask questions, or even orient myself in the darkness. I had a feeling he would have liked to have blindfolded me, but it would hardly have made a difference; by the time we arrived I couldn’t have said where we were to the nearest kilometre.

A young woman, maybe nineteen or twenty, opened the door. Masika didn’t introduce us, but I assumed she was the person he’d phoned from the hospital, since she was clearly expecting us. She led us to a ground floor room; someone was playing music upstairs, but there was no one else in sight.

In the room, there was a desk with an old-style keyboard and computer monitor, and an extraordinary device standing on the floor beside it: a rack of electronics the size of a chest of drawers, full of exposed circuit boards, all cooled by a fan half a metre wide.

“What is that?”

The woman grinned. “We modestly call it the Makerere supercomputer. Five hundred and twelve processors, working in parallel. Total cost, fifty thousand shillings.”

That was about fifty dollars. “How—?”

“Recycling. Twenty or thirty years ago, the computer industry ran an elaborate scam: software companies wrote deliberately inefficient programs, to make people buy newer, faster computers all the time — then they made sure that the faster computers needed brand new software to work at all. People threw out perfectly good machines every three or four years, and though some ended up as landfill, millions were saved. There’s been a worldwide market in discarded processors for years, and the slowest now cost about as much as buttons. But all it takes to get some real power out of them is a little ingenuity.”

I stared at the wonderful contraption. “And you wrote the Yeyuka software on this?”

“Absolutely.” She smiled proudly. “First, the software characterises any damaged surface adhesion molecules it finds — there are always a few floating freely in the bloodstream, and their exact shape depends on the strain of Yeyuka, and the particular cells that have been infected. Then drugs are tailor-made to lock on to those damaged adhesion molecules, and kill the infected cells by rupturing their membranes.” As she spoke, she typed on the keyboard, summoning up animations to illustrate each stage of the process. “If we can get this onto a real machine … we’ll be able to cure three people a day.”

Cure. Not just cut them open to delay the inevitable.

“But where did all the raw data come from? The RNA sequencing, the X-ray diffraction studies…?”

The woman's smile vanished. "An insider at HealthGuard found it in the company archives, and sent it to us over the net."

"I don't understand. When did HealthGuard do Yeyuka studies? Why haven't they published them? Why haven't they written software themselves?"

She glanced uncertainly at Masika. He said, "HealthGuard's parent company collected blood from five thousand people in Southern Uganda in 2013. Supposedly to follow up on the effectiveness of their HIV vaccine. What they actually wanted, though, was a large sample of metastasising cells so they could perfect the biggest selling point of the HealthGuard: cancer protection. Yeyuka offered them the cheapest, simplest way to get the data they needed."

I'd been half expecting something like this since Masika's comments back in the hospital, but I was still shaken. To collect the data dishonestly was bad enough, but to bury information that was half-way to a cure — just to save paying for what they'd taken — was unspeakable.

I said, "Sue the bastards! Get everyone who had samples taken together for a class action: royalties plus punitive damages. You'll raise hundreds of millions of dollars. Then you can buy as many machines as you want."

The woman laughed bitterly. "We have no proof. The files were sent anonymously, there's no way to authenticate their origin. And can you imagine how much HealthGuard would spend on their defence? We can't afford to waste the next twenty years in a legal battle, just for the satisfaction of shouting the truth from the rooftops. The only way we can be sure of making use of this software is to get a bootleg machine, and do everything in silence."

I stared at the screen, at the cure being played out in simulation that should have been happening three times a day in Mulago hospital. She was right, though. However hard it was to stomach, taking on HealthGuard directly would be futile.

Walking back across the campus with Masika, I kept thinking of the girl with the liver infestation, and the possibility of undoing the moment of clumsiness that would otherwise almost certainly kill her. I said, "Maybe I can get hold of a bootleg machine in Shanghai. If I knew where to ask, where to look." They'd certainly be expensive, but they'd have to be much cheaper than a commissioned model, running without the usual software and support.

My hand moved almost unconsciously to check the metal pulse on my index finger. I held the ring up in the starlight. "I'd give you this, if it was mine to give. But that's thirty years away." Masika didn't reply, too polite to suggest that if I'd owned the ring outright, I wouldn't even have raised the possibility.

We reached the University Hall; I could find my way back to the guest house now. But I couldn't leave it at that; I couldn't face another six weeks of surgery unless I knew that something was going to come of the night's revelations. I said, "Look, I don't have connections to any black market, I don't have a clue how to go about getting a machine. But if you can find out what I have to do, and it's within my power … I'll do it."

Masika smiled, and nodded thanks, but I could tell that he didn't believe me. I wondered how many other people had made promises like this, then vanished back into the world-without-disease while the Yeyuka wards kept overflowing.

As he turned to go, I put a hand on his shoulder to stop him. "I mean it. Whatever it takes, I'll do it."

He met my eyes in the dark, trying to judge something deeper than this easy protestation of sincerity. I felt a sudden flicker of shame; I'd completely forgotten that I was an impostor, that I'd never really meant to come here, that two months ago a few words from Lisa would have seen me throw away my ticket, gratefully.

Masika said quietly, "Then I'm sorry that I doubted you. And I'll take you at your word."

Mubende was a district capital, half a day's drive west of Kampala. Iganga delayed our promised trip to the Yeyuka clinic there until my last fortnight, and once I arrived I could understand why. It was everything I'd feared: starved of funds, under-staffed and over-crowded. Patients' relatives were required to provide and wash the bedclothes, and half of them also seemed to be bringing in painkillers and other drugs bought at the local markets — some genuine, some ripoffs full of nothing but glucose or magnesium sulphate.

Most of the patients had four or five separate tumours. I treated two people a day, with operations lasting six to eight hours. In ten days, seven people died in front of me; dozens more died in the wards, waiting for surgery.

Or waiting for something better.

I shared a crowded room at the back of the clinic with Masika and Okwera, but even on the rare occasions when I caught Masika alone, he seemed reluctant to discuss the details of getting hold of a bootleg HealthGuard. He said, "Right now, the less you know the better. When the time comes, I'll fill you in."

The ordeal of the patients was overwhelming, but I felt more for the clinic's sole doctor and two nurses; for them, it never ended. The morning we packed our equipment into the truck and headed back for Kampala, I felt like a deserter from some stupid, pointless war: guilty about the colleagues I was leaving behind, but almost euphoric with relief to be out of it myself. I knew I couldn't have stayed on here — or even in Kampala — month after month, year after year. However much I wished that I could have been that strong, I understood now that I wasn't.

There was a brief, loud stuttering sound, then the truck squealed to a halt. The four of us were all in the back, guarding the equipment against potholes, with the tarpaulin above us blocking everything but a narrow rear view. I glanced at the others; someone outside shouted in Luganda at Akena Ibingira, the driver, and he started shouting back.

Okwera said, “Bandits.”

I felt my heart racing. “You’re kidding?”

There was another burst of gunfire. I heard Ibingira jump out of the cab, still muttering angrily.

Everyone was looking at Okwera for advice. He said, “Just cooperate, give them what they want.” I tried to read his face; he seemed grim but not desperate — he expected unpleasantness, but not a massacre. Iganga was sitting on the bench beside me; I reached for her hand almost without thinking. We were both trembling. She squeezed my fingers for a moment, then pulled free.

Two tall, smiling men in dirty brown camouflage appeared at the back of the truck, gesturing with automatic weapons for us to climb out. Okwera went first, but Masika, who’d been sitting beside him, hung back. Iganga was nearer to the exit than me, but I tried to get past her; I had some half-baked idea that this would somehow lessen her risk of being taken off and raped. When one of the bandits blocked my way and waved her forward, I thought this fear had been confirmed.

Masika grabbed my arm, and when I tried to break free, he tightened his grip and pulled me back into the truck. I turned on him angrily, but before I could say a word he whispered, “She’ll be all right. Just tell me: do you want them to take the ring?”

“What?”

He glanced nervously towards the exit, but the bandits had moved Okwera and Iganga out of sight. “I’ve paid them to do this. It’s the only way. But say the word now and I’ll give them the signal, and they won’t touch the ring.”

I stared at him, waves of numbness sweeping over my skin as I realised exactly what he was saying.

“You could have taken it off under anaesthetic.”

He shook his head impatiently. “It’s sending data back to HealthGuard all the time: cortisol, adrenaline, endorphins, prostaglandins. They’ll have a record of your stress levels, fear, pain … if we took it off under anaesthetic, they’d know you’d given it away freely. This way, it’ll look like a random theft. And your insurance company will give you a new one.”

His logic was impeccable; I had no reply. I might have started protesting about insurance fraud, but that was all in the future, a separate matter entirely. The choice, here and now, was whether or not I let him have the ring by the only method that wouldn’t raise suspicion.

One of the bandits was back, looking impatient. Masika asked plainly, “Do I call it off? I need an answer.” I turned to him, on the verge of ranting that he’d wilfully misunderstood me, abused my generous offer to help him, and put all our lives in danger.

It would have been so much bullshit, though. He hadn’t misunderstood me. All he’d done was taken me at my word.

I said, “Don’t call it off.”

The bandits lined us up beside the truck, and had us empty our pockets into a sack. Then they started taking watches and jewellery. Okwera couldn’t get his wedding ring off, but stood motionless and scowling while one of the bandits applied more force. I wondered if I’d need a prosthesis, if I’d still be able to do surgery, but as the bandit approached me I felt a strange rush of confidence.

I held out my hand and looked up into the sky. I knew that anything could be healed, once it was understood.