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'Angela Saini's investigative and narrative talents shine in *Superior*, her compelling look at racial biases in science past and present. The result is both a crystal-clear understanding of why race science is so flawed, and why science itself is so vulnerable to such deeply troubling fault lines in its approach to the world around us – and to ourselves' DEBORAH BLUM

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Inferior:
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Geek Nation:
How Indian science is taking over the world

Superior

The Return of Race Science

Angela Saini

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For my parents,
the only ancestors I need to know.

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Prologue

'In the British Museum is where you can see 'em
The bones of African human beings'
– Fun-Da-Mental, 'English Breakfast'

I'M SURROUNDED BY DEAD PEOPLE, asking myself what I am.

Where I am is the British Museum. I've lived in London almost all my life and through the decades I've seen every gallery in the museum many times over. It was the place my husband took me on our first date, and years later, it was the first museum to which I brought my baby son. What draws me back here is the scale, the sheer quantity of artefacts, each seemingly older and more valuable than the last. I feel overwhelmed by it. But as I've learned, if you look carefully, there are secrets – secrets that undermine the grandeur, that offer a different narrative from the one the museum was built to tell.

When medical doctor, collector and slave owner Sir Hans Sloane bequeathed the British Museum's founding collection upon his death in 1753, an institution was established that would come to document the entire span of human culture, in time and space. The British Empire was growing, and in the museum you can still see how these Empire-builders envisioned their position in history. Britain framed itself as the heir to the great civilisations of Egypt, Greece, the Middle East and Rome.

The enormous colonnade at the entrance, completed in 1852, mimics the architecture of ancient Athens. The neo-classical style Londoners associate with this corner of the city owes itself to the fact that the British saw themselves as the cultural and intellectual successors of the Greeks and Romans.

Walk past the statues of Greek gods, their bodies considered the ideal of human physical perfection, and you're witness to this narrative. Walk past the white marble sculptures removed from the Parthenon in Athens even as they crumbled, and you begin to see the museum as a testament to the struggle for domination, for possession of the deep roots of civilisation itself. In 1798, when Napoleon conquered Egypt and a French army engineer uncovered the Rosetta Stone, allowing historians to translate Egyptian hieroglyphs for the first time, this priceless object was claimed for France. A few years after it was found, the British took it as a trophy and brought it here to the museum. They vandalised it with the words, 'Captured in Egypt by the British Army', which you can still see carved into one side. As historian Holger Hoock writes, 'the scale and quantity of the British Museum's collections owe much to the power and reach of the British military and imperial state.'

The museum served one story. Great Britain, this small island nation, had the might to take treasures, eight million exquisite objects from every corner of the globe, and transport them here. The inhabitants of Rapa Nui (Easter Island, as European explorers called it) built the enormous bust of Hoa Hakananai'a to capture the spirit of one of their ancestors, and the Aztecs carved the precious turquoise double-headed serpent as an emblem of authority, but in the nineteenth century both these jewels found their way here and here they've remained. To add insult to injury, they're just two of many, joining objects thousands of years older from Mesopotamia and the Indus

Valley. No single item in the museum is more important than the museum itself. All these jewels brought together like this have an obvious tale to tell, one constructed to remind us of Britain's place in the world. It's a testament to the audacity of power.

And this is why I'm at the museum once again. When I set out to write this book, I wanted to understand the biological facts around race. What does modern scientific evidence really tell us about human variation, and what do our differences mean? I read the genetic and medical literature, I investigated the history of the scientific ideas, I interviewed some of the leading researchers in their fields. What became clear was that biology can't answer this question, at least not fully. The key to understanding the meaning of race is understanding power. When you see how power has shaped the idea of race and continues to shape it, how it affects even the scientific facts, everything finally begins to make sense.

It was not long after the British Museum was founded that European scientists began to define what we now think of as race. In 1795, in the third edition of *On the Natural Varieties of Mankind*, German doctor Johann Friedrich Blumenbach described five human types: Caucasians, Mongolians, Ethiopians, Americans and Malays, elevating Caucasians – his own race – to the status of most beautiful of them all. Being precise, 'Caucasian' refers to people who live in the mountainous Caucasus region between the Black Sea to the west and the Caspian Sea to the east, but under Blumenbach's sweeping definition it encompassed everyone from Europe to India and North Africa. It was hardly scientific, even by the standards of his time, but his vague human taxonomy would nevertheless have lasting consequences. Caucasian is the polite word we still use today to describe white people of European descent.

4 Superior

The moment we were sifted into biological groups, placed in our respective galleries, was the beginning of the madness. Race feels so real and tangible now. We imagine that we know what we are, having forgotten that racial classification was always quite arbitrary. Take the case of Mostafa Hefny, an Egyptian immigrant to the United States who considers himself very firmly and very obviously black. According to the rules laid out by the US government in its 1997 Office of Management and Budget standards on race and ethnicity, people who originate in Europe, the Middle East and North Africa are officially classified as white, in the same way that Blumenbach would have categorised Hefny as Caucasian. So in 1997, aged forty-six, Hefny filed a lawsuit against the United States government to change his official racial classification from white to black. He points to his skin, which is darker than that of some self-identified black Americans. He points to his hair, which is black and curlier than that of some black Americans. To an everyday observer, he's a black man. Yet the authorities insist that he is white. His predicament still hasn't been resolved.

Hefny isn't alone. Much of the world's population falls through some crack or another when it comes to defining race. What we are, this hard measure of identity, so deep that it's woven into our skin and hair, a quality nobody can change, is harder to pin down than we think. My parents are from India, which means I'm variously described as Indian, Asian, or simply 'brown'. But when I grew up in south-east London in the 1990s, those of us who weren't white would often be categorised politically as black. The National Union of Journalists still considers me a 'Black member'. By Blumenbach's definition, being ancestrally north Indian makes me Caucasian. Like Mustafa Hefny then, I too am 'black', 'white' and other colours, depending on what you prefer.

We can draw lines across the world any way we choose, and in the history of race science, people have. What matters isn't where the lines are drawn, but what they mean. The meaning belongs to its time. And in Blumenbach's time, the power hierarchy had white people of European descent sitting at the top. They built their scientific story of the human species around this belief. They were the natural winners, they thought, the inevitable heirs of the great ancient civilisations nearby. They imagined that only Europe could have been the birthplace of modern science, that only the British could have built the railway network in India. Many still imagine that white Europeans have some innate edge, some superior set of genetic qualities that has propelled them to economic domination. They believe, as French President Nicolas Sarkozy said in 2007, that 'the tragedy of Africa is that the African has not fully entered into history . . . there is neither room for human endeavour nor the idea of progress.' The subtext is that history is over, the fittest have survived, and the victors have been decided.

But history is never over. There are objects in the British Museum that scream this truth silently, that betray the secret the museum tries to hide.

When you arrive for the first time it's almost impossible to notice them because they're so easily ignored by visitors in a rush to tick off every major treasure. You join the other fish in the shoal. But go upstairs to the Ancient Egypt galleries, to the plaster cast of a relief from the temple of Beit el-Wali in Lower Nubia, built by the pharaoh Ramesses II, who died in 1213 BCE. It's high near the ceiling, spanning almost the entire room. See the pharaoh depicted as an impressive figure on a chariot, wearing a tall blue headdress and brandishing a bow and arrow, his skin painted burnt ochre. He's ploughing into a legion of Nubians, dressed in leopard skins, some painted with black skin

and some the same ochre as him. He sends their limbs into a tangle before they're finally conquered. As the relief shows, the Egyptians at that time believed themselves to be a superior people with the most advanced culture, imposing order on chaos. The racial hierarchy, if that's what you want to call it, looked this way in this time and place.

Then things changed. Downstairs on the ground floor is a granite sphinx from a century or two later, a reminder of the time when the Kushites, inhabitants of an ancient Nubian kingdom located in present-day Sudan, invaded Egypt. There was a new winner now, and the Ram Sphinx protecting King Taharqo – the black king of Egypt – illustrates how this conquering force took Egyptian culture and appropriated it. The Kushites built their own pyramids, the same way that the British would later replicate classical Greek architecture.

Through objects like this you can understand how power balances shift throughout history. They reveal a less simple version of the past, of who we are. And it's one that demands humility, warning us that power is fleeting. More importantly, they show that knowledge is not just an honest account of what we know, but has to be seen as something manipulated by those who happen to hold power when it is written.

The Ancient Egypt galleries of the British Museum are always the most crowded. As we walk past the ancient mummies in their glittering cases we don't always recognise that this is also a mausoleum. We're surrounded by the skeletons of real people who lived in a civilisation no less remarkable than the ones that followed or that went before. Every society that happens to be dominant comes to think of itself as being the best, deep down. The more powerful we become, the more our power begins to be framed as not only cultural but natural. We portray our enemies as ugly foreigners and our subordinates as inferior. We

invent hierarchies, give meaning to our own categories. One day, a thousand years forward, in another museum, in another nation, these could be European bones encased in glass, what was once considered an advanced society replaced by a new one. A hundred years is nothing; everything can change within a millennium. No region or people has a claim on superiority.

Race is the counter-argument. Race is at its heart the belief that we are born different, deep inside our bodies, perhaps even in character and intellect, as well as in outward appearance. It's the notion that groups of people have certain innate qualities that are not only visible at the surface of their skins, but are intrinsic to their physical and mental capacities, that perhaps even help define the passage of progress, the success and failure of the nations our ancestors came from.

Notions of superiority and inferiority impact us in deep ways. I was told of an elderly man in Bangalore, south India, who ate his chapatis with a knife and fork because this was how the British ate. When my great-grandfather fought in the First World War for the British Empire and when my grandfather fought in the Second World War, their contributions were forgotten, like those of countless other Indian soldiers. They were considered not strictly equal to their white British counterparts. This is how it was. Generations of people in the twentieth century lived under colonial rule, apartheid and segregation, suffered violent racism and discrimination, because this is how it was. When boys from my school threw rocks at my sister and me when we were little, telling us to go home, this is how it was. I knew even as I bled that this is how it was. This is how it still is for many.

Race, shaped by power, has acquired a power of its own. We have so absorbed our classifications – the trend begun by scientists like Blumenbach – that we happily classify ourselves.

Many of those who visit the British Museum for the first time (I can tell you this from having spent hours watching them) come searching for their own place in these galleries. The Chinese tourists go straight to the Tang dynasty artefacts; the Greeks to the Parthenon marbles. The first time I came here, I made a beeline for the Indian galleries. My parents were born in India, as were their parents, and theirs before them, so this is where I imagined I would find the objects most relevant to my personal history. So many visitors have that same desire to know who their ancestors were, to know what *their* people achieved. We want to see ourselves in the past, forgetting that everything in the museum belongs to us all as human beings. We are each products of it all.

But, of course, that's not the lesson we take, because that's not what the museum was designed to tell us. Trapped inside glass cabinets, fixed to the floors, why are these objects in these rooms, and not where they were first made? Why do they live inside this museum in London, its neo-classical columns stretching into the wet, grey sky? Why are the bones of Africans here, and not where they were buried, in the magnificent tombs that were created for them, where they were supposed to live out eternity?

Because this is how power works. It takes, it claims and it keeps. It makes you believe that this is where they belong. It's designed to put you in your place.

The global power balance, as it played out in the eighteenth century, meant that treasures from all over the world could and would only end up in a museum like this, because Britain was one of the strongest nations at the time. It and other European powers were the latest colonisers, the most recent winners. So they gave themselves the right to take things. They gave themselves the right to document history their way, to define the

scientific facts about humankind. European thinkers told us that their cultures were better, that they were the proprietors of thought and reason, and they married this with the notion that they belonged to a superior race. These became our realities.

The truth is something else.

1

Deep Time

Are we one human species, or aren't we?

Flanking a road dotted with the corpses of unlucky kangaroos, three hundred kilometres inland from the Western Australian city of Perth – and the other end of the world from where I call home – is what feels like a wilderness. Everything is alien to my eyes. Birds I've never seen before make sounds I've never heard. The dead branches of silvery trees, skeleton fingers, extend out of crumbly red soil. Gigantic rocks weathered over billions of years into soft pastel blobs resemble mossy spaceships. I imagine I've been transported to a galaxy beyond time, one in which humans have no place.

Except that inside a dark shelter beneath one undulating boulder are handprints.

Mulka's Cave is one of lots of ancient rock art sites dotted across Australia, but unique in this particular region for being so densely packed with images. I have to crouch to enter, navigating the darkness. One hand is all I see at first, stencilled within a spray of red ochre illuminated on the granite by a diffuse shaft of light. My eyes adjust, more hands appear. Infant

hands and adult hands, hands on top of hands, hands all over the ceiling, hundreds of them in reds, yellows, oranges and whites. Becoming clearer in the half-light, it's as though they're pushing through the walls, willing for a high-five. There are parallel lines, too, maybe the vague outline of a dingo.

The images are hard to date. Some may be thousands of years old, others very recent. What is known is that the creation of rock art on this continent goes back to what in cultural terms feels like the dawn of time. Following excavation at the Madjedbebe rock shelter in Arnhem Land in northern Australia in 2017, it was conservatively estimated that modern humans had been present here for around 60,000 years – far longer than members of our species have lived in Europe, and long enough for people here to have witnessed an ice age, as well as the extinction of the giant mammals. And they may have been making art at the outset. At the Madjedbebe site, I'm told by one archaeologist who worked there, researchers found ochre 'crayons' worked down to a nub. At Lake Mungo in New South Wales, a site 42,000 years old, there is evidence of ceremonial burial, bodies sprinkled with ochre pigment that must have been transported there over hundreds of kilometres.

'Something like a handprint is likely to have many different meanings in different societies and even within a society,' says Benjamin Smith, a British-born rock art expert based at the University of Western Australia. It may be to signify place, possibly to assert that someone was here. But meaning is not always simple. The more experts like him have tried to decipher ancient art, wherever it is in the world, the more they've found themselves only scratching at the surface of systems of thought so deep that Western philosophical traditions can't contain them. In Australia, a rock isn't just a rock. The relationship that indigenous communities have with the land, even with inanimate natural

objects, is practically boundless, everyone and everything intertwined.

What looks to me to be an alien wilderness isn't wild at all. It's a home that is more lived in than any I can imagine. Countless generations have absorbed and built upon knowledge of food sources and navigation. They have shaped the landscape sustainably over millennia, built a spiritual relationship with it, with its unique flora and fauna. As I learn slowly, in Aboriginal Australian thinking, the individual seems to melt away in the world around them. Time, space and object take on different dimensions. And none except those who have grown up immersed in this culture and place can quite understand it. I know that I could spend the rest of my life trying to fathom this and get no further than I am now, standing lonely in this cave.

We can't inhabit minds that aren't our own.

I was a teenager before I discovered that my mother might not actually know her own birth date. We were celebrating her birthday on the same day in October we always did when she told us in passing that her sisters thought she had actually been born in the summer. Pinning down dates hadn't been routine when she was growing up in India. It surprised me that she didn't care, and my surprise made her laugh. What mattered to her instead was her intricate web of family relationships, her place in society, her fate as mapped in the stars. And so I began to understand that the things we value are only what we know. I compare every city I visit with London, where I was born, for example. It's the centre of my universe.

For archaeologists interpreting the past, deciphering cultures that aren't their own is the challenge. 'Archaeologists have struggled for a long time to determine what it is, what is that unique trait, what makes us special,' says Smith, who as well

as working in Australia has spent sixteen years at sites in South Africa. It's a job that has taken him to the cradles of humankind, rummaging through the remains of the beginning of our species. And this is a difficult business. It's surprisingly tough to date exactly when *Homo sapiens* emerged. Fossils of people who shared our facial features have been found from 300,000 to 100,000 years ago. Evidence of art, or at least the use of ochre, is reliably available in Africa far further back than 100,000 years, before some of our ancestors began venturing out of the continent and slowly populating other parts of the world, including Australia. 'It's one of the things that sets us apart as a species, the ability to make complex art,' he says.

But even if our ancestors were making art a hundred millennia ago, the world then was nothing like the world now. More than forty thousand years ago there weren't just modern humans, *Homo sapiens*, roaming the planet, but also archaic humans, including Neanderthals (sometimes called cavemen because their bones have been found in caves), who lived in Europe and parts of western and central Asia. And there were Denisovans, we now know, whose remains have been found in limestone caves in Siberia, their territory possibly spanning south-east Asia and Papua New Guinea. There were also at various times in the past many other kinds of human, most of which haven't yet been identified or named.

In the deep past we all shared the planet, even living alongside each other at certain times, in particular places. For some academics, this cosmopolitan moment in our ancient history lies at the heart of what it means to be modern. When we imagine these other humans, it's often as knuckle-dragging thugs. We must have had qualities that they didn't have, something that gave us an edge, the ability to survive and thrive as they went extinct. The word 'Neanderthal' has long been a term of abuse.

Dictionaries define it both as an extinct species of human that lived in ice-age Europe, and an uncivilised, uncouth man of low intelligence. Neanderthals and *Homo erectus* made stone tools like our own species, *Homo sapiens*, Smith explains, but as far as convincing evidence goes, he believes none had the same capacity to think symbolically, to talk in past and future tenses, to produce art quite like our own. These are the things that made us modern, that set us apart.

What separated 'us' from 'them' goes to the core of who we are. But it's not just a question for the past. Today, being human might seem so patently clear, so beyond need for clarification that it's hard to believe that not all that long ago it wasn't so. When archaeologists found fossils of other now-extinct human species in the late nineteenth and early twentieth centuries, they raised doubts about just how far all *Homo sapiens* living today really are the 'same'. Even as recently as the 1960s it wasn't controversial for a scientist to believe that modern humans may have evolved independently in different parts of the world from separate archaic forms. Indeed, some are still plagued by uncertainty over this question. Scientific debate around what makes a modern human a *modern* human is as contentious as it has ever been.

From our vantage point in the twenty-first century, this might sound absurd. The common, mainstream view is that we have shared origins, as described by the 'Out of Africa' hypothesis. Scientific data has confirmed in the last few decades that *Homo sapiens* evolved from a population of people in Africa before some of these people began migrating to the rest of the world around 100,000 years ago and adapting in small ways to their own particular environmental conditions. Within Africa, too, there was adaptation and change depending on where people lived. But overall, modern humans were then (and remain now)

one species, *Homo sapiens*. We are special and we are united. It's nothing less than a scientific creed.

But this isn't a view shared universally within academia. It's not even the mainstream belief in certain countries. There are scientists who believe that, rather than modern humans migrating out of Africa relatively recently in evolutionary time, populations on each continent actually emerged into modernity separately from ancestors who lived there as far back as millions of years ago. In other words, different groups of people became human as we know it at different times in different places. A few go so far as to wonder whether, if different populations evolved separately into modern humans, maybe this could explain what we think of today as racial difference. And if that's the case, maybe the differences between 'races' run deeper than we realise.

*

In one early European account of indigenous Australians, the seventeenth-century English pirate and explorer William Dampier called them 'the miserablest people in the world'.

Dampier and the British colonists who followed him to the continent dismissed their new neighbours as savages who had been trapped in cultural stasis since migrating or emerging there, however long ago that was. Cultural researchers Kay Anderson, based at Western Sydney University, and Colin Perrin, an independent scholar, document the initial reaction of Europeans in Australia as one of sheer puzzlement. 'The non-cultivating Aborigine bewildered the early colonists,' they write. They didn't build houses, they didn't have agriculture, they didn't rear livestock. They couldn't figure out why these people, if they were equally human, hadn't 'improved' themselves by adopting these things. Why weren't they more like Europeans?

There was more to this than culture shock. Bewilderment – or rather, an unwillingness to try and understand the continent's original inhabitants – suited Europeans in the eighteenth century because it also served the belief that they were entering a territory they could justly claim for themselves. The landscape was thought to be no different from how it must have been in the beginning, because they couldn't recognise how it might have been changed. And if the land hadn't been cultivated, then by Western legal measures it was *terra nullius*, it didn't belong to anyone.

By the same token, if its inhabitants belonged to the past, to a time before modernity, their days were numbered. 'Indigenous Australians were considered to be primitive, a fossilised stage in human evolution,' I'm told by Billy Griffiths, a young Australian historian who has documented the story of archaeology in his country, challenging the narrative that once painted indigenous peoples as an evolutionary backwater. At least one early explorer even refused to believe they had created the rock art he saw. They were viewed as 'an earlier stage of western history, a living representative of an ancient form, a stepping stone'. From almost the first encounter, Aboriginal Australians were judged to have no history of their own, surviving in isolation as a flashback to how all humans might have lived before some became civilised. In 1958 the late distinguished Australian archaeologist John Mulvaney wrote that Victorians saw Australia as a 'museum of primeval humanity'. Even until the end of the twentieth century writers and scholars routinely called them 'Stone Age' people.

It's true that indigenous cultures have enduring connections to their ancestors, a continuation of traditions that go back millennia. 'The deep past is a living heritage,' Griffiths tells me. For Aboriginal Australians, 'it's something they feel in their

bones . . . there are amazing stories of dramatic events that are preserved in oral histories, oral traditions, such as the rising of the seas at the end of the last ice age, and hills becoming islands, the eruption of volcanoes in western Victoria, even meteorites in different times.' But at the same time, this doesn't mean that ways of life have never changed. European colonisers failed to see this and it would take until the second half of the twentieth century for that view to be corrected.

'There was certainly little respect for the remarkable systems of understanding and land management that indigenous Australians had cultivated over millennia,' explains Griffiths. For thousands of years the land has been embedded with stories and songs, cultivated with digging sticks, fire and hand. 'While people have lived in Australia, there's been enormous environmental change as well as social change, political change, cultural change.' Their lives have never been static. In his 2014 book *Dark Emu, Black Seeds*, writer Bruce Pascoe argues, as other scholars have done, that this engagement with the land was so sophisticated and successful, including the harvesting of crops and fish, that it amounted to farming and agriculture.

But whatever they saw, the colonisers didn't value. For those raised in and around cities, industrialisation is still what represents civilisation. 'The idea of ranking, say, an industrial society higher than a hunter-gatherer society is absurd,' reminds Benjamin Smith. It's not easy to accept when you've grown up in a society that tells you concrete skyscrapers are the symbols of advanced culture, but when viewed from the perspective of deep time – across millennia rather than centuries, in the context of long historical trajectories – it becomes clearer. Empires and cities decline and fall. It is smaller, indigenous communities that have survived throughout, those whose societies date to many thousands rather than many hundreds of years. 'Archae-

ology shows us that all societies are incredibly sophisticated, they are just sophisticated in different ways,' Smith continues. 'These are the world's thinkers, and maybe they thought themselves into a better place. They have societies that have more leisure time than Western societies, lower suicide rates, higher standards of living in many ways, even though they don't have all of the technological sophistication.'

Respect for and pride in indigenous cultures has only started to build in the last few decades. And even now, there remains resistance among some non-indigenous Australians, especially as it has become clear from archaeological evidence that Aboriginal people have been occupying this territory not for just thousands of years, but for many tens of thousands. 'The mid-twentieth century revelation that people were here for that kind of depth of time . . . was received in many ways as a challenge to a settler nation with a very shallow history. There are cultural anxieties wrapped up in all of this,' says Griffiths. 'It challenges the legitimacy of white presence here.'

Among European colonists in the nineteenth century, there was a failure to engage with those they encountered, to accept them as the true inhabitants of the land, combined with a mercenary hastiness to write them off. Alongside the native people of Tierra del Fuego at the southernmost tip of South America, whose nakedness and apparent savagery had shocked biologist Charles Darwin when he saw them on his travels, indigenous Australians and Tasmanians were seen as occupying the lowest rungs in the human racial hierarchy. One observer described them as 'descending to the grave'. They were, Griffiths tells me, seen as doomed to go extinct. 'That was the dominant concept, that they would soon die out.

'There was a lot of talk of smoothing the pillow of a dying race.'

Smoothing the pillow was bloodthirsty work. Disease was the greatest killer, the forerunner of invasion. But starting in September 1794, six years after the First Fleet of British ships arrived in what would become Sydney, and continuing into the twentieth century, hundreds of massacres also helped to slowly and steadily shrink the indigenous population by around 80 per cent, according to some estimates. Many hundreds of thousands of people died, if not of smallpox and other illnesses shipped to Australia, then directly at the hands of individuals or gangs, and at other times of police. Equally harsh was the cultural genocide, adds Griffiths. There were bans on the practice of culture and use of language. 'Many people hid their identity, which also contributed to the decline in population.'

In 1869 the Australian government passed legislation allowing children to be forcibly taken away from their parents, particularly if they were of mixed heritage – described at the time as 'half-caste', 'quarter-caste' and smaller fractions. An official inquiry into the effects of this policy on the indelibly scarred 'Stolen Generations', finally published in 1997, is a catalogue of horrors. In Queensland and Western Australia, people were forced onto government settlements and missions, children removed from about the age of four and placed in dormitories, before being sent off to work at fourteen. 'Indigenous girls who became pregnant were sent back to the mission or dormitory to have their child. The removal process then repeated itself.'

By the 1930s, around half of Queensland's Aboriginal Australian population was living in institutions. Life was bleak, with high rates of illness and malnutrition; behaviour was strictly policed for fear that they would return to the 'immoral' ways of their home communities. Children were able to leave dormitories and missions only to provide cheap labour, the girls as domestic servants and the boys as farm labourers. They were

considered mentally unsuited to any other kind of work. Historian Meg Parsons describes what happened as the 'remaking of Aboriginal bodies into suitable subjects and workers for White Queensland'.

Among those forced to live this way were the mother and grandmother of Gail Beck, an indigenous activist in Perth who was once a nurse but now works at the South West Aboriginal Land and Sea Council, fighting to reclaim land rights for her local community, the Noongar. When I visit her at her home in the picturesque port city of Fremantle, speaking to her as she cooks, awaiting a visit from the Aboriginal Australian side of her family, I find someone who has few ways to quantify the pain and loss.

Gail is sixty years old but her true family story is still fairly new to her. Until her thirties, she didn't even know she had any indigenous ancestry. She had been raised to believe she was Italian – a lie to explain her olive skin, her mother terrified that if she were told the truth, Gail might be taken away by the authorities as she herself had been. So she lived under a conspiracy of silence, shielded from the fact that her grandmother had been one of the Stolen Generations, a 'half-caste' taken from her family to live in a Catholic missionary home in 1911 at the age of two. There, she had been abused, physically, mentally, sexually. 'She was put out to service at thirteen. Didn't get paid, nothing like that. And she stayed there until she was an adult.' A similar fate befell Gail's mother, who was under the supervisory care of the nuns in the home from the day she was born, beaten and burned by them when she grew older. The Sisters of Mercy 'were very cruel people', Gail recounts.

Learning about her family's past, and having it confirmed by her grandmother's papers, was a bolt from the blue. 'I cried an ocean of tears.' At once, Gail gained a new identity, one that she

was desperate to understand and build a connection to. It took her six years to find the part of her family that had been hidden from her, and she has devoted herself to absorbing their culture ever since. She shows me her blankets and pictures, adorned with the prints for which Aboriginal Australian artists have lately become famous. She has tried to learn an indigenous language, but it has been a struggle. She lives like most white Australians, in a nice house in a nice suburb, her knowledge of her great-grandmother's way of life, as it would have been, fragmentary.

'We are constantly in mourning, and people don't understand that,' she tells me. 'The young children that were lost, that doesn't just affect the nuclear family, that affects the community.' And this is perhaps the greatest tragedy of all, that the way of life she might have had, the knowledge and language she could have been raised with, the relationship to the local environment, all of this was trodden beneath the boot of what considered itself to be a superior race. After the arrival of the Europeans, even the creation of art sharply declined. It took until 1976 for Aboriginal people even to be able to gain legal rights over their land. Throughout, the victims had no choice. 'They weren't allowed to practise their culture, they weren't allowed to mix and they weren't allowed to speak their language.' Having been told they were inferior, that theirs was a life to be ashamed of, they adopted different ways of living – ways they were told were better.

'It was a real shameful thing.'

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I don't cry easily. But in the car afterwards, I cry for Gail Beck. There is no scale of justice weighty enough to account for what happened. Not just for the abuse and the trauma, the children

torn from their parents, the killings, but also for the lives that women and men like her didn't have the chance to live.

In recent decades, as scholars have tried to piece together the past and make sense of what happened, as they share with ordinary Australians in the long process of assessing the damage and its impact, we can see an overarching story about the definition of human difference. It shows us how people have drawn boundaries around other groups of people, and how far inside us and how far back in time the disparities are thought to stretch. These are the parameters of what we now call race.

That same day I meet with Martin Porr, a German-born archaeologist who works at the University of Western Australia, his work focusing on human origins. He feels, as do many archaeologists nowadays, that his is a profession weighed down by the baggage of colonialism. When the first European encounters with Australians happened, when the rules were drawn for how they should be treated, science and archaeology began to be woven in. And they have remained interwoven ever since. For Porr, this tale begins with the Enlightenment, at the birth of Western science. The Enlightenment reinforced the idea of human unity, of an essential biological quality that elevated humans above all other creatures. We live with that concept to this day, seeing it as positive and inclusive, a fact to be celebrated. There was a caveat, however. As Porr cautions, this modern universal way of framing human origins was constructed at a time when the world was a very different place, with far less understanding of other cultures. When European thinkers set the standard for what they considered a modern human, many built it around their own experiences and what they happened to value at that time.

A number of Enlightenment thinkers, including influential German philosophers Immanuel Kant and Georg Wilhelm

Friedrich Hegel, defined humanity without really having much of an idea how most of humanity lived or what it looked like. Those who lived in other lands, including the indigenous people of the New World and Australia, were often a mystery to them. 'A universal understanding of human origins was actually created at the time by white men in Europe who only had indirect access to information about other people in the world through the lens of colonialism,' explains Porr. So when they went out into the real world and encountered people who didn't look like them, who lived in ways they didn't choose to live, the first question they were forced to ask themselves was: Are they the same as *us*?

'If you define humanity in some universal sense, then it's very restrictive. And in the eighteenth century, that was totally Eurocentric. And of course, when you define it in that sense, then of course, so to speak, other people do not meet these standards,' Porr continues. Because of the narrow way Europeans had set their parameters of what constituted a human being, placing themselves as the paradigm, people of other cultures were almost guaranteed not to fit. They didn't necessarily share the same aesthetics, political systems or moral values, let alone food or habits. In universalising humanity, Enlightenment thinkers had inadvertently laid the foundations for dividing it.

And here lay the fatal error at the birth of modern science, one that would persist for centuries, and arguably persists to this day. It is a science of human origins, as British anthropologist Tim Ingold observes, that 'has written the essence of humanity in its own image, and that measures other people by how far they have come in living up to it'.

'When you look at these giants of the eighteenth century, Kant and Hegel, they were terribly racist. They were unbelievably racist!' says Porr. Kant stated in *Observations on the Feeling*

of the Beautiful and the Sublime in 1764, 'The Negroes of Africa have by nature no feeling that rises above the trifling.' When he met a quick-witted carpenter, the man was quickly dismissed with the observation that 'this fellow was quite black from head to foot, a clear proof that what he said was stupid.' While a few Enlightenment thinkers did resist the idea of a racial hierarchy, many, including French philosopher Voltaire and Scottish philosopher David Hume, saw no contradiction between the values of liberty and fraternity and their belief that non-whites were innately inferior to whites.

By the nineteenth century, those who didn't live like Europeans were thought to have not yet fully realised their potential as human beings. Even now, notes Porr, when scientists discuss human origins, he still catches them describing *Homo sapiens* in what sound like nineteenth-century European economic terms, as being 'better' and 'faster' than other human species. There's an implicit assumption that higher productivity and more mastery over nature, the presence of settlements and cities, are the marks of human progress, even of evolution. The more we are superior to nature, the more we are superior as humans. It is a way of thinking that forces a ranking of people from closer to nature to more distant, from less developed to more, from worse to better. And history shows us that it's only a small leap from believing in cultural superiority to believing in biological superiority, that a group's achievements are due to their innate capacities.

What Europeans saw as shortcomings in other populations in the early nineteenth century quickly became conflated with how they looked. Cultural scholars Kay Anderson and Colin Perrin explain how, in that century, race came to be *everything*. One writer at the time noted that the natives of Australia differ 'from any other race of men in features, complexion, habits

and language'. Their darker skin and different facial features became markers of their separateness, a sign of their permanent difference. Their perceived failure to cultivate the land, to domesticate animals and live in houses was taken as part and parcel of their appearance. And this had wider implications. Race, rather than history, could then be framed as the explanation for not only the Aboriginals' failure, but the failure of all non-white races to live up to the European ideal that Europeans had themselves defined. An Aboriginal Australian – just by having darker skin – could now be lumped together with a West African, for instance, despite being continents apart, with entirely different cultures and histories. Both were black, and this was all that mattered.

Whiteness became the visible measure of human modernity. It was an ideal that went so far as to become enshrined in Australian law. 'When Australia federated in 1901, when the states came together as a nation, one of the first pieces of legislation to pass through Parliament was the Immigration Restriction Act, which formed the basis of the White Australia policy. It sought to fuse the new nation together with whiteness by excluding non-European migration and attempting to assimilate and, ultimately, to eliminate Aboriginal and Torres Strait Islander identity,' explains Billy Griffiths. What happened to Gail Beck's family was one result of these attempts to remove the colour from Australia, in her case to drain it out of her mother's line over generations. 'There was this horrible language of "breeding out the colour" from full-bloods to half-castes to quarter-castes to octoroons,' Griffiths adds. The goal was to steadily replace one 'race' with another.

By the time this state-sanctioned ethnic cleansing was taking place, a crisis had already emerged within scientific circles. Since the Enlightenment, many European thinkers had united

around the idea that humankind was one, that we all shared the same common capacities, the same spark of humanity that made it possible for even those of us condemned as 'miserable' to improve, with enough encouragement. Even if there was a racial hierarchy, even if there were lesser humans and greater ones, we were all still *human*. But in the nineteenth century, as Europeans encountered more people in other parts of the world, as they began to see the variety that exists across our species, and failed to 'improve' people the way they wanted to, some began to seriously doubt this cherished belief.

The passage of the nineteenth century saw some make an intellectual shift away from the original Enlightenment view of a single humanity with shared origins. Scientists ventured to wonder whether we all really did belong to the same species.

This wasn't just because of racism. Western scientists had been funnelled into a certain way of thinking about the world partly because of where they happened to be based. In the early days of archaeology, Europe was the reference point for subsequent research elsewhere. Before anyone was sure about humanity's African origins, human fossils in Europe provided the first data. According to John Shea, a professor of anthropology at Stony Brook University in New York, this created an indexing problem. 'If you have a series of observations, the first observations guide you more so than the latter ones. And our first observations about human evolution were based on an archaeological record in Europe.' The first movements out of Africa were eastwards, not westwards. This is why you see elephants in both Africa and Asia. Europe isn't where humans originated – indeed, being so inhospitable back then, it was one of the last places they migrated to, long after going to Australia. But since Europe was where the first archaeologists happened

to live and work, this geographical outpost became the model for thinking about the past.

Some of the very oldest human sites in Europe bear evidence of fairly sophisticated cave art. So as a result of indexing, early archaeologists digging on their doorstep logically assumed that art and the ability to think using symbols and images must be a mark of human modernity, one of the features that make us special. But the first *Homo sapiens* arrived in Europe only around 45,000 years ago. When researchers then excavated far earlier sites in Africa, some as old as 200,000 years, they didn't always find the same evidence of symbolic thought and representational art. 'The archaeologists came up with a way to square this,' says Shea. 'They said, well, okay, you know these ancient Africans, Asians, they look morphologically modern but they aren't behaviourally modern. They're not quite right yet.' They decided that although such people *looked* like modern humans, for some reason they didn't *act* like them.

Rather than rethinking what it meant to be a modern human – perhaps taking out the requirement that *Homo sapiens* began making art immediately upon the emergence of our species – the rest of the world's history became a puzzle to be solved. It's a misstep that still has repercussions today. If art is what sets our species apart from Neanderthals and others, then at what point did we actually become our species? Was it 45,000 years ago when we see sophisticated cave art in Europe, or 100,000 years ago when, we now know, people used ochre for drawing? And if Neanderthals or other archaic humans turn out to show evidence of symbolic thought and to have made representational art, will we then have to call them modern too? 'Behavioural modernity is a diagnosis,' says Shea. All the archaeologists can think to do is 'rummage around looking for other evidence that will confirm this diagnosis of modernity'.

In the nineteenth century, such uncertainty around what constituted a modern human being was taken a leap further. If people weren't cultivating the land or living in brick houses, some asked, could they be considered modern? And if they weren't modern, were they even the same species?

Australia in all its alien strangeness posed a particular challenge to European thinkers. Anderson and Perrin argue that the discovery of the continent helped shatter the Enlightenment belief in human unity. After all, here was a remote place, with its own animals not seen elsewhere, kangaroos and koalas, and with its own plants, flowers and unusual landscape. 'Based on observations of the uniqueness of Australian flora and fauna' there were 'suspicions that the entire continent might have been the product of a separate creation,' they write. The humans of Australia were thought to be as strange as everything else there.

After the remains subsequently labelled Neanderthal were first identified in Germany's Neander Valley in 1856, Martin Porr and his colleague Jacqueline Matthews have noted, one of the first things anybody did was compare them to indigenous Australians. Five years later, English biologist Thomas Huxley, a champion of the work of Charles Darwin, described the skulls of Australians as being 'wonderfully near' those of the 'degraded type of the Neanderthal'. It was clear what they were insinuating. If any people on earth were going to have something in common with these now-extinct humans, European scientists assumed, it could only be the strange ones they called savages. Who else could it be but the people who were closest to nature, who had never fitted their definition of what a modern human was?

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We are forever chasing our origins.

When we can't find what we want in the present, we go back, and back further still, until there at the dawn of time, we imagine we've found it. In the gloomy mists of the past, having squeezed ourselves back into the womb of humanity, we take a good look. Here it is, we say with satisfaction. Here is the root of our difference.

Once upon a time, scientists were convinced that Aboriginal Australians were further down the evolutionary ladder than other humans, perhaps closer to Neanderthals. In 2010 it turned out that Europeans are actually likely to have the largest metaphorical drop of Neanderthal blood. In January 2014 an international team of leading archaeologists, geneticists and anthropologists confirmed that humans outside Africa had bred with Neanderthals. Those of European and Asian ancestry have a very small but tangible presence of this now-extinct human in our lineage, up to 4 per cent of our DNA. People in Asia and Australia also bear traces of another archaic human, the Denisovans. There is likely to have been breeding with other kinds of humans as well. Neanderthals and Denisovans, too, mated with each other. In the deep past, it seems, they were pretty indiscriminate in their sexual partnerships.

'We're more complex than we initially thought,' explains John Shea. 'We initially thought there was either a lot of interbreeding or no interbreeding, and the truth is between those goalposts somewhere.'

The discovery had important consequences. It raked up a controversial, somewhat marginalised scientific theory that had been doing the rounds a few decades earlier. In April 1992 an article had been published in *Scientific American* magazine with the incendiary headline: 'The Multiregional Evolution of Humans'. The authors were Alan Thorne, a celebrated Aus-

tralian anthropologist, who died in 2012, and Milford Wolpoff, a cheery American anthropologist based at the University of Michigan, where he still works today. Their hypothesis suggested that there was something deeper to human difference, that perhaps we hadn't come out of Africa as fully modern humans after all.

Although this notion had been mooted before, for Wolpoff, his ideas became cemented in the seventies. 'I travelled and I looked, I travelled and I looked, I travelled and I looked,' he tells me. 'And what I noticed was that in different regions, big regions – Europe, China, Australia, that is what I mean by regions, not small places – in different regions, it seemed to me there was a lot of similarity in fossils. They weren't the same and they all were evolving.'

Wolpoff's big realisation came in 1981 when he was working with a fossilised skull from Indonesia – one of Australia's closest neighbours, not far from its north coast – which was dated at roughly a million years and possibly older. A million years is an order of magnitude older than modern humans, hundreds of thousands of years before some of our ancestors first began to migrate out of Africa. It couldn't possibly be the ancestor of any living person. Yet Wolpoff says he was struck by the similarities he thought he could see between its facial structure and that of modern-day Australians. 'I had reconstructed a fossil that looked so much like a native Australian to me I almost dropped it,' he says. 'I propped it up on my lap with the face staring at me . . . when I turned it over on its side to get a good look at it, I was really surprised.'

Teaming up with Alan Thorne, who had done related research and shared his interpretation of the past, they came up with the theory that *Homo sapiens* evolved not only in Africa, but that some of the earlier ancestors of our species spread out

of Africa and then independently evolved into modern humans, before mixing and interbreeding with other human groups to create the one single species we recognise today. In their article for *Scientific American*, which helped catapult their multiregional hypothesis into the mainstream, they wrote, 'some of the features that distinguish major human groups, such as Asians, Australian Aborigines and Europeans, evolved over a long period, roughly where these people are found today.'

They described these populations as 'types', judiciously steering clear of the word 'race'. 'A race in biology is a subspecies,' Wolpoff clarifies when I ask him about it. 'It's a part of a species that lives in its own geographic area, that has its own anatomy, its own morphology, and can integrate with other subspecies at the boundaries . . . There are no subspecies any more. There may have been subspecies in the past – that's something we argue about. But we do know there are no subspecies now.'

Many academics found Wolpoff and Thorne's idea unconvincing or offensive, or both. According to historian Billy Griffiths, the multiregional way of thinking about our origins, undercutting the fundamental belief that we are all human and nothing else, has echoes of an earlier intellectual tradition that viewed 'races' as separate species. 'Wherever we are in the world we look at the deep past and these immense spans of time through the lens of our present moment and our biases and what we want,' he tells me. 'Archaeology is a discipline that is saturated by colonialism, of course. It can't entirely escape its colonial roots.' Multiregionalism, while it was a response to the evidence available at the time, also carried echoes of the politics of colonialism and conquest. 'That's the ugly political legacy that dogs the multiregional hypothesis.'

Wolpoff has always been sensitive to the controversy. He faced down plenty of criticism when he and Alan Thorne pub-

lished their work. 'We were the enemy,' he recalls. 'If we were right, there couldn't be a single recent origin for humans . . . They said, you're talking about the evolution of human races in separate places independently of each other.'

Their theory remains unproven. Academics in the West and in Africa today generally accept that humans became modern in Africa and then adapted to the environments where they happened to move to fairly recently in evolutionary time – and even these are only superficial adaptations such as skin colour, linked directly to survival. But not everyone everywhere agrees. In China, there's a belief among both the public and leading academics that Chinese ancestry goes back considerably further than the migration out of Africa. One of Wolpoff's collaborators, palaeontologist Wu Xinzhi at the Chinese Academy of Sciences, has argued that fossil evidence supports the notion that *Homo sapiens* evolved separately in China from earlier human species who were living there more than a million years ago, despite data showing that modern Chinese populations carry about as much of a genetic contribution from modern humans who left Africa as other non-African populations do.

'There are many people who are not happy with the idea of African origin,' says Eleanor Scerri, an archaeologist based at the University of Oxford who researches human origins. 'They have co-opted multiregionalism to make a claim that this is a simplistic idea, that races are real, and that people who have come from a particular area have always been there.' She tells me this appears to be prevalent not only in China, but also in Russia. 'There is no acceptance that they were ever African.'

While for some an unwillingness to accept African origins may be motivated by racism or nationalism, it isn't for all. There are those for whom it's simply a way of squaring old origin stories with modern science. In Australia, for instance, Billy

Griffiths tells me, many indigenous people favour the multiregional hypothesis because it sits closer to their own belief that they have been here from the very beginning. Indeed, this is an origin myth shared by cultures in many parts of the world. Until further evidence comes along (and maybe even after it does), the choice of theory may be driven as much by personal motivations as by data. The past can never be completely known, so the classic multiregional hypothesis persists despite its lack of support among experts. It has political power.

While classic multiregionalism seems unlikely to be the story of our past, the fact that we now know our ancestors bred with other kinds of archaic humans does have implications. It gives nourishment to those who would like to resurrect the multiregional hypothesis in full. It's a factual nugget that feeds fresh speculation about the roots of racial difference. Some dogged supporters of the multiregional hypothesis can rightly claim that at least one prediction made by Wolpoff and Thorne has turned out to be correct. The pair suggested that other now extinct humans such as Neanderthals either evolved into modern humans or interbred with them. And on interbreeding, we now know from genetic evidence, the pair got it right. Some of our ancestors did mate with Neanderthals, although their contribution to people's DNA today runs to just a few per cent, which means it couldn't have been particularly widespread. But it did happen.

When I ask Wolpoff if he feels vindicated by this, he laughs. 'You said vindicated. We said relief!'

Genetics has done the unthinkable, says rock art expert Benjamin Smith. 'The thing that has worried me is the way that genetics research has moved . . . We thought that we were basically all the same, whether you're a bushman in southern Africa, an Aboriginal Australian living in rural Western Australia, or

someone like myself who is of European extraction. Everyone was telling us that we were all identical, all the modern science.' The latest discoveries appear to move the story back a little closer to the nineteenth-century account. 'This idea that some of us are more interbred with Neanderthals, some of us are more interbred with Denisovans . . . and Aboriginal Australians had quite a high proportion of Denisovan genetics, for example. That could lead us back to the nasty conclusion that we are all different,' he warns. 'I can see how it might be racialised.'

Indeed, when geneticists revealed the Neanderthal connection, personal ancestry testing companies were quick to sell services offering members of the public the opportunity to find out how much Neanderthal ancestry they might have, using data on genetic variants shared by both humans and Neanderthals – presumably in the expectation that this might mean something to everyday people. Maybe those having the test imagined they would have qualities in common with their extinct cousins.

The finding also had a peculiar effect on scientific research. Fairly soon after it was found to be modern-day Europeans who have the closer association to Neanderthals – not, as it turned out, Aboriginal Australians – the image of the Neanderthal underwent a dramatic makeover. When their remains were first discovered in 1856, the German naturalist Ernst Haeckel had suggested naming them 'Homo stupidus'. But in the twenty-first century, these same Neanderthals, the dictionary definition of simple-minded, loutish, uncivilised thugs, have become oddly rehabilitated.

Svante Pääbo, the director of the genetics department at the Max Planck Institute for Evolutionary Anthropology in Germany, who spearheaded some of the research that led to the discoveries of ancient interbreeding in the first place, was among those to marshal efforts to compare the genomes of

Neanderthals and *Homo sapiens*, in the search for what differs as well as what there is in common. This was accompanied by plenty of speculation from others. In 2018 a set of researchers in Switzerland and Germany suggested that Neanderthals actually had quite 'sophisticated cultural behaviour', prompting one British archaeologist to wonder out loud whether 'they were a lot more refined than previously thought'. An archaeologist in Spain claimed that modern humans and Neanderthals must have been 'cognitively indistinguishable'. A few even raised the possibility that Neanderthals could have been capable of symbolic thought, pointing to freshly discovered cave markings in Spain that appear to predate the arrival of modern humans (the finding has failed to convince rock art expert Benjamin Smith).

'Neanderthals are romanticised,' I'm told by John Shea. They're no longer around, and we don't have a great deal of evidence about what they were like or how they lived, which means they can be whatever we want them to be. 'We're free to project good qualities, things we admire, and the ideal on them.' In reality, whatever they were like, he says, 'the interbreeding thing is more like a symbolic thing for us than it is of evolutionary consequence.'

Yet researchers haven't been able to help themselves looking for evolutionary consequences. One team of scientists claimed that the tiny peppering of Neanderthal DNA may have given Europeans different immune systems from Africans. Another published paper linked Neanderthal DNA to a whole host of human differences, including 'skin tone and hair color, height, sleeping patterns, mood, and smoking status'. An American research group went so far as to try to link the amount of Neanderthal DNA people have with the shapes of their brains, implying that non-Africans may have some mental differences from Africans as a result of their interbreeding ancestors.

For more than a century the word 'Neanderthal' had been synonymous with low intelligence. In the space of a decade, once the genetic link to modern Europeans was suspected and then confirmed, that all changed. In the popular press, there was a flurry of excitement about our hitherto undervalued relatives. Headlines proclaimed that 'we haven't been giving Neanderthals enough credit' (*Popular Science*), that 'they were too smart for their own good' (*Telegraph*), that 'humans didn't outsmart the Neanderthals' (*Washington Post*). Meanwhile a piece in the *New Yorker* whimsically reflected on their apparent everyday similarity to humans, including the finding that they may have suffered from psoriasis. Poor things, they even itched like us. 'With each new discovery, the distance between them and us seems to narrow,' wrote the author. In the popular imagination, the family tree had gained a new member.

In January 2017, the *New York Times* asked: 'Neanderthals were people, too . . . Why did science get them so wrong?' This was indeed the big question. If the definition of 'people' had always included archaic humans, then why should Neanderthals so suddenly be accepted as 'people' now? And not just accepted, but elevated to the celebrity status of sadly deceased genius cousin? It wasn't so long ago that scientists had been reluctant to accept the full humanity even of Aboriginal Australians. Gail Beck's family had been denied their culture, treated in their own nation as unworthy of survival, their children ripped from them to be abused by strangers. In the nineteenth century, *they* had been lumped together with Neanderthals as evolutionary dead-ends, both destined for extinction. But now that kinship had been established between Europeans and Neanderthals, *now* we were all people? *Now* we had found our common ground?

If it had turned out that Aboriginal Australians were the

ones to possess that tiny bit of Neanderthal ancestry instead of Europeans, would our Neanderthal cousins have found themselves quite so remarkably reformed? Would they have been welcomed warmly with such tight hugs? It's hard not to see, in the public and scientific acceptance of Neanderthals as 'people like us', another manifestation of the Enlightenment habit of casting humanity in the European image. In this case, Neanderthals have been drawn into the circle of humankind by virtue of being just a little related to Europeans – forgetting that a century ago, it was their supposed resemblance to indigenous Australians that helped cast actual living human beings out of the circle.

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Milford Wolpoff is clear with me that he doesn't think there is any biological basis to race, that there are no separate races, except as social categories. He comes across as honest and well meaning, and I believe him. But one obvious implication of his multiregional hypothesis is that if different populations became modern in their own way on their own territories, then maybe some became what we today recognise as human sooner than others. 'A modern human from China looks different than a modern human in Europe, not in the important ways, but in other ways,' he tells me. 'So did one become modern earlier than the other one?' Such a line of thinking opens a door for the politics of today to be projected onto the past, giving rise to racial speculation even if that's not what he intends.

There is still not enough evidence that any humans became modern outside Africa in the way that classic multiregional theory suggests. Even Wolpoff concedes that Africa must remain at the heart of the story. 'I will never say that all of modernity is African, but you've gotta think that most of it is' – even if

only because in our deep past that's where most people lived. It is impossible to airbrush Africa out of the lineage of every living person. The genetic evidence we have to date confirms that some version of an 'Out of Africa' scenario must have happened.

But over time, the picture inside Africa has changed to incorporate the growing scientific realisation that our origins might have been a little fuzzier than we imagine. In the summer of 2018 Eleanor Scerri at the Institute of Archaeology in Oxford, together with a large international team of geneticists and anthropologists, published a scientific paper suggesting that rather than humans evolving from a single lineage that can be traced to a single small sub-Saharan African population, perhaps our ancestors were the product of many populations across a far wider area within Africa. These pan-African populations might have been isolated by distance or ecological barriers, and could therefore have been very different from one another. It is multiregionalism, if you like, but within one continent.

'Gradually we started to emerge from the occasional mixing of the populations that were spread around,' Scerri tells me. 'The characteristics that define us as a species don't appear in any single individual until much later. Before that, the characteristics of our species were distributed across the continent in different places at different times.' Modern humans, *Homo sapiens*, emerged from this 'mosaic'. 'We need to look at all of Africa to get a good picture of origins.' This version of our past still puts Africa at its centre, as the first home of our ancestors, but it also concedes that modern humans didn't appear suddenly in one place looking and sounding sophisticated, thinking symbolically and producing art. There was no sudden moment at which the first modern human emerged. The characteristics of us existed in various others before us.

'Humans evolved in Africa first,' agrees anthropologist John Shea. 'Not in just one garden of Eden, but among a broadly distributed population more or less like stops across a subway system. People were moving around along the rivers and coastlines.' In short, we are a product of longer periods of time and space, a mixture of qualities that incubated in Africa.

According to archaeologist Martin Porr in Australia, this version of the past is more plausible given the way that fossil evidence is scattered across the African continent. For him personally, it also resonates with indigenous Australian ways of defining what it means to be human. Up north in the Kimberley where he has done most of his work, he says, rock art is not thought of as just images upon rock. 'The rock is actually not a rock but it's a formation out of the dreamtime that is alive, that is in the living world, that people inhabit. And people themselves are part of that.' Human and object, object and environment, are not separated by hard divisions the way they are in Western philosophies.

'You can oscillate in and out of humanity just as objects and animals can oscillate between being human.' An inanimate object can take on human qualities, the way a doll does to a child. In that sense, too, Porr suggests that what made a being human in the past also oscillated.

'I think there's nothing essential about human beings at all.' This, he explains, is how he has come to think about our origins. Not that our evolutionary journey was one big leap, but that we are the gradual products of elements that already existed, in our African ancestors but also in Neanderthals, Denisovans and other archaic humans. Perhaps some of what we think of as purely human characteristics exist in other living creatures today, too.

It's a radically different way of thinking about what it means

to be us, ditching the European Enlightenment view, and taking a cue instead from other cultures and older systems of thought. It's a challenge to researchers who have dedicated their careers to identifying the first modern humans and defining what they were like, chasing the tail of the Enlightenment philosophers who thought they already knew. Archaeologists are still trying to hunt down the earliest cave art, the earliest sign of symbolic, abstract thought that will signify the leap from a simpler primate to a sophisticated one, in the hope of pinpointing the magic moment at which *Homo sapiens* emerged, and where. Geneticists, too, hunt for magical ingredients in our genome, the ones that will indicate what makes us so remarkable. Increasingly the evidence suggests that it was never so simple.

'Very few people like looking at human origins from a post-colonial context, but there is a broader story,' says Porr. There are other ways of picturing humanity than as a uniquely special entity far removed from all other living things. Eleanor Scerri agrees that fresh scientific findings are forcing a rethink of what it means to be human. 'Popular science needs to get away from this idea that we originated, and that was *us*. There's never a time that we were not changing,' she says. 'The idea of these immutable forms, and that we originate in one place and that's who we are, that's where we're from.'

What does this mean for us today? If we can't agree on what makes a modern human, where does that leave the idea of universal humanity? If our origins aren't crystal clear then how do we know that we're all the same? What does it mean for race?

In a sense, it shouldn't be of any importance. How we choose to live and treat each other is a political and ethical matter, one that's already been decided by the fact that as a society we have chosen to call ourselves human and give every individual human rights. In reality, though, the tentacles of race reach into

our minds and demand proof. If we are equally human, equally capable and equally modern, then there are those who need convincing before they grant full rights, freedoms and opportunities to those they have historically treated as inferior. They need to be convinced before they will commit to redressing the wrongs of the past, before they agree to affirmative action or decolonisation, before they fully dismantle the structures of race and racism. They're not about to give away their power for free.

And if we're honest, maybe we all need to be convinced. Many of us hold subtle prejudices, unconscious biases and stereotypes that reveal how we suspect we're not quite the same. We cling to race even when we know we shouldn't. A liberal, left-wing British friend of mine, of mixed Pakistani and white English ancestry, who has never been to Pakistan and has no deep ties to the country any more, told me recently that she believes there is something in her blood, something biological within her that makes her Pakistani. I feel this way occasionally about my Indian heritage. But where does culture end and ethnicity begin? Many of us who cherish our ethnic identities, whether on the political left, right or the centre, perhaps betray some commitment to the idea of racial difference.

This is the problem for science. When Enlightenment thinkers looked at the world around them, some took the politics of their day as the starting point. It was the lens through which they viewed all human difference. We do the same today. The facts only temper what we think we already know. Even when we study human origins, we don't actually start at the beginning. We begin at the end, with our assumptions as the basis for inquiry. We need to be persuaded before we cast aside our prior beliefs about who we are. The way new research is interpreted is always at the mercy of the old ideas.

'You can either use the present to explain the past. Or you can use the past to explain the present,' John Shea tells me. 'But you can't do both.' To make sense of the past – and of ourselves – is not a simple job of gathering together scientific data until we have the truth. It isn't just about how many fossils we have or how much genetic evidence. It's also about squaring the stories we have about who we are with the information we're given. Sometimes this information becomes slotted into the old stories, reinforcing them and giving them strength, even if it needs to be forced like a square peg into a round hole. Other times, we have to face the uncomfortable realisation that a story must be ditched and rewritten because however hard we try it no longer makes sense.

But the stories we're raised on, the tales, myths, legends, beliefs, even the old scientific orthodoxies, are how we frame everything we learn. The stories are our culture. They are the minds we inhabit. And that's where we have to start.

2

It's a Small World

How did scientists enter the story of race?

Once, a long time ago, I floated around the earth in the space of minutes.

I was on a ride at the Magic Kingdom in Walt Disney World, Florida, my little sisters and I perched alongside each other in a slow mechanical boat, buoyed by sugar. 'It's a Small World (After All)' chimed in tinny children's voices, while minuscule automata played out cultural stereotypes from different countries. From what I can recall, there were spinning Mexicans in sombreros and a ring of African dancers laughing alongside jungle animals. Indian dolls rocked their heads from side to side in front of the Taj Mahal. We sailed past, given just enough time to recognise each cultural stereotype, but not quite enough to take offence.

This long-forgotten vignette from my childhood is what comes back to me on the drizzly day I approach the eastern corner of the Bois de Vincennes woodland in Paris. I had heard that somewhere here I'd find the ruins of a set of enclosures in which humans were once kept – not as cruel punishment by the

authorities, and not by some murderous psychopath. Apparently they were just ordinary, everyday people, kept here by everyday people, for the fascination of millions of other everyday people, for no other reason than where they happened to come from and what they happened to look like.

'Man is an animal suspended in webs of significance he himself has spun,' American anthropologist Clifford Geertz wrote in 1973. These webs are ours only until someone comes along to pull at the threads. The nineteenth century had marked an age of unprecedented movement and cultural contact, turning the world into a smaller place than it had ever been. It was less mysterious, perhaps, but no less fascinating. And people wanted to see it all. So in 1907 there was a grand Colonial Exposition on this overgrown site in Paris, within the Bois, in what was known as the Garden for Tropical Agriculture, recreating the different parts of the world in which France had its colonies.

Eight years earlier, the garden had been founded as a scientific project to see how crops in distant lands might be better cultivated, helping to bring in more income for colonisers back in Europe. This exposition went a step further. To exotic plants and flowers it added people, displaying them in houses vaguely typical of the ones they might have left behind, or at least how the French imagined them to be. There were five mini 'villages' in all, each designed to be as realistic as possible so visitors could experience what normal life was like for these foreigners. It was an Edwardian Disneyland, not with little dolls, but actual people. They transformed the tropical garden into nothing less than a human zoo.

'In Paris, there were many exhibitions with human zoos,' says French anthropologist Gilles Boëtsch, former president of the scientific council at the National Center for Scientific Research, who has studied their dark history. There was a circus

element to it all, a cultural extravaganza. But there was also a genuine desire to showcase human diversity, to give a glimpse of life in the faraway colonies. According to some estimates, the 1907 Paris Exposition attracted two million visitors in the space of just six months – a hit with curious citizens who wanted to see the world in their backyard.

Wherever they were held, most evidence of human zoos has long disappeared, most likely deliberately forgotten. The Garden for Tropical Agriculture is one rare exception. That said, the French authorities don't appear to want to brag about it. It's tucked behind some quiet and well-to-do apartment blocks with barely any signposting. Greeting me as I enter is a Chinese arch that was once probably bright red, but has since faded to a dusty grey. As I walk under it down a gravel path, the place is peaceful but dilapidated. To my surprise, most of the buildings have survived the last century fairly intact, as though everything was abandoned immediately after the tourists left.

To one side is a weathered sculpture of a naked woman, reclining and covered in beads, her head gone, if it was ever there at all. A solitary jogger runs past.

For European scientists, zoos like this offered more than fleeting amusement value. They were a source of biological data, a laboratory stocked with captive human guinea pigs. 'They came to the human zoos to learn about the world,' explains Boëtsch. Escaping the bother of long sea voyages to the tropics, anatomists and anthropologists could conveniently pop down to their local colonial exhibition and sample from a selection of cultures in one place. Researchers measured head size, height, weight, colour of skin and eyes, and recorded the food these people ate, documenting their observations in dozens of scientific articles. With their notebooks, they set the parameters for modern race science.

Race itself was a fairly new idea. Some of the first known uses of the word date from as recently as the sixteenth century, but not in the way we use it now. Instead, at that time it referred to a group of people from common stock, like a family, a tribe, or perhaps – at a long stretch – a small nation. Even until the European Enlightenment in the eighteenth century, many still thought about physical difference as a permeable, shifting quantity. It was rooted in geography, perhaps explaining why people in hotter regions had darker skins. If those same people happened to move somewhere colder, it was assumed their skins would automatically lighten. A person could shift their identity by moving place or converting to another religion.

The notion that race was hard and fixed, a feature that people couldn't choose, an essence passed down to their children, came slowly, and in large part from Enlightenment science. Eighteenth-century Swedish botanist Carl Linnaeus, famous for classifying the natural world from the tiniest insects to the biggest beasts, turned his eye to humans. If flowers could be sorted by colour and shape, then perhaps we too could fall into groups. In the tenth edition of *Systema Naturae*, a catalogue published in 1758, he laid out the categories we still use today. He listed four main flavours of human, respectively corresponding to the Americas, Europe, Asia and Africa, and each easy to spot by their colours: red, white, yellow and black.

Categorising humans became a never-ending business. Every gentleman scholar (and they were almost exclusively men) drew up his own dividing lines, some going with as few as a couple of races, others with dozens or more. Many never saw the people they were describing, instead relying on second-hand accounts from travellers, or just hearsay. Linnaeus himself included two separate sub-categories within his *Systema Naturae* for monster-like and feral humans. However the

lines were drawn, once defined, these 'races' rapidly became slotted into hierarchies based on the politics of the time, character conflated with appearance, political circumstance becoming biological fact. Linnaeus, for instance, described indigenous Americans (his 'red' race) as having straight black hair and wide nostrils, but also as 'subjugated', as though subjugation were in their nature.

And so it began. By the time human zoos were a popular attraction, when the ghostly enclosures of the Bois de Vincennes were not eerily empty as they are now, but full of performers – when I would have more likely been within a cage than outside it – the parameters of human difference had become hardened into what we recognise them as today.

Paris wasn't the only city to enjoy this breed of spectacle. Other European colonial powers hosted similar events. Indeed by the time of the 1907 Paris Exposition, human zoos had been around for more than a century. In 1853 a troupe of Zulus undertook a grand tour of Europe. And forty-three years before this an advertisement in London's *Morning Post* newspaper signalled the arrival of a woman who would go down in history as one of the most notorious of all racial freak shows, her story echoed by those to come. 'From the Banks of the River Gamtoos, on the Borders of Kaffraria, in the interior of South Africa, a most correct and perfect Specimen of that race of people,' it announced.

The 'Hottentot Venus', as she was described in the paper, was available for anyone to take a peek at, for a limited time only and at the cost of two shillings. Her real name was Saartjie Baartman and she was aged somewhere between twenty and thirty. What made her so fascinating were her enormous buttocks and elongated labia, considered by Europeans to be sexually grotesque. Calling her a 'Venus' was a joke at her

expense. The *Morning Post* took pains to mention the expense shouldered by Boer farmer Hendric Cezar in transporting her all the way to Europe. He was banking on her body causing a scandal.

Baartman had been Cezar's servant in Africa, and by all accounts, she had come with him to Europe of her own free will. But it's unlikely that the life she endured as his travelling exhibit was what she expected. Her career was brief and humiliating. At each show, she was brought out of a cage to parade in front of visitors, who poked and pinched to check that she was real. Commentators in the press couldn't help but notice how unhappy she seemed, even remarking that if she felt ill or unwilling to perform, she was physically threatened. To add to the humiliation, she became, quite literally, the butt of jokes across the city, rendered in relentless caricature.

At the end of her run, Baartman ended up in Paris. She found herself at the mercy of celebrated French naturalist Georges Cuvier, a pioneer in the field of comparative anatomy, which aims to understand the physical differences between species. Like so many before him, he was spellbound by her – but his was an anatomist's fascination, one that drove him to undertake a detailed study of every bit of her body. When she died in 1815, just five years after being displayed in London, Cuvier dissected her, removing her brain and genitals and presenting them in jars to the French Academy of Sciences.

As far as Cuvier was concerned, this was just science and she was just another sample. The prodding, cutting, dehumanising fingers of researchers like him sought only to understand what made her and those like her different. What gave some of us dark skin and others light? Why did we have different hair, body shape, habits and language? If we were all one species,

then why didn't we look and behave the same way? These were questions that had been asked before, but it was nineteenth-century scientists who turned the study of humans into the most gruesome art. People became objects, grouped together like museum exhibits. Any sense of common humanity was left at the door, replaced by the cold, hard tools of dissection and categorisation.

Following a lifetime of being relentlessly poked and prodded, Baartman remained on show for a hundred and fifty years after her death. Her abused body ended up at the Musée de l'Homme, the Museum of Man, looking out on the Eiffel Tower, a plaster cast of it still standing there until as recently as 1982. It was only in 2002, after a request from Nelson Mandela, that her remains were removed from Paris and finally returned to South Africa for burial.

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'In the modern world we look to science as a rationalisation of political ideas,' I'm told by Jonathan Marks, a genial, generous professor of anthropology at the University of North Carolina at Charlotte. He is one of the most outspoken voices against scientific racism. Race science, he explains, emerged 'in the context of colonial political ideologies, of oppression and exploitation. It was a need to classify people, make them as homogeneous as possible.' By grouping people and dividing these groups, it was easier to control them.

It is no accident that modern ideas of race were formed during the heyday of European colonialism, when those in power had already decided on their superiority. By the nineteenth century, the possibility that races existed and some were inferior to others gave colonialism a moral kick in the drive for public support. The truth – that European nations were moti-

vated by economic greed or power – was harder to swallow than the suggestion that the places they were colonising were too uncivilised and barbaric to matter, or that they were actually doing the savages a favour.

In the United States, the same tortured logic was used to justify slavery. The transatlantic trade in slaves officially ended in 1807 once the United Kingdom passed its Slave Trade Act, but the exploitation continued for far longer. The use of slave labour continued, people's bodies plundered both in life and death. Dead black slaves, for instance, were routinely stolen or sold for medical dissection. Daina Ramey Berry, professor of history at the University of Texas at Austin, has documented the economic value of slavery in the United States. She notes that there was a brisk trade in black corpses in the nineteenth century, some exhumed by their owners for a quick profit. It's ironic that much of our modern scientific understanding of human anatomy was built on the bodies of those who were considered at the time less than human.

'If you could say that the slavers were naturally distinct from the slaves, then you have essentially a moral argument in favour of slavery,' explains Jonathan Marks. Given this distinction, many feared that the abolition of slavery would set free the human zoo, unleashing chaos. In 1822 a group calling itself the American Colonisation Society bought land in West Africa to establish a colony named Liberia, now the Republic of Liberia, motivated largely by the desperate dread that freed black slaves would want to settle among them, with the same rights. Repatriation to the continent of their ancestors seemed like a convenient solution, ignoring the fact that after generations in slavery, most black Americans simply didn't have a tangible connection to it any more – let alone to a new country that their ancestors may never have seen.

Louis Agassiz, a Swiss naturalist who had been mentored by Georges Cuvier and moved to America in 1846, argued passionately against blacks being treated the same as whites. Shaken by such an intense physical disgust towards black domestic workers serving him food at a hotel that he almost couldn't eat there at all, he became convinced that separate races originated in different places, with different characters and intellectual abilities.

Enslavement was turned back on the slaves themselves. They were in this miserable, degrading position not because they had been forcibly enslaved, it was argued, but because it was their biological place in the universe. At a meeting of the British Association for the Advancement of Science in Plymouth in 1841, an American slave owner from Kentucky named Charles Caldwell had already claimed that Africans bore more of a resemblance to apes. In their 1854 book *Types of Mankind*, American physician Josiah Clark Nott and Egyptologist George Gliddon went so far as to sketch actual comparisons between the skulls of white and black people, alongside those of apes. While the typical European face was artfully modelled on classical sculpture, African faces were crude cartoons, exaggerating features that made it seem they had more in common with chimpanzees and gorillas.

Propelled by a belief that black people had their own unique diseases, Samuel Cartwright, a medical doctor practising in Louisiana and Mississippi, characterised in 1851 what he saw as a mental condition particular to black slaves, coining it 'drapetomania', or 'the disease causing Negroes to run away'. Harvard University historian Evelynn Hammonds, who teaches Cartwright's story to her students, laughs darkly when she recounts it. 'It makes sense to him, because if the natural state of the negro is to be a slave, then running away is going against their natural state. And therefore it's a disease.'

For Hammonds, another chilling aspect of Cartwright's work is the way in which he methodically described the sufferers of drapetomania. 'The colour of the skin is the main difference,' she reads for me from her notes, '. . . the membranes, the muscles, the tendons, all fluids and secretions, then the nerves, and the bile. There's a difference in the flesh. The bones are whiter and harder, the neck is shorter and more oblique.' Cartwright continues this way, couching racism in medical terminology. 'These kinds of observations turned into questions to be explored going forward. Since the 1850s, people have been trying to figure out if black bones are harder than white bones,' Hammonds explains. Cartwright's medical 'discoveries' were patently rooted in the desire to keep slaves enslaved, to maintain the status quo in the American South where he lived. In place of universal humanity came a self-serving version of the human story, in which racial difference became an excuse for treating people differently. Time and again, science provided the intellectual authority for racism, just as it had helped define race to begin with.

Race science became a pastime for non-scientists, too. French aristocrat and writer Count Arthur de Gobineau, in *An Essay on the Inequality of the Human Races*, published in 1853, proposed that there were three races, with what he saw as an obvious hierarchy between them: 'The negroid variety is the lowest, and stands at the foot of the ladder . . . His intellect will always move within a very narrow circle.' Pointing to the 'triangular' face shape of the 'yellow race', he explained that this was the opposite of the negroid variety. 'The yellow man has little physical energy, and is inclined to apathy . . . He tends to mediocrity in everything.' Neither could be a match for Gobineau's own race.

Reaching his predictable pinnacle, Gobineau added, 'We

come now to the white peoples. These are gifted with reflective energy, or rather with an energetic intelligence. They have a feeling for utility, but in a sense far wider and higher, more courageous and ideal, than the yellow races.' His work was a naked attempt to justify why those like him deserved the power and wealth they already had. This was the natural order of things, he argued. He didn't need hard evidence for his theories because there were plenty of people around him ready and willing to agree that they, too, belonged to a superior race.

It would be Gobineau's ideas that would later help reinforce the myth of racial purity and the creed of white supremacy. 'If the three great types had remained strictly separate, the supremacy would no doubt have always been in the hands of the finest of the white races, and the yellow and black varieties would have crawled forever at the feet of the lowest of the whites,' he wrote, promoting a notion of an imaginary 'Aryan' race. These glorious Aryans, he believed, had existed in India many centuries ago, speaking an ancestral Indo-European language, and had since spread across parts of the world, diluting their superior bloodline.

Myth and science coexisted, and both served politics. In the run-up to the passage in 1865 of the 13th Amendment, abolishing slavery in the United States, the race question wasn't resolved – it just became thornier. Although many Americans believed in emancipation on moral grounds, fewer were convinced that full equality would ever be possible, for the simple reason that groups weren't biologically the same. Even Presidents Thomas Jefferson and Abraham Lincoln believed that blacks were inherently inferior to whites. Jefferson, himself a slaveholder, agreed with those who thought that the best way to deal with freed slaves was to send them to a colony of their own. Freedom was framed as a gift bestowed on unfortunate black

slaves by morally superior white leaders, rather than a reflection of a hope that everyone would one day live alongside each other as friends, colleagues and partners.

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Not all scientists were quite so self-serving. For those who wanted to establish the facts about human difference, there were unanswered questions. The biggest puzzle was that there was no fleshed-out mechanism to account for how different races – if they were real – might have emerged. If each race was distinct, then where did they each come from, and why? Going by the Bible, as many Europeans did, one explanation for the existence of different races was that, after the big flood, Noah's children spread to different parts of the earth. How we truly originated, and how physical differences appeared between us, were anyone's guess.

In 1871 biologist Charles Darwin published *The Descent of Man*, sweeping away these religious creation myths and framing the human species as having had one common ancestor many millennia ago, evolving slowly like all other life on earth. Studying humans across the world, their emotions and expressions, he wrote, 'It seems improbable to me in the highest degree that so much similarity, or rather identity of structure, could have been acquired by independent means.' We are too alike in our basic responses, our smiles and tears, our blushes. On this alone, Darwin might have settled the race debate. He demonstrated that we could only have evolved from shared origins, that human races didn't emerge separately.

On a personal level, this was important to him. Darwin's family included influential abolitionists, his grandfathers Erasmus Darwin and Josiah Wedgwood. He himself had seen the brutality of slavery first-hand on his travels. When naturalist

Louis Agassiz in the United States spoke about human races having separate origins, Darwin wrote disparagingly in a letter that this must have come as comfort to slaveholding Southerners.

But this wasn't the last word on the subject. Darwin still struggled when it came to race. Like Abraham Lincoln, who was born on the same day, he opposed slavery but was also ambivalent on the question of whether black Africans and Australians were strictly equal to white Europeans on the evolutionary scale. He left open the possibility that, even though we could all be traced back to a common ancestor, that we were the same kind, populations may have diverged since then, producing levels of difference. As British anthropologist Tim Ingold notes, Darwin saw gradations between the 'highest men of the highest races and the lowest savages'. He suggested, for example, that the 'children of savages' have a stronger tendency to protrude their lips when they sulk than European children, because they are closer to the 'primordial condition', similar to chimps. Gregory Radick, historian and philosopher of science at the University of Leeds, observes that Darwin, even though he made such a bold and original contribution to the idea of racial unity, also seemed to be unembarrassed by his belief in an evolutionary hierarchy. Men were above women, and white races were above others.

In combination with the politics of the day, this was devastating. Uncertainty around the biological facts left more than enough room for ideology to be mixed with real science, fabricating fresh racial myths. Some argued that brown and yellow races were a bit higher up than black, while whites were the most evolved, and by implication, the most civilised and the most human. What was seen to be the success of the white races became couched in the language of the 'survival of the fittest',

with the implication that the most 'primitive' peoples, as they were described, would inevitably lose the struggle for survival as the human race evolved. Rather than seeing evolution acting to make a species better adapted to its particular environment, Tim Ingold argues that Darwin himself began to frame evolution as an 'imperialist doctrine of progress'.

'In bringing the rise of science and civilisation within the compass of the same evolutionary process that had made humans out of apes, and apes out of creatures lower in the scale, Darwin was forced to attribute what he saw as the ascendancy of reason to hereditary endowment,' writes Ingold. 'For the theory to work, there had to be significant differences in such endowment between "tribes" or "nations".' For hunter-gatherers to live so differently from city-dwellers, the logic goes, it must be that their brains had not yet progressed to the same stage of evolution.

Adding fuel to this bonfire of flawed thinking (after all, we know that the brains of hunter-gatherers are no different from those of anyone else) were Darwin's supporters, some of whom happened to be fervent racists. The English biologist Thomas Henry Huxley, known as 'Darwin's Bulldog', argued that not all humans were equal. In an 1865 essay on the emancipation of black slaves, he wrote that the average white was 'bigger brained', adding, 'The highest places in the hierarchy of civilisation will assuredly not be within the reach of our dusky cousins.' For Huxley, freeing slaves was a morally good thing for white men to do, but the raw facts of biology made the idea of equal rights – for women as well as for black people – little more than an 'illogical delusion'. In Germany, meanwhile, Darwin's loudest cheerleader was Ernst Haeckel, who taught zoology at the University of Jena from 1862, and was a proud nationalist. He liked to draw connections between black Africans and

primates, seeing them as a kind of living 'missing link' in the evolutionary chain that connected apes to white Europeans.

Darwinism did nothing to inhibit racism. Instead, ideas about the existence of different races and their relative superiority were merely repackaged in new theories. Science, or the lack of it, managed only to legitimise racism, rather than quash it. Whatever real and reasonable questions might have been asked about human difference were always tainted by power and money.

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I pick my way through a tall thicket of bamboo and find an intricate wooden pagoda.

Further still inside the sunlit Garden for Tropical Agriculture is a Tunisian house, coated in thick green moss. If their histories were unknown to me, I might find the buildings in this quiet maze beautiful. They are grand and otherworldly, ethereal relics of foreign places as imagined by another age. But of course, I'm acutely aware that each was also once a kind-of home to real people like me, pulled from their lives thousands of miles away for the entertainment of paying visitors. As a reminder, through the smashed window of a Moroccan castle, complete with battlements and blue tiles, I'm caught off-guard by a glaring red face that must have been painted by vandals.

However beautiful they are, these aren't homes at all. They're gilded cages.

It's hard to imagine what life would have been like on the inside of the human zoos, looking out. The people kept here weren't slaves. They were paid, similar to actors under contract, but expected to dance, act, and carry out their everyday routines in public view. Their lives were live entertainment. They were objects first and people second. Little effort was made to

help them feel comfortable in their temporary homes, much less to acclimatise them. After all, the whole point of the spectacle was to underscore just how different they were, to imagine that even in a cold climate they would choose to walk around in as few clothes as they wore in a hot one, that their behaviour couldn't change no matter where they lived. Visitors were made to believe that the cultural differences were woven into their bodies like stripes on a zebra. 'When there was a birth, it meant a new show,' Gilles Boëtsch from the National Center for Scientific Research tells me. People would flock to see the baby.

Science had created a distance between the viewers and the viewed, the colonisers and the colonised, the powerful and the powerless. For those confronted with people from foreign lands in this way, bizarrely out of context, referenced in a book or transplanted to some fake village in Paris, it only helped reinforce the notion that we were not all quite the same. For the spectators peering into their homes, the performers in human zoos must have been curiosities not just because they looked and behaved differently, but because control of their lives belonged to others who didn't look like them. The ones outside the cage were clothed, civilised and respectable while those inside were semi-naked, barbaric and subjugated.

'People are more readily perceived as inferior by nature when they are already seen as oppressed,' write American scholars Karen Fields and Barbara Fields in their 2012 book *Racecraft*. They explain how a sense of inevitability gets attached to a social routine until it becomes seen as natural. The idea of race didn't make people treat other people as subhuman. They were already treated as subhuman before race was invoked. But once it was invoked, the subjugation took on a new force.

There was something about treating human difference as a science that gave it a peculiar quality. The observation

of humans turned humans into strange beasts. While the unimpeachable impression of scientific objectivity was maintained, somehow the gold standard of beauty and intelligence always turned out to be the scientist himself. His own race was safe in his hands. German naturalist Johann Blumenbach, for instance, idealised the Caucasian race to which he belonged, but described Ethiopians as being 'bandy-legged'. If legs were different, there was never any question that Caucasians might be the unusual ones. The creatures caged in the human zoos were those who had failed to reach the ideal of white European physical and mental perfection.

The scientific distance created by believing that racial hierarchies existed in nature, this uneven balance of power, allowed human zoos to treat their performers as less than equals, making life for them fatally precarious. According to Boëtsch, many died from pneumonia or tuberculosis. Concerns were expressed in the press. There were always protests, as there had been about Saartjie Baartman, but they made little difference.

In another example around the same time as the Paris Exposition, a Congolese 'pygmy' named Ota Benga, who had been brought to the United States to be displayed at the St Louis World's Fair, was put in the Monkey House at Bronx Zoo in New York, without shoes. Visitors loved him. 'Some of them poked him in the ribs, others tripped him up, all laughed at him,' the *New York Times* reported. He was eventually rescued by African American ministers, who found him a place in an orphanage. Ten years later, in despair because he couldn't return home to the Congo, he borrowed a revolver and shot himself through the heart.

As I stand among the weeds and crumbling former homes of Paris's human zoo, it's difficult to avoid concluding that the reason anyone pursued the scientific idea of race was not so

much to understand the differences in our bodies, but to try to justify why we lead such different lives. Why else? Why would something as superficial as skin colour or body shape matter otherwise? What the scientists really wanted to know was why some people are enslaved and others free, why some prosper while others are poor, and why some civilisations have thrived while others haven't. Imagining themselves to be looking objectively at human variation, they sought answers in our bodies to questions that existed far outside them. Race science had sat, always, at the intersection of science and politics, of science and economics. Race wasn't just a tool for classifying physical difference, it was a way of measuring human progress, of placing judgement on the capacities and rights of others.