

GENES AND
PITH HELMETS

‘GLAD to know you, Clint.’ The friendly passport controller was not to know that British people are sometimes given a family name first, followed by the name their parents wanted them to use. I was always to be Richard, just as my father was always John. Our first name of Clinton was something we forgot about, as our parents had intended. To me, it has been no more than a niggling irritation which I would have been happier without (notwithstanding the serendipitous realization that it gives me the same initials as Charles Robert Darwin). But alas, nobody anticipated the United States Department of Homeland Security. Not content with scanning our shoes and rationing our toothpaste, they decreed that anyone entering America must travel under his first name, exactly as written in his passport. So I had to forgo my lifelong identity as Richard and rebrand myself Clinton R. Dawkins when booking tickets to the States – and, of course, when filling in those important forms: the ones that require you explicitly to deny that you are entering the USA in order to overthrow the constitution by force of arms. (‘Sole purpose of visit’ was the British broadcaster Gilbert Harding’s response to that; nowadays such levity will see you banged up.)

Clinton Richard Dawkins, then, is the name on my birth

certificate and passport, and my father was Clinton John. As it happened, he was not the only C. Dawkins whose name appeared in *The Times* as the father of a boy born in the Eskotene Nursing Home, Nairobi, in March 1941. The other was the Reverend Cuthbert Dawkins, Anglican missionary and no relation. My bemused mother received a shower of congratulations from bishops and clerics in England, unknown to her but kindly calling down God's blessings upon her newborn son. We cannot know whether the misdirected benedictions intended for Cuthbert's son had any improving effect on me, but he became a missionary like his father and I became a biologist like mine. To this day my mother jokes that I might be the wrong one. I am happy to say that more than just my physical resemblance to my father reassures me that I am not a changeling, and was never destined for the church.

Clinton first became a Dawkins family name when my great-great-great-grandfather Henry Dawkins (1765–1852) married Augusta, daughter of General Sir Henry Clinton (1738–95), who, as Commander-in-Chief of British forces from 1778 to 1782, was partly responsible for losing the American War of Independence. The circumstances of the marriage make the commandeering of his name by the Dawkins family seem a bit cheeky. The following extract is from a history of Great Portland Street, where General Clinton lived.

In 1788 his daughter eloped from this street in a hackney-coach with Mr Dawkins, who eluded pursuit by posting half a dozen other hackney-coaches at the corners of the street leading into Portland Place, with directions to drive off as rapidly as possible, each in a different direction . . .¹

¹ H. B. Wheatley and P. Cunningham, *London Past and Present* (London, Murray, 1891), vol. 1, p. 109.

I wish I could claim this ornament of the family escutcheon as the inspiration for Stephen Leacock's Lord Ronald, who '... flung himself upon his horse and rode madly off in all directions'. I'd also like to think that I inherited some of Henry Dawkins's resourcefulness, not to mention his ardour. This is unlikely, however, as only one 32nd part of my genome is derived from him. One 64th part is from General Clinton himself, and I have never shown any military leanings. *Tess of the D'Urbervilles* and *The Hound of the Baskervilles* are not the only works of fiction that invoke hereditary 'throwbacks' to distant ancestors, forgetting that the proportion of genes shared is halved with every generation and therefore dies away exponentially – or it would if it were not for cousin-marriage, which becomes ever more frequent the more distant the cousinship, so that we are all more or less distant cousins of each other.

It is a remarkable fact, which you can prove to yourself without leaving your armchair, that if you go back far enough in a time machine, any individual you meet who has any living human descendants at all must be an ancestor of everybody living. When your time machine has travelled sufficiently far into the past, everybody you meet is an ancestor either of everybody alive in 2013 or of nobody. By the method of *reductio ad absurdum* beloved of mathematicians, you can see that this has to be true of our fishy ancestors of the Devonian era (my fish has to be the same as your fish, because the absurd alternative is that your fish's descendants and my fish's descendants stayed chastely separate from each other for 300 million years yet are still capable of interbreeding today). The only question is how far back you have to go to apply that argument. Clearly not as far as our fishy forebears, but how far? Well, hurdling swiftly over the detailed calculation, I can tell you that if the Queen is descended from William the Conqueror, you quite probably are too (and – give or take the odd illegitimacy – I know I am, as does almost everybody with a recorded pedigree).

Henry and Augusta's son, Clinton George Augustus Dawkins (1808–71) was one of the few Dawkinses actually to use the name Clinton. If he inherited any of his father's ardour he nearly lost it in 1849 during an Austrian bombardment of Venice, where he was the British consul. I have a cannonball in my possession, sitting on a plinth bearing an inscription on a brass plate. I don't know whose is the authorial voice and I don't know how reliable it is, but, for what it is worth, here is my translation (from French, then the language of diplomacy):

One night when he was in bed, a cannonball penetrated the bed covers and passed between his legs, but happily did him no more than superficial damage. I first took this to be a tall story, until I learned for certain that it was based on the exact truth. His Swiss colleague met him later in the funeral procession of the American consul and, when asked about it, he laughingly confirmed the facts and told him it was precisely for this reason he was limping.

This narrow escape of my ancestor's vital parts took place before he was to put them to use, and it is tempting to attribute my own existence to a stroke of ballistic luck. A few inches closer to the fork of Shakespeare's radish and . . . But actually my existence, and yours, and the postman's, hangs from a far narrower thread of luck than that. We owe it to the precise timing and placing of everything that ever happened since the universe began. The incident of the cannonball is only a dramatic example of a much more general phenomenon. As I have put it before, if the second dinosaur to the left of the tall cycad tree had not happened to sneeze and thereby fail to catch the tiny, shrew-like ancestor of all the mammals, we would none of us be here. We all can regard ourselves as exquisitely improbable. But here, in a triumph of hindsight, we are.

C. G. A. ('Cannonball') Dawkins's son Clinton (later Sir Clinton)

Edward Dawkins (1859–1905) was one of many Dawkinses to attend Balliol College, Oxford. He was there at the right time to be immortalized in the Balliol Rhymes, originally published as a broadsheet called *The Masque of Balliol* in 1881. In the spring term of that year, seven undergraduates composed and printed scurrilous rhymes about personalities of the college. Most famous is the verse that celebrates Balliol's great Master, Benjamin Jowett, composed by H. C. Beeching, later Dean of Norwich Cathedral:

First come I, my name is Jowett.
There's no knowledge but I know it.
I am Master of this College,
What I don't know isn't knowledge.

Less witty, but intriguing to me, is the rhyme on Clinton Edward Dawkins:

Positivists ever talk in s-
Uch an epic style as Dawkins;
God is naught and Man is all,
Spell him with a capital.

Freethinkers were much less common in Victorian times, and I wish I had met great-great-uncle Clinton (as a child I did meet two of his younger sisters in advanced old age, one of whom had two maids called – I found the surname convention weird – Johnson and Harris). And what should we make of that 'epic style'?

I believe Sir Clinton later paid for my grandfather, his nephew Clinton George Evelyn Dawkins, to go to Balliol, where he seems to have done little but row. There is a photograph (reproduced in the picture section) of my grandfather preparing for action on the river that is wonderfully evocative of Edwardian high summer in Oxford.

It could be a scene from Max Beerbohm's *Zuleika Dobson*. The behatted guests are standing on the college barge, the floating boat-house which all the college rowing clubs maintained until living memory. Today, alas, they have been replaced by serviceable brick boathouses on the shore. (One or two of the barges are still afloat – or at least aground – as houseboats, having been towed to watery resting places amid moorhens and grebes in the backwaters and rivers around Oxford.) The resemblance between Grandfather and two of his sons, my father and my Uncle Colyear, is unmistakable. Family resemblances fascinate me, although they die away rapidly as the generations march on.

Grandfather was devoted to Balliol and contrived to stay there far beyond the normally allotted span of an undergraduate – solely, I suspect, in order to carry on rowing. When I used to visit him in old age, the college was his main topic of conversation, and he repeatedly wanted to know whether we still used (I repeatedly had to tell him we didn't) the same Edwardian slang: 'Mugger' for Master; 'wagger pagger' for wastepaper basket; Maggers' Memogger for the Martyrs' Memorial, the landmark cross outside Balliol that commemorates the three Anglican bishops who were burned alive in Oxford in 1555 for their attachment to the wrong flavour of Christianity.

One of my last memories of Grandfather Dawkins was of delivering him to his final Balliol gaudy (reunion dinner for former members, where each year a different age cohort is entertained). Surrounded by old comrades pushing Zimmer frames ('walkers') and festooned with ear trumpets and pince-nez, he was recognized by one of them who indulged the obvious sarcasm: 'Hello, Dawkins, you still rowing for Leander?' I left him looking a trifle forlorn among the boys of the old brigade, some of whom must surely have fought in the Boer War and were, therefore, rightful dedicatees of Hilaire Belloc's famous poem 'To the Balliol Men Still in Africa':

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Years ago, when I was at Balliol,
Balliol men – and I was one –
Swam together in winter rivers,
Wrestled together under the sun.
And still in the heart of us, Balliol, Balliol,
Loved already, but hardly known,
Welded us each of us into the others:
Called a levy and chose her own.
Here is a House that armours a man
With the eyes of a boy and the heart of a ranger
And a laughing way in the teeth of the world
And a holy hunger and thirst for danger:

Balliol made me, Balliol fed me,
Whatever I had she gave me again:
And the best of Balliol loved and led me.
God be with you, Balliol men.

With difficulty I read this at my father's funeral in 2011, and then again in 2012 when I gave a eulogy for Christopher Hitchens, another Balliol man, at the Global Atheist Convention in Melbourne. With difficulty because, even on happier occasions, I become tearful with embarrassing ease when reciting loved poetry, and this particular poem by Belloc is one of the worst offenders.

After leaving Balliol, Grandfather made his career, like so many of my family, in the Colonial Service. He became Conservator of Forests in his district of Burma, where he spent much time in remote corners of the hardwood forests, supervising the heavy work of the highly trained elephant lumberjacks. He was up-country among the teak trees when the news reached him – I like to fancy by hand of runner with cleft stick – of the birth, in 1921, of his youngest son Colyear (named after Lady Juliana Colyear, mother of the enterprising Henry who eloped with Augusta Clinton). He was

so excited that, without waiting for other transport to be available, he bicycled 50 miles to be at his wife Enid's bedside, where he proudly opined that the new boy had the 'Dawkins nose'. Evolutionary psychologists have noted the particular eagerness with which new babies are scanned for resemblances to their paternal, as opposed to maternal relatives – for the obvious reason that it is harder to be confident of paternity than maternity.

Colyear was the youngest and John, my father, the eldest of three brothers, all of whom were born in Burma to be carried around the jungle in Moses baskets slung from poles by trusty bearers, and all of whom eventually followed their father into the Colonial Service, but in three different parts of Africa: John in Nyasaland (now Malawi), the middle brother, Bill, in Sierra Leone, and Colyear in Uganda. Bill was christened Arthur Francis after his two grandfathers, but was always called Bill for a childhood resemblance to Lewis Carroll's Bill the Lizard. John and Colyear looked alike as young men, to the extent that John was once stopped in the street and asked: 'Are you you or your brother?' (That story is true, which is perhaps more than can be said of the famous legend that W. A. Spooner, the only Warden (head) of my present Oxford college to qualify for an 'ism', once greeted a young man in the quad with the question: 'Let me see, I never can remember, was it you or your brother was killed in the war?') As they aged, Bill and Colyear grew more alike (and like their father) and John less so, to my eyes. It often happens that family resemblances appear and disappear at different stages during a life history, which is one reason I find them fascinating. It is easy to forget that genes continue to exert their effects throughout life, not just during embryonic development.

There was no sister, to the regret of my grandparents, who had intended that their youngest would be Juliana but had to settle for her noble surname instead. All three brothers were talented. Colyear was the cleverest academically, and Bill the most athletic: I was proud to see

his name on the roll of honour at the school I attended later, as holder of the school record for the hundred yards sprint – an ability which doubtless served him well at rugby when he scored a dashing touch-down for the Army against Great Britain early in the Second World War. I share none of Bill’s athleticism, but I like to think that I learned how to think about science from my father, and how to explain it from my Uncle Colyear. Colyear became an Oxford don after leaving Uganda and was widely revered as a brilliant teacher of statistics, a notoriously difficult subject to convey to biologists. He died too young, and I dedicated one of my books, *River Out of Eden*, to him in the following terms:

To the memory of Henry Colyear Dawkins (1921–1992), Fellow of St John’s College, Oxford: a master of the art of making things clear.

The brothers died in reverse order of age and I sadly miss them all. I spoke the eulogy at the funeral of Bill, my godfather and uncle, when he died at the age of 93 in 2009.¹ I tried to convey the idea that, although there was much that was bad in the British Colonial Service, the best was very good indeed; and Bill, like his two brothers, and like Dick Kettlewell whom I’ll mention later,² was of the best.

If the three brothers could be said to have followed their father into the Colonial Service, they had a similar heritage on their mother’s side too. Their maternal grandfather, Arthur Smythies, was Chief Conservator of Forests in his district of India; his son Evelyn became Chief Conservator of Forests in Nepal. It was my Dawkins grandfather’s friendship with Evelyn, forged while both were

¹ See web appendix: www.richarddawkins.net/afw.

² And whose obituary I wrote: see web appendix.

reading forestry at Oxford, that led to his meeting and marrying Evelyn's sister Enid, my grandmother. Evelyn was the author of a noted book on *India's Forest Wealth* (1925) as well as various standard works on philately. His wife Olive, I am sorry to say, was fond of shooting tigers and published a book called *Tiger Lady*. There is a picture of her standing on a tiger and under a solar topee, with her husband proudly patting her on the shoulder, captioned: 'Well done, little woman.' I don't think she would have been my type.

Olive and Evelyn's eldest son, my father's taciturn first cousin Bertram ('Billy') Smythies, was also in the forest service, in Burma and later Sarawak: he wrote the standard works *Birds of Burma* and *Birds of Borneo*. The latter became a kind of bible to the (not at all taciturn) travel writer Redmond O'Hanlon, on his hilarious journey *Into the Heart of Borneo* with the poet James Fenton.

Bertram's younger brother John Smythies departed from family tradition and became a distinguished neuroscientist and authority on schizophrenia and psychedelic drugs, living in California, where he is credited with inspiring Aldous Huxley to take mescaline and cleanse his 'doors of perception'. I recently asked his advice on whether to accept the kind offer of a friend to mentor me through an LSD trip. He advised against. Yorick Smythies, another first cousin of my father, was a devoted amanuensis of the philosopher Wittgenstein.¹ Peter Conradi, in his biography of the novelist Iris Murdoch, identifies Yorick as the 'holy fool' upon whom she based one of the characters in *Under the Net*, Hugo Belfounder. I must say it is hard to see the resemblance.

Yorick wished to become a bus conductor but, [Iris Murdoch] noted, was the only person in the history of the bus company to fail the theory test ... During his single driving-lesson

¹ <http://wab.uib.no/ojs/agora-alws/article/view/1263/977>

the instructor left the car as Yorick drove on and off the pavement.

Having failed to make the grade as a bus conductor, and dissuaded by Wittgenstein (along with most of his other pupils) from a career in philosophy, Yorick worked as a librarian in the Oxford forestry department, which may have been his only connection with the family tradition. He had eccentric habits, took to snuff and Roman Catholicism, and died tragically.

Arthur Smythies, grandfather to the Dawkins and Smythies cousins, seems to have been the first in my family to enter Imperial service. His paternal ancestors for seven unbroken generations back to his great-great-great-great-great-grandfather (the Reverend William Smythies, born in the 1590s) were Anglican clergy to a man. I suppose it is not unlikely that, had I lived in any of their centuries, I might have been a clergyman too. I have always been interested in the deep questions of existence, the questions that religion aspires (and fails) to answer, but I have been fortunate to live in a time when such questions are given scientific rather than supernatural answers. Indeed, my interest in biology has been largely driven by questions about origins and the nature of life, rather than – as is the case for most young biologists I have taught – by a love of natural history. I might even be said to have let down the family tradition of devotion to outdoor pursuits and field natural history. In a brief previous memoir published in an anthology of autobiographical chapters by ethologists, I wrote:

I should have been a child naturalist. I had every advantage: not only the perfect early environment of tropical Africa but what should have been the perfect genes to slot into it. For generations, sun-browned Dawkins legs have been striding in khaki shorts through the jungles of Empire. Like my father and his two

younger brothers, I was all but born with a pith helmet on my head.¹

Indeed, my Uncle Colyear was later to say, on seeing me in shorts for the first time (he habitually wore them himself, held up by two belts): ‘Good God, you’ve got authentic Dawkins knees.’ I went on to write of my Uncle Colyear that the worst thing he could say of a young man was:

‘Never been in a youth hostel in his life’; a stricture, which, I am sorry to say, describes me to this day. My young self seemed to let down the traditions of the family.

I received every encouragement from my parents, both of whom knew all the wildflowers you might encounter on a Cornish cliff or an Alpine meadow, and my father amused my sister and me by throwing in the Latin names for good measure (children love the sound of words even if they don’t know their meanings). Soon after arriving in England, I was mortified when my tall, handsome grandfather, by now retired from the Burma forests, pointed to a blue tit outside the window and asked me if I knew what it was. I didn’t and miserably stammered, ‘Is it a chaffinch?’ Grandfather was scandalized. In the Dawkins family, such ignorance was tantamount to not having heard of Shakespeare: ‘Good God, John’ – I have never forgotten his words, nor my father’s loyal exculpation – ‘is that *possible?*’

To be fair to my young self, I had only just set foot in England, and neither blue tits nor chaffinches occur in east Africa. But in any case I learned late to love watching wild creatures, and I have never

¹ ‘Growing up in ethology’, ch. 8 in L. Drickamer and D. Dewsbury, eds, *Leaders in Animal Behavior* (Cambridge, Cambridge University Press, 2010).

been such an outdoor person as either my father or my grandfather. Instead:

I became a secret reader. In the holidays from boarding school, I would sneak up to my bedroom with a book: a guilty truant from the fresh air and the virtuous outdoors. And when I started learning biology properly at school, it was still bookish pursuits that held me. I was drawn to questions that grown-ups would have called philosophical. What is the meaning of life? Why are we here? How did it all start?

My mother's family came from Cornwall. Her mother, Connie Wearne, was the daughter and grand-daughter of Helston doctors (as a child I imagined them both as Dr Livesey in *Treasure Island*). She was herself fiercely Cornish, referring to the English as 'foreigners'. She regretted having been born too late to speak the now extinct Cornish language, but she told me that when she was a girl the old Mullion fishermen could understand the Breton fishermen 'who came to pinch our crabs'. Of the Brythonic languages, Welsh (alive), Breton (dying) and Cornish (dead), Breton and Cornish are sister species on the language family tree. A number of Cornish words survive in the Cornish dialect of English, for example *quilkin* for frog, and my grandmother could do the dialect well. We, her grandchildren, repeatedly persuaded her to recite a lovely rhyme about a boy who 'clunked a bully' (swallowed a plumstone). I even recorded one of these recitations, and sadly regret that I have lost the tape. Much later, Google helped me to track down the words,¹ and I can still hear her squeaky voice saying them in my head.

¹ From *Randigal Rhymes*, ed. Joseph Thomas (Penzance, F. Rodda, 1895).

AN APPETITE FOR WONDER

There was an awful pop and towse¹ just now down by the hully,²
For that there boy of Ben Trembaa's, aw went and clunked³ a bully,⁴
Aw ded'n clunk en fitty,⁵ for aw sticked right in his uzzle,⁶
And how to get en out again, I tell ee 'twas a puzzle,
For aw got chucked,⁷ and gasped, and urged,⁸ and rolled his eyes,
and glazed;
Aw guggled, and aw stank'd⁹ about as ef aw had gone mazed.¹⁰

Ould Mally Gendall was the fust that came to his relief,—
Like Jimmy Eellis 'mong the cats,¹¹ she's always head and chief;
She scruffed 'n by the cob,¹² and then, before aw could say 'No,'
She fooched her finger down his throat as fur as it would go,
But aw soon caught en 'tween his teeth, and chawed en all the
while,
Till she screeched like a whitneck¹³—you could hear her 'most a mile;

And nobody could help the boy, all were in such a fright,
And one said: 'Turn a crickmole,¹⁴ son; 'tes sure to put ee right;'
And some ran for stillwaters,¹⁵ and uncle Tommy Wilkin
Began a randigal¹⁶ about a boy that clunked a quilkin;¹⁷
Some shaked their heads, and gravely said: 'Twas always clear to them

¹ Fuss.

² Store for live bait.

³ Swallowed.

⁴ Pebble, though my grandmother translated it as plumstone, which makes more sense.

⁵ Properly.

⁶ Throat.

⁷ Choked.

⁸ Retched.

⁹ Stamped.

¹⁰ Mad.

¹¹ Local proverb.

¹² Forelock.

¹³ Stoat, weasel.

¹⁴ Somersault.

¹⁵ Medicine distilled from peppermint.

¹⁶ Nonsensical story.

¹⁷ Swallowed a frog.

That boy'd end badly, for aw was a most anointed lem,¹
For aw would minchey,² play at feaps,³ or prall⁴ a dog or cat,
Or strub⁵ a nest, unhang a gate, or anything like that.'

Just then Great Jem stroathed⁶ down the lane, and shouted out so
bold:

'You're like the Ruan Vean men, soase, don't knaw and waant be
told;'

Aw staved right in amongst them, and aw fetched that boy a clout,
Just down below the nuddick,⁷ and aw scat the bully out;
That there's the boy that's standing where the keggas are in
blowth:⁸

Blest! If aw haven't got another bully in his mouth!

I am fascinated by the evolution of language, and how local versions diverge to become dialects like Cornish English and Geordie and then imperceptibly diverge further to become mutually unintelligible but obviously related languages like German and Dutch. The analogy to genetic evolution is close enough to be illuminating and misleading at the same time. When populations diverge to become species, the time of separation is defined as the moment when they can no longer interbreed. I suggest that two dialects should be deemed to reach the status of separate languages when they have diverged to an analogously critical point: the point where, if a native speaker of one attempts to speak the other it is taken as a compliment rather than as an insult. If I went into a

¹ Mischievous imp.

² Truant.

³ Pitch and toss.

⁴ Tie a tin can or something to an animal's tail.

⁵ Rob.

⁶ Briskly strode.

⁷ Back of the head.

⁸ Cow parsleys are in bloom.

Penzance pub and attempted to speak the Cornish dialect of English I'd be asking for trouble, because I'd be heard as mockingly imitating. But if I go to Germany and attempt to speak German, people are delighted. German and English have had enough time to diverge. If I am right, there should be examples – maybe in Scandinavia? – where dialects are on the cusp of becoming separate languages. On a recent lecturing trip to Stockholm I was a guest on a television talk show which was aired in both Sweden and Norway. The host was Norwegian, as were some of the guests, and I was told that it didn't matter which of the two languages was spoken: audiences on both sides of the border effortlessly understand both. Danish, on the other hand, is difficult for most Swedes to understand. My theory would predict that a Swede visiting Norway would probably be advised not to attempt to speak Norwegian for fear of being thought insulting. But a Swede visiting Denmark would probably be popular if she attempted to speak Danish.¹

When my great-grandfather Dr Walter Wearne died, his widow moved out of Helston and built a house overlooking Mullion Cove on the west side of the Lizard peninsula, which has remained in the family ever since. A lovely cliff walk among the sea pinks from Mullion Cove takes you to Poldhu, site of Guglielmo Marconi's radio station from which the first ever transatlantic radio transmission was sent in 1901. It consisted of the letter 's' in Morse code, repeated over and over. How could they be so dull, on such a momentous occasion, as to say nothing more imaginative than s s s s s?

My maternal grandfather, Alan Wilfred 'Bill' Ladner, was Cornish too, a radio engineer employed by the Marconi company. He joined too late to be involved in the 1901 transmission but he was sent to work at the same radio station at Poldhu around 1913,

¹ I've consulted an expert on Scandinavian languages, Professor Björn Melander, and he agreed with my theory of 'insult or flattery' but added that there are, inevitably, complications of context.

shortly before the First World War. When the Poldhu Wireless Station was finally dismantled in 1933, my grandmother's elder sister Ethel (known simply as 'Aunt' to my mother, although she wasn't her only aunt) was able to acquire some large slate slabs that had been used as instrument panels, with holes drilled in them in patterns that traced out their use – fossils of a bygone technology. These slates now pave the garden of the family house at Mullion (see the picture section), where they inspired me, as a boy, to admiration of my grandfather's honourable profession of engineer – honoured less in Britain than in many other countries, which may go some way towards explaining my country's sad decline from a once great manufacturing power to the indignity of being a provider of (often, as we now sadly know, rather dodgy) 'financial services'.

Before Marconi's historic transmission, the distance across which radio signals could be received was believed to be limited by the curvature of the Earth. How could waves that travelled in a straight line be picked up beyond the horizon? The solution proved to be that waves could bounce off the Heaviside Layer in the upper atmosphere (and modern radio signals, of course, bounce off artificial satellites instead). I am proud that my grandfather's book, *Short Wave Wireless Communication*, went through many editions from the 1930s to the early 1950s as the standard textbook on the subject, until it was eventually superseded around the time when valves¹ were replaced by transistors.

That book was always legendary in the family for its incomprehensibility, but I have just read the first two pages and find myself delighted by its lucidity.

The ideal transmitter would produce an electrical signal which was a faithful copy of the impressed signal and would transmit

¹ 'Vacuum tubes' in American English.

this to the connecting link with perfect constancy and in such a manner that no interference was caused to other channels. The ideal connecting link would transmit the electric impulses through or over it without distorting them, without attenuation, and would collect no 'noise' on the way from extraneous electrical disturbances of whatever kind. The ideal receiver would pick up the required electrical impulses despatched through the connecting link by the transmitter of the channel and transform them with perfect faithfulness into the required form for visual or audible observation . . . As it is very unlikely that the ideal channel will ever be developed, we must consider in what directions we would prefer to compromise.

Sorry, Grandfather; sorry I was put off reading your book while you were still around to talk about it – and when I was old enough to understand it but was put off even trying. And you were put off by family pressure, put off ever divulging the rich store of knowledge that must have been there still in your clever old brain. 'No, I don't know anything about wireless,' you would mutter to any overture, and then resume your near ceaseless whistling of light opera under your breath. I would love to talk to you now about Claude Shannon and information theory. I would love to show you how just the same principles govern communication between bees, between birds, and indeed between neurones in the brain. I would love you to teach me about Fourier transforms and reminisce about Professor Silvanus Thompson, author of *Calculus Made Easy* ('What one fool can do, another can'). So many missed opportunities, gone for ever. How could I have been so short-sighted, so dull? Sorry, shade of Alan Wilfred Ladner, Marconiman and beloved grandfather.

It was my Uncle Colyear rather than my Grandfather Ladner who prompted me to try to build radios in my teens. He gave me a book by F. J. Camm, from which I took the plans to build first a

crystal set (which just faintly worked) and then a one-valve set – with a large, bright red valve – which worked slightly better but still needed headphones rather than a loudspeaker. It was unbelievably badly made. Far from arranging the wires tidily, I took delight in the fact that it didn't matter how untidy were the pathways they took, stapled down on a wooden chassis, so long as each wire ended up in the right place. I won't say I went out of my way to make the course of each wire untidy, but I certainly was fascinated by the mismatch between the topology of the wires, which really mattered, and their physical layout, which didn't. The contrast with a modern integrated circuit is staggering. Many years later, when I gave the Royal Institution Christmas Lectures to children of about the same age as I was when I made my one-valve set, I borrowed the hugely magnified layout diagram of an integrated circuit from a modern computer company to show them. I hope my young auditors were awestruck and a bit bewildered by it. Experimental embryologists have shown that growing nerve cells often sniff out their correct end organs in something like the way I built my one-valve set, rather than by following an orderly plan like an integrated circuit.

Back to Cornwall before the First World War. It was my great-grandmother's habit to invite the lonely young engineers from the clifftop radio station to tea at Mullion, and that was how my grandparents met. They became engaged, but then the war broke out. Bill Ladner's skills as a radio engineer were in demand, and he was sent by the Royal Navy as a smart young officer to the southern tip of what was then Ceylon to build a radio station at that strategically vital staging post in the Empire's shipping lanes.

Connie followed him out in 1915, where she stayed in a local vicarage, from which they were married. My mother, Jean Mary Vyvyan Ladner, was born in Colombo in 1916.

In 1919, the war over, Bill Ladner brought his family back to

England: not to Cornwall in the far west of the country but to Essex in the far east, where the Marconi company had its headquarters in Chelmsford. Grandfather was employed teaching young trainee engineers at the Marconi College, an institution of which he later became head and where he was regarded as a very good teacher. At first the family lived in Chelmsford itself, but later they moved into the neighbouring countryside, to a lovely sixteenth-century Essex longhouse called Water Hall near the straggling village of Little Baddow.

Little Baddow was the site of an anecdote about my grandfather which I think tells us something revealing about human nature. It was much later, during the Second World War, and Grandfather was out on his bicycle. A German bomber flew over and dropped a bomb (bomber crews on both sides occasionally did this in rural areas when, for some reason, they had failed to find their urban target and shrank from returning home with a bomb on board). Grandfather mistook where the bomb had fallen, and his first desperate thought was that it had hit Water Hall and killed his wife and daughter. Panic seems to have sparked an atavistic reversion to ancestral behaviour: he leapt off his bike, hurled it into the ditch, and *ran* all the way home. I think I can imagine doing that in extremis.

It was to Little Baddow that my Dawkins grandparents retired from Burma in 1934, to a large house called The Hoppet. My mother and her younger sister Diana first heard of the Dawkins boys from a girlfriend, breathless with Jane-Austen-style gossip about eligible young newcomers to the neighbourhood. ‘Three brothers have come to live at The Hoppet! The third one is too young, the middle one is pretty good news, but the eldest one is completely mad. He spends all his time throwing hoops around in a marsh and then lying on his stomach and looking at them.’

This apparently eccentric behaviour of my father was in fact

thoroughly rational – not the first or the last time a scientist's motives were uncomprehendingly called into question. He was doing postgraduate research based in the Department of Botany at Oxford, on the statistical distribution of tussocks in marshes. His work required him to identify and count plants in sample quadrats of marshland, and throwing 'hoops' (quadrats) at random was the standard method of sampling. His botanical interest turned out to be among the things that drew my mother to him after they met.

John's love of botany had begun early, during one of the holidays from boarding school which he and Bill spent with their Smythies grandparents. In those days it was quite common for colonial parents to send their children, especially sons, to boarding school in Britain, and at the ages of seven and six respectively John and Bill were despatched to Chafyn Grove, a boarding school in Salisbury which I too was later to attend. Their parents would remain in Burma for another decade and more, and with no air travel would not see their sons even during most school holidays. So between terms the two little boys stayed elsewhere, sometimes at professional boarding homes for boys of colonial parents, sometimes with their Smythies grandparents in Dolton, Devon, where they often had their Smythies cousins for company.

Nowadays, such long-term separation of children from their parents is regarded with something approaching horror, but it was quite common at the time, accepted as an inevitable concomitant of empire, and indeed diplomatic service, when international travel was long, slow and expensive. Child psychologists might suspect that it did lasting damage. Both John and Bill, as it happened, ended up well-adjusted, very personable characters, but there may have been others less robustly equipped to come through such childhood deprivation. Their cousin Yorick, as I have already mentioned, was eccentric and possibly unhappy; but then, he went to Harrow, which

– to say nothing of the pressures of association with Wittgenstein – might explain everything.

During one of these school holidays with the grandparents, old Arthur Smythies offered a prize to whichever of his grandchildren could make the best collection of wildflowers. John won, and that boyhood collection became the nucleus of his own herbarium, setting him on the road to becoming a professional botanist. As I have said, a love of wildflowers was one of the things he later found in common with Jean, my mother. They also shared a love of remote and wild places, and a dislike of noisy company: they were not fond of parties, unlike John's brother Bill and Jean's sister Diana (who later married each other).

At the age of thirteen, John and then Bill left Chafyn Grove and were sent to Marlborough College in Wiltshire, one of England's better-known 'public' (i.e. private) schools, originally founded for the sons of clergymen. The regime was spartan; cruel, according to John Betjeman in his verse autobiography. John and Bill don't seem to have suffered in the way the poet did – indeed, they enjoyed it – but it may be revealing that, when Colyear's turn came some six years later, their parents decided to send him to a gentler school, Gresham's, in Norfolk. For all I know, Gresham's might have suited John better too, except that Marlborough had a legendary teacher of biology, A. G. ('Tubby') Lowndes, who probably inspired him. Lowndes has a number of famous pupils to his credit, including the great zoologists J. Z. Young and P. B. Medawar and at least seven Fellows of the Royal Society. Medawar was an exact contemporary of my father, and they went on to Oxford together, Medawar to read zoology at Magdalen and my father to read botany at Balliol. I have reproduced, in the web appendix, a historical vignette which is a transcript of a monologue by Lowndes, recorded verbatim by my father and almost certainly heard by Medawar in the same Marlborough classroom. I think it is of interest as a kind of

anticipation of the central idea of the ‘selfish gene’, although it didn’t influence me as I didn’t discover it in my father’s notebook until long after *The Selfish Gene* was published.

After his degree at Oxford, my father stayed on to do a post-graduate research degree – the one on tussocks that I mentioned earlier. He then decided on a career in the agriculture department of the Colonial Service. This necessitated further training in tropical agriculture at Cambridge (where his landlady had the memorable name of Mrs Sparrowhawk) and then – after becoming engaged to Jean – at the Imperial College of Tropical Agriculture (ICTA) in Trinidad. In 1939 he was posted to Nyasaland (now Malawi) as a junior Agricultural Officer.

