Alberto Giuliani

The Immortals
Stories from Our Future

English proposal

Many years ago, my early infatuation with travelling when I was still just a child, led me to a small town in India called Vrindavan. It was there, under an ancient sky suffused with the aroma of spices and Indian incense, in a crowded alleyway and amid the pungent odours of exotic foods being cooked on every corner, I met Mr. Sharma. He was a venerated Brahmin from whom people sought blessings and favours, but more than anything, they went to him to know what their future held. Mr. Sharma was famous for his powers of divination and, allegedly, his premonitions were never wrong. He invited me to his home, a luxurious townhouse filled with magnificent furnishings, kilim rugs on the walls and a hexagonal fountain in the centre of the courtyard. He seemed to have something important he wanted to tell me and his expression did not bode well. "Give me your hands so I can read your future." What I learned is one of the main reasons I wrote this book: "You will die young, age forty-five." With these words the Brahmin had sealed my fate. From that day on, my life as a journalist and explorer revolved around a single goal — to find a way to defy death, someone who could reverse this horrifying prophecy and, in a much broader sense, to learn how the massive changes facing the planet were being addressed. Changes which, for the first time in world history, were jeopardizing the survival of a large part of the population. After all, there was a prophesy for that too —humankind itself was said to face extinction.

In pursuit of such answers, I crossed the globe, from the desolate wastelands of a dusty America to the suburbs of great Asian cities, from down south in Cornwall to the North Pole. I climbed atop vertiginous peaks, I traversed a volcano under which astronauts were simulating life on Mars, I descended to the centre of the earth, like Orpheus going into the underworld to retrieve his true love, only the steps I took led to the cities of the future, havens deep in the earth's core, safe from outside cataclysms. The things I learned, and the people I had the privilege of meeting — scientists, luminaries, astronauts, researchers, visionaries, politicians — were more than anything I could ever have imagined.

They all agreed on one thing — that within one hundred years, possibly even less, humanity will become extinct. Deforestation, desertification, war, migration, global warming, unprecedented famine, will bring human existence to an end. The meteorologists at Ny-Ålesund, the permanent research institute at the northernmost location in the world, all said it; American millionaires are in no doubt about it and have already purchased a home in one of the luxury underground bunkers built to provide shelter from the apocalypse; NASA astronauts frequently say it having spent years studying how to survive on other planets when our own one forces us to abandon it.

But we know all this already. It's part of our past. What we still have to fully comprehend is what we're doing to assure our survival in the future, and what the future of our species might be. For the first time in human history, survival is no longer just an ambition, a biological instinct, but a commandment, a goal to be pursued at all costs.

This book, The Immortals, therefore explores, chapter by chapter, the many things science is doing to prepare for our future, from cloning to biospheres, cryo-preservation, and genetic experiments, taking the reader to places in which the last remaining humans are mounting the ultimate resistance. I met with NASA astronauts heading for Mars, the inventors of Japan's humanoid robots and the people freezing themselves until they can be reborn. I lived with guardians of the climate at the North Pole, talked to the people hoping to redeem mankind and save the world's forests under huge glass domes. I spoke to the scientists who built an artificial sun more powerful than the real one and met with politicians who aim to save biodiversity by locking it in a bunker. I've seen people ready for the apocalypse, eaten transgenic fish and vegetables that don't exist in the natural world, crossed paths with researchers who clone, snip and re-stitch DNA at the vanguard of eugenics. I sought guidance from all of them and asked my questions about the future. But like me, all they can do and are doing is looking for a way to defy death.

In *The Immortals* I wanted to describe everything I learned and take you, the reader, on a trip to the frontiers of humanity, conveying the great rigour of the experts I encountered while also weaving together their stories into what I hope will become the book of life after the self-destruction of planet Earth, the narration of a time we think is still far away in the future but is actually already here.

And I want to prove it.

Chapters outline

1. The Prophecy

This journey started one night many years ago, in the home of a Brahmin in Vrindavan, India, on the banks of the river Yamuna, against the blue of Krishna. Little more than a boy, I'd wandered to that distant place in search of something, without knowing exactly what. When I eventually stumbled on it, it turned out to be the date of my death. After reading my palms, the Brahmin articulated with extreme precision the exact moment I would leave my earthly abode. That day was frighteningly close.

2. Our last day on Mars

On the slopes of the Mauna Loa volcano, on the Big Island of Hawaii, I was welcomed to the secret NASA base where some of the brightest scientists on the planet have lived in isolation for a year, simulating life on Mars. It's only a matter of time, we're told, until man attempts to settle the Red Planet, and NASA is already training its astronauts for their first mission. I was the first living soul they'd met after twelve months' reclusion, and the stories they told revealed extraordinary prospects for our species.

3. The waiting room for eternity

When I left the NASA base, I went first to Phoenix to visit the head office of the Alcor Life Extension Foundation, then to Detroit to visit the Cryonic Institute. These are the only two human cryo-conservation centres in the world (a third one is about to open in Moscow) and between them, they have preserved more than five hundred bodies in liquid nitrogen, all waiting for their new life.

4. Skyscrapers of the Apocalypse

In this chapter, my voyage of discovery takes me to Concordia in the United States, site of the Survival Condo Project, namely the most luxurious underground bunker in the world. All

fifteen floors are already occupied by millionaires. On arrival, there is nothing that outwardly suggests the existence of an underground world but after a long descent in the lift, my surroundings became a thing of science-fiction. In the depths of the bunker are several luxury apartments, gyms, large kitchens, cinemas and computer rooms, even a supermarket for the rich inhabitants of this new underground city who will roam the earth's core like the last survivors of the apocalypse.

5. The Edges of the Earth

An old mining village on the Arctic ice has become the global outpost of climate change research. Ny-Alesund, the northernmost permanent civilian settlement in the world, has around twenty houses and is home to fifty or so international scientists and meteorologists who collect data every day on the state of the earth and issue warnings on its fate. The time I spent with them left me with a terrifying conviction: we are living on the brink of extinction and our chances of continued survival on this planet are slim.

6. God's gardeners

My journey in this chapter takes me to Cornwall. Here I visited the largest biomes in the world, built to overcome an impossible challenge and cultivated to show the world how beautiful nature is. They may also be the Noah's ark that will save tropical forests from extinction.

7. I am us

At Osaka University, Japan, I met professor Hiroshi Ishiguro, the man who has already built several humanoid copies of himself, sending them in his place to perform many of his everyday tasks. The research into humanoids is robot development at its peak of expression. Ishiguro's team have succeeded in conflating technology, artificial intelligence and human will. Researchers state that humanoid robots will be a part of our lives in a couple of years and general trials are already underway in Japan.

8. Cloning

One of the most moving experiences of my journey was when I entered Sooam Biotech, one of the world's biggest cloning research foundations. It is located in Seoul, Korea and when I went inside, I was set upon by litter upon litter of new-born puppies. Needless to say, they were merely clones, hundreds all from the same mother, created using secret techniques. I came away from the institute knowing that this will be our fate too.

9. How to build a human

My journey ended in China, at China National Genebank. This 50,000m^2 facility was built by the Chinese Government, who entrusted its construction to BGI, the world's biggest genomic organisation. The idea was to create a gene bank in which to store the life codes of every living being in the world. The underlying intention is clear, the challenge even more ambitious: to defeat death once and for all, to live forever — and to produce, from scratch, the human beings of the future.

10. The day I died

By the time I had completed this journey, my feelings about death, and my hope for a future in which such mortal fate would be eradicated forever, like the common cold, had radically changed. It was for this reason that, just months before the date of my eternal rest, I returned to India, to Mr. Sharma, to come to terms, once and for all, with my death.

Sample chapters

3. The Waiting Room for Eternity

The flight that took me from Hawaii to Phoenix travelled east and headed into darkness. Beneath my feet, the last pale strands of light capped the sea, ships sparkling in the blue. Then all colour disappeared as we approached the coast. The plane plunged into the clouds and its red and white lights intermittently traced the flocculent forms of the sombre sky.

A few years before, I'd seen a machine that makes clouds. It was as big as a cathedral and was like a giant barn planted in the fields of Texas. Steam spewed forth from a steel mouth, quickly thickening in the air like whipped cream and drifting off into the sky. This enormous rain factory was supposed to help combat drought. The clouds consigned to the wind flew over fields and emptied their contents on the arid soil. It was a spectacular and very clever idea but it cost more that importing wheat from Canada so the machine was ultimately switched off at the end of its first summer. I think it's a big poultry farm now.

Seeing the birth of a cloud was like uncovering the tricks of a conjuror, and up there on that plane, I looked at the sky and imagined there was a meaning, a message in every shape.

I played games with my thoughts to pass the time and asked them, since they could see everything from up there in the sky, if I was right to make this journey. If I was going in the right direction or if it was just another attempt to run away. And how would I know when it was time to stop, to go home? Would I feel it? Would there be a moment in which I realized there was nothing left to learn? Clouds converse with the wind and the blizzards, and I foolishly believed they had something to tell me. Such thoughts flew out of the window, into the milky void, as the plane rolled and yielded to the sighing air.

When the seatbelt sign lit up, the hostess asked the passengers in a firm voice if there was a doctor aboard. A few seats behind mine a young, slightly scruffy-looking man was lying on his back in the aisle. Pale and perspiring, eyes shut, he was struggling to breathe. A hostess was squeezing his hand and talking to him, a passenger was holding his legs in the air, a steward was striding down the aisle holding an oxygen canister. It's curious how quickly one can go from boredom to distress.

There was no shame in the reactions of the other passengers to this sad spectacle. Some went to the bathroom to get a better look down the aisle. Others asked the people in the seats beside them what was going on, who in turn asked those in a better position to see. In no time at all, everyone had made their own diagnosis and, amid those who had covered their mouths for fear of being infected and those who claimed the man was a drug addict, everyone wondered where the body would be put if the man were to die. The hold, someone said, locked in the bathroom under a sheet said someone else. Clearly no one wanted to have it in front of them.

Against all odds, the poor guy made it alive to Phoenix where he was loaded onto an ambulance awaiting him on the runway. But the mere thought that death could have been among us was enough to set people thinking and imagining how and where they'd rather die. Everyone joined in the superstitious conversation, as if it really were possible to choose: some opted for dying during the night, in their bed at home, some while they were having sex, someone even brought up elephants and said we should die alone in the place of our birth. The one thing that was never questioned was that the day would come for all of us. However, by a bizarre twist of fate, I was going to Phoenix because of the human cryo-preservation facility located in the city's suburbs, a place where people paid to be hibernated, frozen until they could be born again and enjoy a second life – an immortal one. There could be no better place for such a facility than a city called Phoenix.

On my arrival at the airport, I rented a flame red Mustang Cabriolet and motored off through the wide city streets with the hood down. I'd never driven a car like that before and, I have to admit, with such power under my feet, purring along a road surface that was as smooth as a billiard table, cruising pas mirror-clad skyscrapers, palm trees and cactuses, I felt truly immortal. I stopped to eat at a roadside diner which was actually an old Airstream trailer, chrome tables arranged around it. Burger and chips, in the most American part of America you could imagine. I continued east, where the arid Camelback mountains suddenly popped up on the horizon. At their feet was a shopping strip with hypermarkets, drive-ins, and car showrooms with forecourts that were as big as football pitches, all baking in the sun and dotted with flags of multiple colours. Everything was so spread out in the suburbs, buildings occasionally punctuating the emptiness, there to be visited quickly, never requiring you to actually get out of the car, coffee could be grabbed or cash withdrawn from machines with minimal effort. I felt foreign on those nameless streets while also feeling I could fill them with endless possibilities.

At the edge of the neighbourhood, just after the neon Harley Davidson sign and the desert on the horizon, I came to Alcor, the company I had travelled this far to visit. It was housed in a grey, windowless building, identical to the many others around it. Some were used for goods-handling, others for painting cars. Outside Alcor, I pulled open a door which only my intuition suggested might be the entrance, and on the other side I was welcomed by an enormous neon sign promising the dream of all those crossing the building's threshold: Life Extension Foundation. This is where life became eternal. Or, for the meantime, where death was frozen.

The furnishings were understated, the carpet grey and there was a blue sofa in the centre of the lobby. Around the walls were rows and rows of photos showing an array of people and pets, all behind glass and in identical frames. There was nothing in the pictures to suggest a date but it was clear they were from a time in the past because dead people in photos never look like they might be alive. It could be the slightly faded colours, a suit that's gone out of fashion, or some other imperceptible detail; whatever it was, those photos said so much more than what I could see.

The one that I held my attention was of a woman decorating a Christmas tree in her living room. She was wearing a canary-yellow sweater and standing on a stool, holding a red ball. I thought she looked very graceful and wondered if she had chosen the photo herself or if had been chance that had placed her between the portrait of a black cat and a man holding a large trout. What was strange was that all the people in the photos were smiling, as if mocking me as I stood there looking at them.

"You must be Mr. Giuliani," a woman said, appearing through a door behind me. She stood still, observing me, wearing a blue t-shirt with the Alcor logo embroidered on the front. Around fifty, she hadn't aged well, had broad hips and long hair which might've been blond once but now was just bedraggled.

"My name's Janine," she said, crossing the room to shake my hand at the laboured pace of someone carrying too much weight.

"Max Moore is waiting for you. I'll show you the way."

The hallways and walls in the Alcor building were lined with rubber and had a large aluminium wall guards running down them at waist height, the kind you see in hospitals. Upstairs there were more photos of happy people, in a long line, interrupted only for office

doors or cream-coloured, floor-length curtains, which hid yet more spaces. One of them was open and as we walked past, I saw a room that was so crammed full of objects it almost looked like a storage closet, on the far side of which was an old man sitting at a large wooden desk, in the light of floor lamp. I stopped for a second in the doorway, intrigued by what looked like a snapshot of the domestic life of a man living alone.

“That’s Mr. Golder,” Jennifer said, retreating a few steps. “He’s waiting as well,” she said, as if it were normal. On hearing his name, the man looked up and very wearily raised a hand in greeting and gave a half-smile.

“What’s he waiting for?”

“To be reborn.”

“What does he do?”

“Nothing, he tries to pass his time surrounded by things he cares about.”

“Does he spend the whole day in here?”

“It’s the safest place to wait.”

With these words, Jennifer showed me into a room filled with light that was flooding in from a large wall covered with white curtains. Max Moore, the owner of Alcor, awaited me, standing up straight like an actor waiting for his scene. He wore a black suit and had an athletic physique, not to mention the quiet countenance of someone accustomed to scepticism and who knew how to shock people.

“Welcome to the waiting room for eternity,” he said, while pressing on a remote control hidden in his hand. The metal wall behind him slid back and behind bullet-proof glass, I saw a large room full of huge steel cylinders, as tall as the ceiling.

“This is where we keep our guests.”

“In those vats?”

“We call them casks.”

“They’re enormous.”

“There are four bodies and four heads in each one.”

“Heads?”

“For those who only want to save their brains. It won’t be long before we know how to transplant them onto a new body. In the meantime, the skull is an effective container.”

“How long?”

“Thirty, forty years? Definitely less than one hundred.”

“You mean one day my son could see the dead resuscitated?”

“They’re not dead, they’re on stand-by.”

“What does that mean?”

“It means that their life has been temporarily interrupted. They are merely waiting to be restarted.”

“So I could freeze myself now and be revived in one hundred years?”

“In a hundred years and for ever, if the law would let us freeze the living.”

“So I was right, your guests are dead?”

“For the medical profession, they’re dead because it has run out of ways of keeping them alive. But their cells are anything but. Thirty years ago, people died from heart failure. Today, they can just get a new one. The crossing point between life and death keeps moving. We just have to wait for science to evolve but one thing’s for sure, our patients will live again.”

We walked along a narrow hallway and Moore showed me into an operating theatre. Two surgical lights illuminated two transparent glass coffins in the centre of the room. The biggest one probably contained a whole body while the other was probably for the heads. The coffins had a mass of thin, coloured tubes and pumps around them, all of which would normally have been filled with blood.

The theatricality of Moore’s words and gestures disturbed me. When he moved, he seemed to always seek the best light, and the words he uttered felt like they’d been said a thousand times into a mirror, to the point that they now lacked any kind of feeling. He revealed glimpses of emotion in only a few details, in which he also conveyed a chilling obsession for his work.

Pacing back and forward in the operating theatre like a professor around his desk, Moore explained that time was of the essence in their interventions, because death travels through our body at the speed of two millimetres an hour and only cold can stop it. They tried to

remain by their patients' side, physically, while they were still alive, waiting together for them to take their last breath. But when death came quicker than their private jet, the Alcor staff would recommend placing the body in a bath filled with ice cubes. Putting the dearly departed in a freezer was out of the question because lowering the temperature too quickly could damage tissues.

The macabre scenario that Moore described acquired even more grotesque hues in my imagination. I visualized a bath piled high with ice and wondered if anyone had ever made a mistake and put the body in the fridge, beside the burgers and cartons of milk. In my mind I could see a mutilated body in the glass cask in front of me, laid out flat like Snow White in the Brothers Grimm tale. And the head on a pike in the casket beside it, waiting for a kiss from a scientist prince.

Moore walked over to a mannequin stored in the corner of the operating theatre and began miming the procedures normally carried out on a cadaver. With a terse flick of his hand, he pushed a steel cannula into the femoral artery, pretending to inject the medication needed to assure the patient wouldn't wake up. He then placed a device on the mannequin's chest and started up a thumper which massaged the heart and compressed the lungs, artificially restoring blood circulation and breathing. He explained to me that the anti-coagulants enter through the aorta, causing the body to relax. At that point he stopped, holding the mannequin's head in his hands, before suddenly thrusting it under a pile of blue plastic cubes, announcing brusquely that the cool down phase had commenced.

Special cryo-protectants are administered to inhibit ice formation, the cask is sealed and, like sand in an hourglass, the temperature starts to drop, slowly, until it reaches at least −196 °C degrees. At this point, death will have been defied.

The next step would be to move the patient, who is as delicate as a piece of crystal by then, to the storage chamber, and lower them head first into one of the steel tanks behind the reinforced glass. The waterproof cover is like a tombstone for body and soul, which lay in rest alongside those who believe in the secular resurrection promised by science.

In this new-frontier cemetery, referred to as the biostasis department, death had been stripped of all human weakness, and nothing in those corridors gave any inkling of the pain for those left behind, with the exception of a single photo, stuck with tape to one of the cylinders, beside the thermostat. It was a picture of a young Thai girl called Matheryin who died of brain cancer in April 2015, days before her third birthday. Big eyes and raven hair, clamped

in place on her forehead by a white slide. When they had exhausted every possible solution, the parents, both biomedical engineers, brought their daughter home where the Alcor team awaited them. Two days later, doctors declared the child dead. Matheryin's body was flown to the Alcor facility in special cold storage then, on arrival, doctors began to preserve her head, under the voluntary supervision of her father. He was certain that his little girl would one day live again in a world able to cure her tumour and return her childhood to her. Every April, he and his wife came to visit her, laying a bunch of white flowers at her feet and crying tears of pain, like any other parent coping with the unnecessary death of a child.

Moore crossed the biostasis department with discretion, like a concierge in the silent hallways of a hotel, light-footed so as not to disturb the sleeping guests. And like a good concierge, he knew all his guests and preserved not just their bodies but also their wishes. He knew that Mr and Mrs Grimm wanted to be revived together and that by Mr Meredith's side were both his wife and his lover but th two were not to meet in their new life either. He remembered that the eccentric Mrs Winston loved her dogs above all other things and could not imagine a second life without them. For this reason, on the day she died her cocker spaniels were frozen with her. Moore had noted all these details in a large book but it wasn't he who had started it. The first page had been written by Janine, the woman who had welcomed me on my arrival, and Moore's trusted secretary. About thirty years ago, she had had the idea of writing down the desires of the people who trusted their eternal life to Alcor.

Back then, Janine had been a woman of great empathy and a generous heart, qualities that were enough to convince a solitary client with neither wife nor children to drive from the Texas Steppe all the way over to Arizona to guarantee himself a place in the community of immortals. "This life has passed me by, I deserve another one," the man had said. He wanted a second life far away from the corn fields, somewhere backbreaking work wasn't the only way of earning one's dignity, and in the company of a woman. Janine began to note his wishes in a book. No one knows if that longed-for day will ever come, nor what it will be like. We can't say if the memory will survive in preserved brains nor if something that resembles life will ever be achieved. But should the time ever come to revive them, better to know something more about them.

Janine had always looked after the book of memories by herself until she was diagnosed with lung cancer two years ago. Her standby had come and one sleepless night, when the fear of death verged closer to the possibility of eternal life, she decided to write her own page in the

diary of last wishes. The next morning, she handed it to Moore and never wrote anything else.

I tried to imagine what the bodies of these human beings would be like on the day of their resurrection. Flaccid and malodorous like the living dead or with the smooth skin and bloated body of someone who drowned? And for those who had only preserved their head, would they become a thinking robot or would they have a cloned body made of flesh and blood? Supposing the physical and material questions could be dealt with, what would they do that day? Go back to visit a wife or child? Maybe a pet. But what next? What would life be like in a totally different world? With no friends, no job, where would they go? I was certain I wouldn't want to be around that day.

"The cryogenic community will be family for the reawakened. We are already taking care of them all. And those who have no one can come here and help us," Moore told me.

"Like the man I saw near the front entrance, in that weird room?"

"Mr. Golder. Instead of just waiting to die, throwing crumbs to the pigeons, he came here to be close to his future family."

"Has anyone ever tried to revive a life?"

"We do it every day when we freeze and defrost billions of eggs and sperm in human fertilization. Aren't they lives?"

"Yes, but I meant a body, a whole one."

"Human body? No, not yet. We've done it with mice and a rabbit's brain."

"And how did it go?"

"Well."

"What does well mean, did they live?"

"Not very long. But even the Great Wall of China started out with a single brick. It's amazing, don't you think?"

A high-pitched ring interrupted our conversation. Moore reached into his trouser pocket and pulled out a pager, a device the size of a matchbox that was once used to send text messages, back in the 90's. I hadn't seen one for years.

“Please excuse me. We have to fly down to Seattle for a new guest,” he said. You could sense the adrenaline in his words, the excitement in his eyes. It was the first trace of emotion I’d seen on his face.

My time at Alcor was over. Janine came to get me and politely offered me a cup of coffee in a small kitchen near the lobby. In an empty room, a pair of hyped teenagers with pale faces were emptying black crates. Cannula for intubating, respirators, gloves and masks, medications and surgical equipment. They laid each object out tidily on a metal table, reciting names and quantities out loud. Behind them, Moore was checking each item on a list and Mr. Golden was observing the scene smugly from the doorway.

“We make our coffee strong here, just like you do in your country,” she said, emptying two teaspoons of instant coffee into the water she’d just heated in a red cup in the microwave. A life is forever, it said in stars and stripes on the mug.

“To be honest, I don’t like very strong coffee.”

“You’re an unusual Italian.”

“I try to have my own ideas about things. I don’t like football either.”

“And what idea do you have about Alcor?”

“It’s interesting, but I don’t think I’d like to live forever.”

“Do you have children?”

“Yes, one.”

“Do you have to be anywhere just now?”

“No, not really.”

“Well, come with me. I want to introduce you to a friend, not far from here. You’ll like her and maybe she’ll make you change your mind…”

Janine drove us through large, busy roads to a residential neighbourhood south of the city, featuring rows of two-storey houses on identical plots, built to the strict canon of postmodern town-planning, with pitched roofs, wooden verandas and American flags planted firmly in the gardens. A man was painting a fence white, an elderly gentleman was cutting the grass and a

woman was walking arm-in-arm with a man on the pavement, laughing. Among these streets, where every day felt like Sunday, another one lined by jasmine bushes lead to a much bigger property than the others, where the buildings were arranged around a pretty swimming pool, like the petals of a flower.

In a ground floor apartment of one of these buildings lived Elaine. Forty years-old with a minute physique and kind face, she was one of the two thousand members of the Alcor community of immortals, and she had brought her daughter Alice with her.

“She’s just turned four,” she told me as she caressed her baby girl’s straight, ginger hair. “But it won’t be long until age is only important for the memory. When Alice revives me, we’ll have defied time, she said, going inside the house and sitting down on the sofa. Alice followed her in, lay down at her feet and went back to flicking through a book on the cosmos and calling out the names of all the planets, as she also did with her dolls. Scattered around her in the tiny living room were an array of princesses and toy astronauts.

Alice wasn’t the product of a love affair but of the conscious decision of two friends who, on the brink of infertility and disappointment, had sought each other out. They’d met back in college, in the days before he’d made a successful business out of private space missions and she hadn’t started touring American pubs and clubs playing electronic music. They had a lot in common and were in no rush to fall for each other because they’d both decided to live for ever and if their bodies didn’t click this time round, they’d be able to change them in the future so that they did.

“How would you like to be?”

“It’s not so much how I’d like to be but how it would be most useful to be.”

“What, do you mean you’d change your body depending on what you needed it for?”

“It’s what we’ve always done. Through evolution, I mean. We just wouldn’t have to wait millions of years to do it.”

“But if we do that, we won’t know who we are anymore.”

“Because you still think of the body as part of the individual. But it’s just a means. I am who I am even without flesh and I’ll finally be free in my next life to be who I want to be.”

I felt completely lost at that moment, like an adult struggling to understand the tastes of an adolescent. But as the conversation progressed, I realized that Elaine didn’t like her current

life and to avoid sinking into frustration she'd chosen hope as an escape route. She'd grown up during the Nixon years, in a small city in provincial America which saw war veterans return from Vietnam. She remembered how strict her parents had been, the prayers recited every night before a plate of broth and the day her father found her in the arms of a boy. He ordered her never to see him again and she, lowering her eyes to look at her father's polished shoes, obeyed. From that day on, Elaine began to look for an alternative to the life she'd been given and one Sunday morning, as images of the first Shuttle flashed before her and her head filled with Star Wars fantasies, she saw an interview on television with a man promising eternal life. That man was Robert Ettinger, the father of cryonics, who claimed, from the studios of an anonymous Californian television station, that man was made of inferior matter. If we could only find a way to fix this, we could live for ever. His words convinced Elaine that she could live in a different time and in a world in which her desire to be different would be understood.

"Even if it was only an idea, the thought of immortality made my own life more bearable."

"Doesn't everything become boring when you know you're going to live forever?"

"Are you kidding? I no longer say I'm in a hurry, I no longer think that things are a waste of time. I live through them, end of."

"I'd end up doing nothing."

"Well, at least you'd have the choice."

"I'd feel so free that I wouldn't know what to do with my freedom."

"Time has nothing to do with freedom."

"Well, think of all the things in life which are intense because they come to an end."

"Like?"

"Love."

"Love doesn't end."

"Perhaps, but it's beautiful because we fear it will end."

"See, it's the end you're scared of."

"Of course, it scares us all."

“So, if you can overcome it, why not do it?”

“Because I don’t know what life would be like after it ends. If I could live for ever with my son or my partner, maybe it would be okay but I wouldn’t be who I am today. And I wouldn’t want to be different from what I am now.”

“No one knows what the future will be like. But we have a chance of saving only the bits we like. In my next life, I want to bring only knowledge and love. That’s why I’m only going to freeze my head which I want to be transplanted onto an artificial body.”

During this absurd conversation, Alice would look up at her mother then go back to playing, making a space ship fly over her head and simulating with her lips the empty sound of the cosmos. Elaine and Alice spent every second of the day together and often joked that one day parents will be younger than their children. They’d tell each other that by then they’d be living on another planet, ageless and fearless, growing a vegetable garden together in the stars, throwing a bone to a robot dog. They experienced life like aliens ready to travel through time and faced with any object, they’d decide if they liked it or not and whether they’d take it with them or leave it behind.

Very rarely they would meet up with Alice’s grandparents and father on the opposite side of the country. But their idea of eternity makes everything so much lighter, more ephemeral, like a game in which every desire is no longer in vain.

“If something should go wrong, I will still have enjoyed the dream,” Elaine smirked, aware that for every fantasy a price has to be paid. For more than ten years she’d been going without to put aside enough money to cover the cost of cryo-preservation. Ninety thousand dollars each, an investment in the advance of science and the reliable management of Alcor. But she was less worried about the frontiers of medical research than the fact that it might take longer than expected and she and her daughter might be separated in the dark depths of chemical ice.

“We might all be young and beautiful, but I simply can’t imagine an eternity without my daughter,” Elaine said, blinking away tears. At her feet, Alice watched her through love-filled eyes, in the light streaming in the window.

“Darling, you’ll wait for me, won’t you?”

“I’ll defrost you mum, don’t worry!”

Contradicting a person's dreams is dangerous because it is in dreams that we grow the trees of our lives. The roots draw sustenance from fantasies and hold us steady through the storms of everyday life. For this reason I decided not to ask any more questions and left Elaine and her little Alice to their enchanted anticipation at home, to their timeless days together, in a life that seemed to have already been suspended. But for the whole evening, I couldn't stop wondering what my life would be like if I could be born again and live for ever. I imagined myself obsessively protecting my material possessions, abandoning myself to my vices with no desires, my attention focused purely on myself. And with the freezer full of ice cubes to keep me cool at the time of my death. In this imaginary picture, I found myself feeling tremendously alone.

Yet if my death were truly around the corner as the prophecy had said, then the possibility of another life would be a form of redemption, a solid hope. Because, at the end of the day, it didn't feel fair to die so young, without even the time to teach my son what life had taught me. I wondered if Alice might be the person I was looking for, or Janine, or maybe Mr. Moore. The imagination is such a powerful thing and, pushing aside all my uncertainties, I forced myself to sketch future scenarios in which anything was possible. But it didn't hold up to reality, and to the fact that I could find nothing in their omnipotent aspirations on which to hang my hope. Cryo-preservation, from my point of view, was like giving sweeties to the dead. It felt more likely that the hundreds of bodies in steel casks would be defrosted, not to start a new life but because someone hadn't paid the electricity bill. And if science ever makes the advances we await, then all this flesh will be the rotting testing ground rather than the garden of a new day. Rather than be one of them, I'd rather be a tombstone, to be cried for then forgotten by those who survive me. Nevertheless, a sliver of doubt still remained, corrupted by that loathsome American pride that poured forth from the walls of Alcor, permeating my every thought. Besides, the scientific idea was, in itself, a valid one and could perhaps be worth pursuing.

Such contradictory thoughts followed me downtown through the streets of Palmcroft. They accompanied me to dinner, to the hotel, convincing me that a chat with the man who invented cryonics would do me good. Robert Ettinger, the man who changed Elaine's life with a few words uttered on television, was in standby in a bath of liquid nitrogen. But if I went to the Cryonics Institute in Detroit, I could meet his son David.

Travelling north from Detroit airport takes you along Anchor bay and through the old neighbourhoods of the automobile industry. Miles and miles of factories are now home to the blackest classes in society, rich only in misery and hunger. There are still advertising hoardings along the road from the city's golden years. A Goodyear tyre as big as a city townhouse, a Chrysler van defying gravity from the top of a flagpole, pointing to the sky. There are cities which thrive on their beauty, on their views over the mountains or ocean. Others, like Detroit, have to earn their keep. This is the most dangerous place in America, with more than one thousand shootings every year, one in five inhabitants involved in violent crime and 60% of the children living under the poverty threshold. Half of the city's population can't read or write and a house costs less than a car because no one wants to live there anymore. In bars, on buses or in exchanges at service stations, something always crops up to remind you about race because more than 80% of the people living in this ghetto are African American and the only voice they have is the crack of bullets and rap.

The disorder of those lives, trapped between steel and rust, spilled out along the motorway as far as the suburbs of Clinton Township. It was there, at the end of a silent street, that I eventually came to the Cryonics Institute.

The stone and wood building had maintained its 1970s style, watching over the road with large, smoke-coloured glass windows. It was built by Robert Ettinger at an age when his hair had already gone grey after a life spent teaching biology and maths but wasn't ready to resign himself to the idea of death. He said that his thoughts were the same as everyone else's, that everyone would rather live than die, have health over illness, intelligence over stupidity. That's why it was worth the trouble to become immortal. Until science could provide a map of eternal health, he froze his mother, his first wife, his second wife, and in July 2011, he joined them, along with his dog, in the same steel capsule.

Their happy faces hung in coloured frames around the waiting room of the Cryonics Institute, along with those of hundreds of other guests. The rather cramped space also hosted a metal cabinet, an old sofa with wooden armrests, worn rugs, and an oval table with an assortment of chairs around it. The dejected air of the room was in keeping with the rest. On my arrival, a small, wary man with furrowed brows invited me to take a seat. He was the only custodian of this silence and seemed to be taking his job very seriously. In a somewhat cagey way, he

brought me a cup of hot coffee and told me that I would have to wait because Mr Ettinger was a lawyer and had been held up, longer than expected, in court.

I spent a good half hour in the waiting room, looking around me and flicking through an old copy of the Detroit news which, in a small article of the front page, celebrated the Institute's two-hundredth guest. After a bit, I went over to the door to look for something else to occupy myself and to remind the custodian I was still there. He was sitting in an adjoining room, hidden behind a computer screen. I could see his short legs under the desk, his grey trousers, tennis shoes, a portable fridge and a wastepaper basket that hadn't been emptied for a long time. His head appeared to one side and he looked at me listlessly then disappeared back behind his screen, without a word.

Trust is connected to time and distance. Two variables which are not always in agreement but which often travel together. I started to walk back and forward, going round and round in his visual field. He glanced out again and I looked at him, forcing a smile. Then back he went again behind his screen. I continued to roam around until he no longer bothered with me and with the same gradual extension of my range of movement, I went past his office and on to explore the rest of the building.

A fire door took me through to a warehouse which was flooded with cold, diffused light. Along two central rows were the tanks housing the guests — tall, white and fat-bellied, like wine barrels. A large digital clock showed the date and time, almost as if to remind guests of their appointment with the future. An open door to the right revealed the room in which the bodies were prepared for conservation, in the middle of it a thick, white mortuary table with raised edges and ridges for body fluids to drain. I walked straight in and found myself facing a young lady tidying sharp, curved metal instruments on a black cloth. She seemed surprised to see someone alive in the place but didn't stop what she was doing. It was only when she'd rolled them the instruments up in the cloth and carefully tied the string to keep them in place that she said, "they're needles for bodies, I clean them every day."

"I'm so sorry, I didn't mean to disturb you. I'm waiting for Mr. Ettinger."

"You're not disturbing me. They told me about your visit."

Her name was Hillary, she was twenty-four years' old, had blue eyes and an angelic air about her. She was in charge of freezing the bodies and I thought to myself that if one day I were ever to end up on that morgue table, I wouldn't want any other hands on me but hers. She had

studied for a degree in Funeral Management after her mother died in a road accident and felt closer to death than life.

She'd started to read the obituaries every day, the way you do with the daily news, wherever she went. She said it was a bit like going into a supermarket, you can tell a lot of about the place from the way the goods are laid out. Reading the many condolences gave her life some sort of sense and browsing the obituary notices online, she came across the advert for this job. That's how she was selected, although she was the only one to apply.

"Does this place feel sad to you too?" Hillary asked.

"A little."

"How weird. You all say the same thing. Maybe it's a little boring at times but I think the guests are happy to be here. It's just a waiting room."

"If you see it like that, then yes, that changes things."

"When my mum died, I had no idea there could be a second chance at life. If I'd known, I would have brought her here and I would've waited to see her again."

"Do you miss her a lot?"

"Of course. Like any child who gets home from school one day with a great test result and finds their mother lying in the middle of the road. Under a car."

"Crikey, that must've been awful."

"It still is, every day."

"Do you spend your days here?"

"Just about. I came from Nebraska and don't know many people around here."

"Maybe not in this life. But you know everyone in the next life."

Hillary gave a half smile.

"Maybe we could have dinner together tonight."

"Okay."

"But you choose the restaurant. I'm more of a stranger than you to Detroit."

That's when Mr. Ettinger came into the room, fiddling with his cufflinks under his jacket, like someone who'd just put them on to make an impression. Tall, angular face and thick eyebrows. The frames on his glasses and the old-fashioned cut of his suit made him look like he'd just stepped out of a time machine which had arrived straight from the 1970s, when his father first brought him here.

Following him through the cryonaut tanks, he told me about his father and a vision that ignored the scepticism of contemporary science and embraced the future. Ettinger presented the facts, one by one, in the most elementary fashion, reminding me that with every passing day, we learn new, more effective treatments; discover new techniques; and defeat old illnesses. Cell-stem research is on the brink of discovering how to reverse ageing and people are living longer all over the world. Rising from the dead will be the final frontier and he'll be there waiting, with the certainty that no science will ever be able to rebuild the people who ended up as ashes.

To be honest, you couldn't argue with his reasoning, and to top it all was the hope it gave those left behind, people like Hillary. Besides, the idea of a new life that Cryonics Institute and Alcor are selling is no different from the religious idea of Paradise. At the most hedonistic stage of our existence, they have replaced souls with bodies and Heaven with Earth, declaring that death does not exist, or not in terms of the impoverished definition we associate with it. They have decided that human beings are the masters of themselves, delivered from any kind of God. And desecrating the body brings liberation and knowledge.

"When we live again, we will be perfect machines."

"Perfect for who?"

"For the needs of every individual. We will be able to choose when to switch ourselves on and off. When to live and when to sleep. Everyone will be free to choose what "for ever" means."

"Do you think we will still inhabit these bodies?"

"Definitely, but we will rejuvenate them. That's why, at this facility, we don't recommend our guests cut off their heads."

"So, in the next life, we'll be exactly the same as in this one?"

"No, we'll be better. We'll be able to start over."

“We’ll have to choose or we’ll be able to choose?”

“We’ll have to adapt to the period in which we are revived but I can assure you, adapting to life doesn’t take long.”

“Will we keep memories of our previous life?”

“I don’t think so. But what use will remembering how to drive be when you can fly?”

In Ettinger’s lucid and vaguely ironic explanations, I found an answer to the doubts that had brought me there.

Using the logic of measurable materials, Ettinger’s theories promised to save the body from the claws of time, but for the spirit there was no such certainty. I wasn’t sure if it was the 21g that Duncan McDougall claimed departed the body or if it remained frozen inside these casks, but the idea of surviving death and finding myself in a cage, maybe with only the faintest level of consciousness, was a terrifying thought. It would be like sentencing myself to eternal earthly purgatory. No one in the world deserved the fate of a machine, no matter how perfect it might seem.

From my expression, Ettinger had sensed my reluctance but didn’t try to argue his case further. He politely led me towards the exit and, changing the subject, told me of his honeymoon in Italy many years before.

“I’ll go back in around a hundred years, to see if Venice is still floating.”

“But you won’t remember you’ve already been.”

“Better still, that way, if it’s still there, I’ll be able to marvel all over again at the beauty of the city.”

“Of course, that’s a benefit I hadn’t considered.”

“No, it’s just faith in human progress.”

Ettinger had an answer for everything. It was a talent, something he practiced every day in his final statements in court and which he deployed in real life when he felt judged. His words cut like knives and he served them without mercy.

It was getting dark outside. The dark glass in the windows in the lobby gave the dusk light an intense yellow hue. The wind was battering the leaves, bending the less sturdy trees. Cars had their headlamps on already and on a black motorcycle on the other side of the road, Hillary

awaited me. I said goodbye to Mr. Ettinger with a shake of the hand and strode quickly out of the building. I jumped onto the motorbike and we rode off into the wind, covering a handful of miles down Fourteen Miles Road without saying a word. The wind steals your breath and brings tears to the eyes on a bike. And because neither of us had anything more intelligent to say.

Hillary took me to Twin Peaks, a fast food place just inside the city boundary on the west side, where young cow girls with breasts squeezed into miniscule bikinis served giant burgers and laughed constantly. It was an unusual choice for a first date or a work dinner, but the name was perfect and Laura Palmer was our first topic of conversation, although things went downhill quickly thereafter.

“Lakeside, the town where I was born, is a real cesspit as well,” Hillary said, with a vehemence that didn’t suit her.

“From the name it sounds nice.”

“The lake’s a pond and you’re in the arsehole of Nebraska.”

“Is it far from here?”

“Enough to hope you can erase it from your memory. Trust me, it’s a hellhole. After the accident, I went to college in Jeffersonville. At least there was more than a post office there. What about you? What brought you to these parts?

“They said I’d die soon.”

“And you want to cryo-preserve yourself?”

“No, not at all.”

“Pity, I would’ve taken care of you.”

“There’s always a way of fixing that.”

“You know, a cadaver is like a baby. It depends on me for everything. It’s my job to make sure it makes an impression, when it’s woken up.”

“Like a mother’s love.”

“Yeah. I tuck them in and wish them a good night’s sleep.”

Hillary lingered over the details of her job for the rest of the night, explaining how much death had taught her about life, and the more she spoke, the more paraphilic she became.

My interest in her vanished more and more with every word she spoke. I probably should've left sooner rather than later.

"The day of my mum's accident, I went over to her. I smelled brain for the first time, but I only recognized it when I came to work here. It's a faint, pungent smell. Somewhere between blood and cerebrospinal fluid. Maybe it's the smell of the soul."

"Yes, maybe."

"When someone dies unexpectedly, it changes everything. Fuck, you know, when death slaps you straight in the face, it drags you out of that damned illusion of happiness we call life."

Away from the Cryonics Institute, Hillary was transformed. She had lost the air of defenceless victim and had donned a sinister folly. Tight jeans, dark green blouse left unbuttoned at the chest and black nail varnish. Elbows on the table, eyes on me.

I tried, and failed, to find any compassion in her words. I thought that all the people Hillary usually met were dead, or think they are. I tried to imagine her private life away from work. What was her house like? Does she take her work home? These thoughts brought an uncontrollable smile to my face. I recognized it in the icy expression on hers.

This always used to happen when I was embarrassed and would escape to my imagination. It was one of those genetic things. My dad had a similar problem: he was at a funeral once and during the condolences, he started to laugh. There was nothing he could do about it, it was his way of coping, and he'd passed it on to me. But Hillary took my smile as an insult and, rolling her eyes, demanded to know if I was mad.

Silence fell between us from that point which, when you're eating a burger, is better than the smell of death. There was a giant screen behind Hillary's head, showing the final between the Chicago White Sox and the Cleveland Indians. The White Sox won and, having finished our meal amid screams from the stadium and the general clamour of the restaurant, we said goodbye like two people who had missed an opportunity.

I called a taxi and asked it to take me back to my car, parked outside the Cryonic Institute. The building was locked up and all the lights were off.

It was less scary in the dark.

7. I am us

I arrived early as usual. One of the Professor's young assistants led me through a maze of austere, grey buildings at Osaka University. We had gone past an artificial lake full of water lilies and large colourless fish, through the arcade where students were noisily having lunch, bent over bowls of ramen or queueing at the stall selling rice and udon. The smell of soya and boiled vegetables was making me hungry. Inside one of the grey buildings, the boy showed me up the stairs to the Intelligent Robotics Department, and at the end of a corridor he opened the door to a laboratory.

"You can wait for the Professor here with Erica," he said, pointing to a humanoid woman sitting behind a round wooden table with shaped legs, the old-fashioned kitchen kind. Then, he said farewell and withdrew with a short bow.

The room was furnished with a small bookcase on which stood a blue candelabra, a vase of synthetic flowers, a silver photo frame with no photo and a few other worthless objects. A bit further away was a plastic ficus plant and a small yellow robot with tank tracks instead of feet and face turned to the wall. Amongst all these things, which were the (failed) attempt to recreate a domestic-like space, was the most beautiful humanoid ever created.

Slim, chestnut brown hair, soft features. Her skin was as smooth as porcelain, and pale, in the opalescent light in which she was bathed.

Her body combined the beauty of thirty Miss Asia's and her intellect was fired by billions of algorithms. They ran along a bundle of cables coming out of her back and joined her to a wall full of computers behind her, hidden on the other side of a black velvet curtain.

When I entered the room, her eyes followed my every movement, her body immobile, her face expressionless. I leant over her, making sure there was no one around to see me, and touched her lightly to see what she was made of. Her hands, folder in her lap, felt rubbery to touch. Her shoulders felt rigid under a blouse in a delicate fabric. Every time I touched her or when her eyes moved to follow me around the room, I heard the dull hum of hidden motor and a click. I thought it had to be the new sound of life, the way the heart beat had been for millions of years. I tried to say something, under my breath, but she only looked at me without responding. So I withdrew in a bewildered and irritated discomfort. It wasn't because of Erica, whom I couldn't actually have cared less about. It was more her silence, which

reminded me of those times in love when words are withheld as a sort of punishment, a placing of blame, a means of hurting someone. And I wished I had said sorry.

In the middle of the night, I had received a phone call from my wife. I hadn't spoken to her for days. Nine to be precise, since I'd arrived in England to meet with Tim Smit, and after a reasonably pleasant conversation, we had ended up arguing about Ernesto's summer camp and left each other with a clipped salute. Nine days of silence which, in my selfishness, had become solitude and escape, because it upset me to hear about life continuing without me, with no us. Francesca would punish me when she wasn't happy with something because it's what she'd learned from her father. He could easily not speak to her for months. I and my pride had resigned themselves to it, although it was taking longer and longer for conciliatory gestures to be made. When the phone rang again during the night, I jumped up in the bed and sat clinging to the opening "hello" with all the hopes of someone who'd been shipwrecked. "Ernesto wants to speak to you," Francesca's voice informed me from the other end as she handed the phone to Ernesto, without giving me the time to reply, to say hi, to offer a caress or even an angry word. This was what her silence was like. It was five in the afternoon in Italy, Ernesto had just finished his swimming lesson and wanted to tell me he'd learned to put his head under the water. I listened, trying to match his joy with a smile but I was glad he couldn't see me because my face was a cavernous pit of anxiety into which our every word was drowning.

Uncertainty was driving me to find solutions to problems which were yet to transpire; it was my way of controlling the anxiety. I didn't care if they were right, as long as they kept fate at bay. But behaving like this required a conscious awareness of what I wanted and that night, I was confused. Where did my happiness lie? Was I missing Ernesto, Francesca and the children or did I just need someone to keep me company in the fatigue of my existence? They were my home, my heart, it was to them that I returned after every trip. But it wasn't long until I wanted to leave again. I looked at my naked image, sitting on the bed, reflecting back at me in the huge window of the room overlooking the city. The tops of skyscrapers twinkled with red and white lights. I thought about lovers reaching out for each other in their sleep every night, about my legs meeting Francesca's in the dark under the sheets, and the feeling of peace. After so much travelling, I was beginning to see that I had equated love with need and it was for this reason that their fates had become tangled.

As I sat thumbing through my thoughts, Erica gave a slight jolt, a shiver preparing her for movement, along with a noise similar to that of a home appliance turning on.

“Thank you for your patience, Professor Ishiguro will be with you in a second,” she said with a metallic sound, looking me straight in the eye. She turned her head to look at the door, which opened.

“Hi Erica,” Ishiguro said, entering the room holding a bowl of ramen. Taking short, quick steps, he took two chairs from behind the black curtain and sat down at the table in front of Erica.

“Sit with us,” he said, his chopsticks already filling his mouth with noodles.

“Do you often eat together?” I asked ironically as I sat down.

“Only when we have to talk about work. Erica is an infallible secretary,” Ishiguro replied seriously.

“It’s a pleasure to serve you,” she said, bowing her head and half-closing her eyes to show her embarrassment.

“Can I speak to Erica as well?” I asked quietly, taking my place beside the professor.

“Does it feel strange?”

“No, it’s just that I’ve never done it before…”

“Ask her what you want. She’s big enough to look out for herself,” Ishiguro interrupted, as if he were speaking about a daughter.

“We can talk for hours,” Erica said, turning to look at me.

“See, between us humans conversation is a kind of illusion. I have no way of knowing what happens in your brain. I only know what I’m thinking. It’s different with a humanoid, we know they can’t lie and we can achieve a deeper level of understanding. Try it,” Ishiguro said.

The story of his life inhabited those words, a life spent looking for the error that stops us from being happy. He’d learned that feelings populate the information exchanges we engage in. And expectations and frustration take root in the inevitable mistakes we make between a comma and a smile. Ishiguro was convinced that if we could replicate the feeling of human

intimacy, we could control the one thing in life that confuses us more than any other: where happiness lies.

Ishiguro had contemplated suicide several times and, even though he frequently mentioned his family, he described himself as a lonely man. It is a condition he has lived with since his schooldays when, in the town of Adogawa on the western shore of Lake Biwa, he would spend his mornings hunched over his desk drawing things that had nothing to do with the lesson. He seemed unaware of the teacher's presence and was even less likely to bother looking at his mother, by then resigned to his odd behaviour, when she reprimanded him. The only safe haven Ishiguro ever sought was in the arms of his maternal grandfather, a traditional farmer and devout Buddhist with fanatical ideas who would show his grandson the proper way to use chopsticks, to pray, and to prepare the house for the New Year's celebration. Ishiguro listened carefully to his teachings because his grandfather did not impose a particular way of thinking but taught him to aspire to perfection.

At age ten, Ishiguro began to explore the world around him, looking for signs of perfect order and, with each step, found himself more and more isolated. Walking at the foot of the Hira Mountains which rose about his town, he observed insects and snakes, and in each one found a defect, something missing, something that needed to be modified to make it better. In his notebook, he would draw the things that could be changed and in those pencil strokes, began to see a future. He held a stag beetle one day, it was glossy, black and segmented, as big as his fist and with a pair of mandibles protruding from its head like horns. He observed it for a long time then fixed new parts to its body: a razor blade, pieces of metal he found on the ground. He had improved it and the stag beetle could have lived like that had the glue not killed it. Looking for perfection, he had created his first cyborg.

Holding the creature in his hands, he ran to show it to his friend, the only one who had never judged him for his odd behaviour. The friend lived in a poor neighbourhood, on a riverbank, and was the son of two gravediggers. When Ishiguro arrived at his friend's front door he flung out his hands enthusiastically and saw they were covered in blood. In its attempt to escape, the stag beetle had cut him with the very blade Ishiguro had stuck to it. It was just a small cut but enough for his mother, mortified and furious, to be called to come and collect him. Ishiguro insisted that it didn't hurt, that it was nothing, but he was not to know the reason his mother was concerned was not the cut but the friend's family. Working with the dead was considered socially inferior and Ishiguro was ordered never to go near the house

again. From that moment on, anything not related to the substance of things became alien to him, including his own body. His skin broke out in allergies; his back, chest, arms, everything was covered in itchy, unsightly rashes. The only comfort came, once again, from his grandfather who spent many a night caressing him, gently scratching his back until Ishiguro fell asleep. Every week the doctor would administer three painful injections which had no effect. At age thirteen, Ishiguro finally found relief in a steroid-based medication which he has carried with him, in his jacket pocket, ever since. His body will always be alien to him.

“Emotions are merely our response to stimuli and are therefore subject to manipulation,” Ishiguro said, patting his lips gently with a silk napkin after his meal.

“Perhaps, but without emotions we’d be animals.”

“Exactly. Human beings are merely animals with technology. Therein lies the difference between chimpanzees and man. When we see a person with a handicap, we never think that he or she is 70 or 80% human. They are always entirely human to us. This means that we no longer care about the body.”

“So, why give robots human forms?”

“Because empathy is hostile to change. We are hardwired to place our faith in human beings. The more humanlike we can make a robot appear, the more open we’ll be to sharing our lives with it. One day we, too, will be robots and humanoids will live among us like humans do today. When that happens, form will no longer matter. Right?!” Ishiguro asked, turning to Enrica.

“I do not have blood, but I have human hair,” she replied, wrinkling her mechanical forehead as if she were unsure of the benefit of this affirmation.

When it came time for Ishiguro to go to college, he chose a school based on three criteria: if they would accept an eccentric like him, if he could continue to draw, and if it was away from home.

In Autumn 1981, he arrived at Yamanashi University, near Mount Fuji. He was happy at this university but his academic performance was no better than previous years and his interest slowly turned to the string of odd jobs he did to pay his bills. Cook, supervisor in an after-

school club, door-to-door textbook salesman and, the most lucrative of all, professional pachinko player. Ishiguro was conscious that he was on the fringes of student life and, rejecting any semblance of ambition, he fashioned himself into the most romantic of outsiders: an artist.

He went everywhere in a black leather jacket and under his arm carried a dark cloth bundle containing paper, pencils and oil paints. Riding his Yamaha chopper, he'd roam the countryside sketching landscapes. He focused on the shapes of trees, the peach blossoms and the perfection of nature, which he preferred to any kind of university lesson. But in his third year, Ishiguro suddenly stopped painting. He told his companions he was losing his sight, that he could no longer see the green spectrum, that he would never be a famous artist and if were never to be a public success, all his hard work was pointless.

On one of those days, Ishiguro was riding along a steep, twisting road on his motorcycle, and for the first time ever felt the urge to drive straight off the edge, into the void, just to see what it felt like. That repressed instinct, on the edge of a precipice, forced him to seek a new path for himself, and an opportunity presented itself at school. He was offered a computer science course that combined, for the first time ever, computer graphics and visual arts. They were the very early days of PC, programming languages were yet unexplored, and shut away in an icy-cold room designed more for the comfort of the computers that for their human users, Ishiguro fell in love with Assembler and Pascal. He could continue to think like an artist while also interacting with precise instrumentation in a wild landscape. He learned to communicate with a system that responded to his commands, and in the hum of the processors, he could read their fatigue, their thoughts. Ishiguro and the computer had entered into a dialogue and in that relationship, he found his mission: to create a future in which dialogue windows would become relationships and computers would understand our wishes without the need of interpreters.

Ishiguro's studies were well received by the university and he was offered a position as associate professor at Kyoto University when he finished his course. He spent ten years there, alone with his computers, and you could count on two hands the number of days he spent away from the university. Not including national holidays, the only other absences were for his wedding, to a pianist he met through a university friend, the birth of his daughter Risa, and the funeral of his beloved grandfather. Every other day, from season to season, he spent immersed in computer codes.

The speed with which Ishiguro was improving his programming language encouraged him to think that computers would, one day, be able to equal man and have their own free will. He had also reached the conclusion that even if that point were reached, man would still see them as objects. The human aspect, the physical appearance, was essential to overcome this gap and one evening, on returning home, he dragged a chair into the middle of the room and asked his wife to sit down. He sat a video camera in front of her and began recording. He wanted to study the nuances of human behaviour, to find the tiny signs that we read, more or less unconsciously, and which tell us that the thing before our eyes is one of us. Breath, eyelids, responses to casual stimuli. He dropped a pen, looked elsewhere and asked her to think about the sea and food. Then, on conclusion of his experiment, he rewound the tape and watched it time and time again, noting every detail, second by second, and discovered that humans are never truly still.

Ishiguro was aware of the resistance to the concept of an android in the western world but it was precisely this prejudice that made it necessary. The concept of beauty had to be an equal balance of familiarity and submission, otherwise his first humanoid would be his only one, lost in what his predecessors called the "uncanny valley", a place in the human psyche in which excess realism is rejected, overcome by our feelings of discomfort.

His first humanoid would have to trigger feelings of tenderness, be smaller than an ordinary man and have a patient matrix, because modelling a silicon body would take time and sacrifice. There was only one model with these characteristics: his daughter.

In early 2002, his wife took little Risa to her father's laboratory where a team of makeup and special effects artists started working on her body. Naked and standing on a wooden platform, her father spread a layer of greenish paste all over her body, being careful to go into every crease and fold. She was then wrapped in bandages soaked in chalk and asked to keep very still. Her hair was covered with a rubber cap, her ears plugged with cotton and her head fenced inside polystyrene with packing tape. A thick, white paste was poured over her, until it rose over her ears. By her side, her mother reassured her that it would be alright, that there was only one final thing to do, the most important one, the most difficult one: her face.

Ishiguro watched the chalk cover Risa's face through a video camera. "Once we're done, you can have anything you like to eat," he told her as paste covered her forehead, her cheeks, around her chin and down her neck. "Keep your mouth closed," her mother instructed, and your eyes, like you're going to bed. Good night!" and gave a half-laugh trying to keep her

spirits up as she watched her daughter disappear in a box of chalk which was beginning to harden. She had only one nostril free to breathe through. “Don’t cry, it will block your nose,” Ishiguro said. Looking at his daughter’s immobile body, he began to think he’d gone too far. He put down the video camera which ended up filming the ceiling then the floor. “Risa, are you alright? If you can breathe, please squeeze my hand.”

Months later, when the package containing Risa’s bald, naked and limply creased silicon body, arrived at the laboratory, Ishiguro packed it out with circuitry and pneumatic servomotors, but was forced to admit his humanoid looked more like a zombie than a human being.

The first person he showed his creation to was Risa. He wanted to dress them the same, in pale yellow dresses, and as soon as the video cameras which would record the encounter had been set up, he instructed his daughter to sit down in front of herself, under the laboratory’s fluorescent lighting. Risa stared sternly at her replica and the android seemed to return her gaze.

“Would you like to say something?” her father asked.

The child turned to him, disoriented.

“Talk to her,” he insisted.

“Hello.”

“Hello.”

“Ask her to play.”

The android wiggled its head. It was mimicking Risa’s movements, like a mirror. Ishiguro chuckled then asked, “Is it difficult to play with her?”

His daughter glared at him then back at the android. Its mouth began to open and close slightly, like a dying fish.

“Maybe she’s eating something,” Ishiguro said.

His daughter’s breathing grew heavier. “I’m tired, Dad.” Then she burst into tears.

Ishiguro showed his creation to a small number of trusted researchers but word of the “daughter android” spread very quickly, became a legend, and even though frightening

adjectives were often used to describe it, news of it travelled the world and kickstarted his career. As for Risa, the two never discussed the incident again.

Since then, Ishiguro has produced more than thirty humanoids, replicas of newscasters, actresses and models. He has become a professor in one of the country's top universities but refuses to surrender to the elusiveness of the human spirit. This elusiveness is called *Sonzai-Kan* in Japan, a concept his grandfather had taught him. *Sonzai-Kan* is the feeling of belonging we experience when we are near another human being. A presence, a protective aura, an impulse that makes us more likely to trust and makes us feel we are not alone. This was the balance Ishiguro was looking for and he could sense that the only way to reach it was to remove all interference, to go back to the origins, because all revolutions have to start from ourselves.

I followed Ishiguro's slim figure, dressed in tight-fitting, black clothes, through the corridors of the university which were lined with linoleum and smelled of calendula.

When we left the room where Erica was, she lowered her head as she said goodbye, as did the many students we encountered in the laboratories. Most of them were male, with no shoes on, holding laptops. They subsisted on Red Bull, crackers and strawberry Pocky Sticks. *Ishiguro-sensei*, a few students would say under their breath, although only those brave enough to dare speaking to the professor. He would return their greeting with a brisk nod of the head and keep going, adjusting his hexagonal glasses and jet-black hair, which fell repeatedly across his forehead.

I walked a step behind him, trying my best to bow my head left and right, feeling that this walk through the laboratories was more to massage his ego than to take us anywhere, and when the last of his assistants bowed before the king, Ishiguro opened the door to what he called the collective laboratory. In a room lined with petrol blue velvet, on a floor of thin blue carpet, lived the world of his imagination. A dozen humanoids were lined up tidily along the walls. Behind them were shelves piled high with cables, computers, video cameras and an array of wigs. Alone, at the back, was Geminoid HI, his twin android.

Dressed in the same black shirt, the same trousers, and the same tennis shoes covering silicon feet which also wore the same socks as the royal twin brother. The wig was attached with snaps to a scalp covered with sensors. The hands which lay in its lap had veins and sunspots

and the same faint wrinkles that gathered around the real Ishiguro's wrists. Even the cuticles around the nails, pale and precise, were the same as its creator. When its intense gaze detected my presence, for a second I thought that version of Ishiguro was conscious of me. The melancholy look of the turned down mouth, the appearance of thought, the head tiled to the left, and the harmony of its movements, compelled me to feel a sympathetic liking for it.

Geminoid HI was the self-portrait of a painter of the future, but like everything else that stops time, with time it also dies.

"My students love it. They like it better when he takes the lesson."

"What do you mean, when he takes the lesson?"

"It's the benefit of there being two of us. I send him to lessons, conferences around the world. The body is checked into the hold and the head goes in carry-on luggage. It's like having a double life."

"Yes, but he's not really alive."

"Geminoid has my identity, so for others he is Ishiguro. If anything it is me who must remain identical to him, otherwise I'll lose my identity."

"What do you mean?"

"Why are you here?" Ishiguro says, pointing a finger at me. "Because I created a copy of myself. My work is important, humanoids are important. But you are not here for *me*."

Ishiguro, who without even realizing would automatically assume the same facial expression as his Geminoid when asked to have a photo taken beside it, was Pygmalion and Narcissus at the same time, victim of an unexpected trap he'd created with his own hands.

When his students began to compare him to his Geminoid and jokingly pointed out that the real one was getting old, Ishiguro took little humour in it. Initially, he tried to create another cast of his face but it was too complicated to repeat the process every few years. He eventually realized it was he who had to change, not his mechanical twin. That was when he opted for a range of cosmetic procedures, lasers, injections of his own blood cells into his face. He went on a strict diet, began to go to the gym and lost ten kilos. Ishiguro had decided that he was going to stop ageing to remain identical to his replica.

"You'll have to surrender sooner or later."

“Surrender to what? How do you know it’s not me who has a plastic cranium under my face, filled with electronic circuits?”

“I believe that humans are made beautiful by their weaknesses.”

“When you imagine a beautiful woman, you don’t picture her in the bathroom or when she’s tired. I think beauty is better represented by the perfection of a humanoid.”

The thing that seemed to excite Ishiguro was the power he felt in playing the part of Creator.

His androids were not fetishes although he was obsessed with the codes regulating our emotions, not what form those emotions took. Conversely, after multiple experiments, he had begun to think that those perfect eyelashes, the cuticles or human hair could take us too far away from *Sonzai-kan*.

On one of the many nights in his laboratory, he fell asleep among his creatures, thinking these thoughts, and when he awoke, he modelled a humanoid out of clay, devoid of any human semblance. He focused his every attention on that model until he’d created a baby weighing 3.5 kilos, 70 cm long, ghostly-white with an alien-smooth face. It had stunted arms and two large bulbs instead of legs, as if the glute muscles had swallowed up the lower limbs to create two large spheres. A single layer of silicone, no joints, smooth as a naked child.

“It’s called Telenoid,” he told me. He lifted it from a chair in the collective laboratory and handed it to me.

The serene expression on its face, the deep-set black eyes, the thin, slightly pursed lips.

It conveyed a dogged sense of calm no human child could ever possess yet despite its repugnant appearance, it triggered affection.

Ten years of experimentation later, Ishiguro had come full circle: from the copy of his daughter, he’d produced another humanoid child, only this one was abstract, white and potentially anyone’s child. It had such a neutral appearance that I found it almost impossible to judge its appearance. Perhaps all that was left was that elusive quality that Ishiguro had spent his life trying to create: an ethereal human presence, devoid of all material charm. Telenoid is terrifying to look at the first time, but also damned effective, because when I held it in my arms, it didn’t seem to matter that the human feeling came from something that barely resembled a human.

When I visited the Museum of Science in Tokyo a few days later, I knew for sure that there were no circus tricks behind the emotion it had triggered, no deception, just an ancient and universal feeling. The robot's small size was the terrain from which love blossomed.

A Telenoid was sitting on a white sofa on the third floor of the museum, in a hall called "Future Planet", and there were scores of people lined up in front of it, waiting their turn to talk to it.

Around them were several very interesting exhibits. Space ships returned from space, holograms, robots that played football like Maradona, and a planet Earth as big as a house hanging from the ceiling, turning, relaying facts about oceans and volcanoes. Despite all this, all the people were waiting in reverent silence for a moment of intimacy that was worth more than any technology.

Each individual was allowed three minutes to sit on the couch, with the android on their lap, talking to it about something. The android moved its short arms slowly, looked around, tilted its head sweetly to one side, replied in a gentle voice. People hugged it, caressed it, giggled.

One of them was a girl who picked it up with the purpose and confidence of a mother holding her child. She put her mouth up close to the small holes Telenoid had instead of ears and whispered a series of words. She caressed it and the android lay its head on her chest, saying exactly what the girl wanted to hear. You could tell from her expression and the tear that slid down her face.

When her three minutes had elapsed, the girl picked up her bag which she'd left on the ground and walked away, drying her eyes. She stopped in the corner and watched her android in the arms of the woman who'd been behind her in the queue.

"It must be quite emotional," I said, walking over to her, my voice belying feelings of normal envy.

"Yes. Enough to bring me here every day after work."

"Every day? For how long?"

"Two months"

"Just to hold it?" I asked in disbelief, pointing to the android which was now throwing its arms wide and head back, playing with the woman on the sofa.

“Have you ever had to murder your own child?”

The girl’s name was Keiko and she’d come from southern Japan to Tokyo for love. She had grown up in a house overlooking the Kiisuido Strait where clothes smelled of the sea and fireflies twinkled in the dark, beside fishermen’s lanterns at sea.

Scores of boats would crowd the narrow piers of her village to empty holds brimming with sea urchins and molluscs. They’d moor there for the whole day, rocking in the calm waters of the bay, hulls knocking against each other. It was only in the evening that the fishermen would go back out to sea, in their coloured boots and dripping oilskins, disappearing into the blue. Keiko’s father was one of them.

She and her mother would watch from the window at home as he sailed away and continue their vigil through the night, waiting for his return just after dawn as they slept. They would make dorayaki and tea for breakfast, talk a little then he would go to bed and sleep until the afternoon, when it would be time to return to sea. This was the life of all those who lived in the town, it always had been, or at least for as long as Keiko could remember. She had been taught that an ability to wait was a virtue and she had learned to believe in it. But waiting never seemed to bring anything new. Keiko grew tired of the town and didn’t want to wait anymore.

One summer’s morning, Keiko came out of her bedroom, sleep still on her face and her hair ruffled. Her father had already returned and was sitting in the kitchen with a young man. Blond, blue fisherman’s shirt, and teenage acne on his face. “This is Andy. He’ll be staying here with us for a few days,” her father announced sternly.

Keiko patted her hair and smiled.

That evening, a merchant ship passing through the area had had a fault and her father, in the spirit of kinship between men of the sea, had offered a bed to one of the ship’s crew.

Keiko knew nothing of love and could never have imagined it would come to her, like that, from the sea, on an ordinary day during her eighteenth year. Their eyes met almost immediately. Without having to say a word, they said everything.

In the days which followed, the two young people existed in a reckless, fantasy world, their words quickly transported by the flames of passion, and then also their bodies, among the shadows of the boats pulled up on the shore and in a love the burned everything it touched.

Word then came that the shipping company had gone bankrupt and its creditors had ordered the ship to be towed to a port in northern Japan, crew included. Andy and Keiko spent their last night together walking in the sunset, hand-in-hand. "*Gamanzuyoi*," the ability to wait is the path to joy," she had whispered, evoking the ancient words of her homeland. They drew a heart in the sand, wrote their initials in it, and made love in the dark, for the last time, in silence.

In the days after his departure, Andy and Keiko wrote to each other and sometimes shared telephone calls. But at that age, the heart has no sense of geography and as the weeks passed, their love became a rarefied, unattainable entity, suspended between time and memory. Andy's words were so far away, the time between message and reply longer and longer, until the message merged into the response.

Keiko had convinced herself to let him go, until she discovered she was carrying his child. So she summoned her courage and called him, her voice lurching between anguish and joy.

"You can come and live with me in Tokyo," he'd said and Keiko thought she heard her future in that distant possibility. A few days later, she was on a train to the capital when Andy called.

"There's something you should know before you get here. I live with my fiancé." They were the last words Keiko shared with Andy, in the noise of the train on the tracks of her life. When she arrived in Tokyo she took a room in the first hotel she found and started to cry. On the wall behind the bed was a poster with the words: "*make your life a dream and a dream a reality*." A week later, Keiko went to a clinic and aborted her child.

Since then, she'd been coming every day to the museum to hug the robot, living the dream that reality had torn from her, to be a mother at last, or at least for the three minutes of her turn. The mirror image of ourselves that Ishiguro had mentioned had become, in Keiko's hands, the ghost of an unborn child but by virtue of its non-birth, it could never die. The words she whispered to the machine were the ones she would've said to her child.

Listening to her story, I wanted to say that a real baby is completely different. That if life had put one in her arms, she would've understood what love really is. I wanted to tell her to look for it in the truth, in the flesh, even in sex, because she would never find it in regret. Our fragilities are what make us humans superior to all artificial species. In the perfection that is

nature, the ability to doubt and to question ourselves become nature's incomparable beauty. She would never find all this on a synthetic leather sofa.

Instead I said nothing. I listened and I left her with her fantasies. All the time I'd spent thinking about the end of things had unsettled me, making me imagine that my son would die one day. God doesn't want me to be on this earth anymore because in the darkness of that moment, the only comfort would be suicide. And it wouldn't be this act that terrified me but what came before it, between the end and the forever.

Living means swimming in the most beautiful sea. But you can only go in one direction — ahead — as to swim in reverse is impossible. There are very few islands, the odd buoy every now and then, and only the stars to mark the way. In this sea, we learn to oppose pain with strength, consciousness with intuition, in order to stay alive. When storms come, we experience apnoea, our heads go under but we learn to compensate. We go under and we compromise. Until our instinct tries to suck a breath and our mouths fill with the same water which, until just moments earlier, had been keeping us afloat. Instinct, that's what decides if we live or die. And that's why learning to control it would be, for reason, a victory over the animal we carry inside us.

I thought back to my trip to India, where this all began. Maybe this had been the Brahmin's intention, to force me to control my instinct, even the impulse for death.

When I returned to India with a ring on my finger, I tried to understand why, by what kind of sorcery, a yellow sapphire would help me to live. A Google search told me that the belief is founded in Ayurvedic medicine, according to which the energy in the stone I wore could help ward off depression. And what better death could there be in a moment of depression than suicide?

I tried many times to imagine what my death would be like. How would it happen? How would I die? The soothsayer had said it would be a violent death. Would I die in a car crash? Would I be shot in some suburb somewhere or in a meaningless robbery on the subway? How would it happen? I asked Google that as well. Violent death: "death due to non-natural causes," the dictionary said. To be murdered was definitely not a natural cause, but to murder oneself, why was that not natural? Is it not our body that forces us to seek our last breath? If a weary heart can decide naturally to stop, why can't the brain do the same thing? All deaths bring violence and relief in equal measure and to choose to die was the only way I could think of to avoid regrets. So the question then became, "what kind of pain would force me

into that corner?" The only answers I could imagine all included Ernesto so, with a shiver, I abruptly shunned such thoughts, as if waking up from a nightmare and thinking it had all just been a silly dream.

I had drifted into these thoughts as I moved between the rooms in which the future was the main exhibit, and I'd arrived at the main entrance under a giant spinning globe, hanging from the ceiling. If it had fallen, I would have been crushed to death by the planet earth.