

Darwin as Metaphor

Emily Ballou

I

August 3, 1868

Julia Margaret Cameron
framed the old man

with his back to the window
at Freshwater Bay

made him remove
his slouch hat, his black cloak,
placed his head in the iron brace.

The hot sun sketched the line
of his suit coat, his button-holes
made each white hair
of his long beard glow

while in the dark she coated
countless wet plates
in collodion & silver nitrate

then lifted the lens lid
& exposed the glass to him
for seven minutes.

*We both
take something unknown
& bring it closer
don't you think?*
She asked.

I moved, I think, Darwin said.

She dunked his face
into the cyanide bath
fixing him there.¹

I have been thinking about portraiture. About Charles Darwin as a subject for portraiture. I've recently seen the large scrawled neon oil paintings of the English ten-pound note emblazoned with Darwin's face and name in Ross Sinclair's Scottish studio. I have watched the film *Creation*, and seen the actor Paul Bettany stride forward, his brow furrowed with angst, probably the closest living physical, if

not emotional, likeness to Richmond's 1840 portrait of the young Darwin. I have spent five years creating my own portrait of Darwin and his life in verse: 75 poems about Charles Darwin.

There are many reasons why poetry suits portraiture, and Darwin suits poetry. Despite in later life discovering he could no longer digest it ('I am a withered leaf for every subject except science'²), in his youth, Darwin was a great reader of poetry, famously carrying a small edition of Milton's *Paradise Lost* in his pocket during his Beagle voyage. He was an avid collector and observer of the natural world from an early age, passions that might have made him a poet as much as they did a naturalist and scientist.³ But it's not just Darwin's connection to the natural world as observer which he shares with many poets (both science and poetry are concerned with finding a language for the natural world), it is the *coralline*⁴ quality of Darwin's mind and work, the proliferation and variety of his thought, constantly branching out, unfixing, building its slow layers over time; his use of simile and metaphor, and the minutiae of his vision (aided by his microscope), his long perspective (as if aided by a telescope) that makes poetry such a fertile form with which to represent him. Poetry, with its imagined worlds, its variety of forms, its ability to jump time and perspective, and its use of metaphor, extended metaphor and simile, could perhaps examine the life and mind of this man without closing him in.

Tiny moments and thoughts, like a collage slowly assembled, once drawn together, make a face. Though I didn't strive for a likeness as a painter might, I tried to be as historically accurate as possible in 'conjur[ing] up the imaginative universe of "the one who says 'I' ".⁵ In other words, while I relied on historical documents to piece together my portrait, it wasn't just verisimilitude, but more, emotional proximity I was searching for. I wanted to capture the tone and temperatures of a life as well as its chronological events.⁶ As species change over time, but are still related, so a portrait of Darwin is a descendent of the historical man and his own words; in my case, it was a kind of literary, rather than familial, lineage I traced. It's an act of affinity that allows two historically separate people to briefly, simultaneously, exist together in new form. Wearing the mask of Charles Darwin and transporting myself into another time and face also allowed me to explore

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philosophical concerns I felt otherwise unable to write-as-myself. This portrait is not a static picture on a wall, I hope, but an unfixd, constantly shifting image.

Likewise, as poetry requires a reader (the assumed third party) to build from the words on a page fuller images that interact with their own experiences, sometimes supplying the implied or hidden terms of a metaphor, they too participate in the creation of this portrait by reading it and bringing it to life.

When I speak of metaphor, I mean it in several ways. Darwin's theory of natural selection is itself conceptually metaphorical, used to enlarge the imaginative possibilities of change over time (it stands as an answer to the metaphor that largely underpinned Darwin's Cambridge education: Reverend William Paley's watch/watchmaker). But Darwin also used metaphors (and similes) as figures of speech and rhetorical strategies within his notebooks and scientific writings to orient and clarify for himself and his readers, to move ideas forward, to splice two disparate concepts, or smash them together in a new way.⁷ It is this second type of metaphor that is most commonly utilised in late twentieth-century free verse, the kind of poetry I write. Thirdly, in light of the great proliferation of work on and around Darwin, in homage (and homage) to him, especially in the last couple of years, I look at Darwin as a metaphor or vehicle for creativity itself. Gillian Beer writes in *Darwin's Plots*: 'To Darwin, fecundity was a liberating and creative principle, leading to increased variability, increased potential for change, and development'.⁸ Portraiture of Darwin is itself prolific, fecund. Mine was not the only portrait of Darwin in poetry published in 2009. No doubt, there will be more in future.

Finally, when I speak of 'poetry', I am defining it from within my own practice. I take it to mean a grammar of observation and feeling. I mean a condensation and crystallisation of something that was previously amorphous. I mean a written voiceprint that can leap across the gaps between two thoughts or questions; that can travel into the middle of a moment, with or without resolution. A place where the self and the 'I' that is I might disappear.

II

I lived for many years in the Blue Mountains of Australia, in the village of Wentworth Falls, once known as ‘Weatherboard’. It was here, in 1836, that twenty-six year old Charles Darwin stopped en route to Bathurst, during the Beagle’s short stay in Australia. The walk Darwin took through the bush, along the creek to the falls, is the same one I used to take every day, passing the plaque fastened to a rock under a waterfall of ferns: ‘Charles Darwin passed this way’.

This was still a young Darwin, full of wandering and wonder; a highly sensitive man who loved *Paradise Lost* and Wordsworth’s *Prelude*, keenly aware that geological forces of time were ‘truly poetical’,⁹ carrying a flower painter’s colour samples around with him so that he might better describe his own collections; a man in love with the mysteries of the world, who believed that science and poetry were, after all, but a series of philosophical riddles to solve.¹⁰ The pages and pages of observations and experiences he would record during the Beagle voyage would later help him to formulate ideas on the origin of species.

My involvement with Darwin was born from a shared walk along a creek. He took it twice. I walked it hundreds of times. The temperature was recorded to be 43 degrees Centigrade on January 17, 1836, and yet he walked, determined to see the falls and the Jamison Valley that the painter Conrad Martens had described to him. From this kinship of place began a journey that took me to Down House in Kent where he’d lived, to the Darwin archives at Cambridge University, and the painstaking but delightful task of deciphering his handwriting with a magnifying glass, touching the notebooks he carried on the Beagle, marvelling at the haiku-wit in his scrawled remarks:

started about ½ after six
& passed over scorching plains [...]
therm: in pocket 96 — [...]
lost our way.¹¹

Here were parchment pages sewn together, alphabetical lists of species on the backs of envelopes, faded postal stamps, broken pieces of sealing wax, scribbles, calculations, tiny drawings as seen through a microscope: explosions of matter; amoebic, dream-like, pages scorched from writing too closely to the candle. I saw how much his note taking, his scrawled drafts and his lists resemble drafts of

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poems, how one could assemble a book of found verse using only his words. My notebook of his notes, copied out in pencil, alongside my own messy first drafts of poems on the back of envelopes (with their arrows, circles, scribbles and marginalia) is a precious object to me, an artefact of the struggle to bring this once-human man to life again in a new form.

While it has been said, and most recently in relation to Darwin, that artists create and scientists discover, I was aided in my own work by what I believe is Darwin's inversion of that dictum.¹² Immersed in his archives, in his ideas and words, I discovered how often — as scribbled and plotted in his private, metaphysical notebooks — he used similes and metaphors as a way of moving forward — this is like this and why — posing questions to himself. These questions were at a later date circled in pencil: 'answered', 'partly answered' or 'no answer'. He also made use of acts of dreaming (what he called 'building castles in the air'), utilising his imagination and his actual nightly dreams to pose questions about consciousness (both in and outside of sleep) and to speculate answers. Recording one 'waking dream' on 29 August 1838, he wrote: 'In castle of air the *trouble* I well recollect is in making things somewhat probable, in comparing every step, & inventing new means, — therefore works of imagination hard work, — Keeping an idea present is, perhaps, hard work—though dreams do that.'¹³ Or as he copied into his M notebook from Lockhart's *Life of Scott*: 'as ideas come and the pulse rises, or as they flag and something like a snow haze covers my whole imagination.'

I was also struck by how many of Darwin's ideas, before they were grounded in fact through years of experiment, research and dissection, were first conceptualised imaginatively, instinctively almost, making great leaps through time and space; *creating* concepts, rather than simply discovering them. In this way, his work was not only scientific; it was purely philosophical.¹⁴ His revelations shifted paradigms. His ideas may have been inspired by ongoing ideological battles of the nineteenth century; they might have been quintessentially Victorian ideas, but nevertheless it took his acts of metaphor and 'enjambment' — as we say in poetry — to put two ideas, two terms, previously in circulation together in a new form; building it in surprising ways over time.¹⁵

In the metaphysical notebooks, first begun in 1838, ideas that would later be proven false are set alongside ones that he would later prove true, but at the time both were equally fantastical. It is well known that his ideas on genetics were incorrect and yet, how wonderful is the hypothesis that a taste for particular pieces of music — even the memory for the tune of that music — could be inherited? ‘Now if memory of a tune & words can thus lie dormant, during a whole life time, quite unconsciously of it, surely memory from one generation to another, also without consciousness, as instincts are, is not so very wonderful,’ he wrote. In the same notebook we find the famous: ‘Origin of man now proved. — He who understands baboon would do more towards metaphysics than Locke’.¹⁶ In the N Notebook, he wonders:

Did our language commence with singing — is this origin of our pleasure in music — do monkeys howl in harmony — [...] union of birds voice & taste for singing with Mammalian structure — American monkeys utter pleasant plaintive cry — The taste of recurring sounds in Harmony common to whole kingdom of nature.¹⁷

As collections of random thoughts and observations began to clarify themselves as concrete images in his mind, his writing acquires the power of free-verse: associative, rhythmic, leaping. You can almost sense the speed at which he is attempting to interconnect his thoughts (even the dots and crosses of his i’s and t’s appear a half-inch after their corresponding letters). His words make semantic and conceptual leaps as the neurons fire; the dash he uses so often fashions unrelated ideas together. It has been suggested that the non-conventional dash the nineteenth-century poet Emily Dickinson is so famous for using ‘represents “a non-logical junction” between “one train of thought and another,” enact[ing] “oscillations of thought and feeling”’.¹⁸ Obviously, Darwin’s notebooks are drafts of thought; they are not honed as poetry is. Yet take, for example, the long passage in the B Notebook in which the idea of species change seems to crystallize, and which is worth documenting in full as an example of clear, conceptual imagining (it is also almost a found poem in itself):¹⁹

Australian Mamm. were produced from
propagation from different
set, as the rest of the
world.

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This view supposes
 that in course of
 ages, & therefore changes
 every animal has
 tendency to change.—
 This difficult to prove
 cats, &c, from Egypt.
 no answer because
 time short & no great
 change has happened.
 I look at two ostriches
 as strong argument
 of possibility of such
 change, as we see
 them in space, so
 might they in time.
 As I have before said,
 isolate species,
 especially with some
 change, probably
 vary quicker.
 Unknown causes of change.
 Volcanic isld? —
 Electricity?
 Each species changes.
 does it progress?
 Man gains ideas.
 the simplest cannot
 help—becoming more
 complicated; & if we
 look to first origin
 there must be progress...²⁰

He imagines a time of immense ages, and slow change, he can see the animals shifting: ‘each species changes’ and he knows it is true (because it will be difficult to prove), and wonders whether the cause of change might be, among other things, *electricity*. This is the work of the imagination, which requires first and foremost, imagistic conjuring. Using it, Darwin built thoughts previously un-thought, trying to reconcile long-held beliefs with what reason and instinct were telling him. He let images rise, unhampered, and followed their trails. Some of these ideas and images were intuitive themselves, things he couldn’t possibly know yet, but somehow did. Darwin himself seemed to understand this: ‘All Science is reason acting systematizing on principles, [...] even animals practically know art precedes

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science — art is experience & observation ...'.²¹ This is not to buy into the cult of Darwin as individual genius, as 'creator'; his ideas are a product of his time, and as Alfred Russel Wallace has shown, he was not the only one to imagine this particular picture of the world. But it was nevertheless largely conceptual, creative work. In the same way that a painter might look at the natural world and fashion its facts in an entirely new way, so did Darwin focus his lens.

Conversely, I found that my work with Darwin was as much one of discovery, as it was instinctive, imaginative creation. As a screenwriter I have always been interested in character; and as a poet, in voice. The struggle to put Darwin into new words, to evolve the biographical-portrait-in-verse, was as much about discovering the boundaries and tone of his character as it was about finding a way to render that character in a new form of my own voice. How could I, living nearly two hundred years later, write this man and his time; how can I say something true, and, as Eliot's J. Alfred Prufrock asks: 'how should I presume?'²² Darwin's 'presumptuous work,' as he put it, would be mine too. But I let my own intuition and my imagination speak, as if in waking dream (or like Benjamin Franklin, falling asleep with a pencil in hand and writing the first thing that came to mind the moment the pencil hit the floor: these would become his inventions), so that it wasn't just a matter of recreating Darwin, but in a sense remembering him. To write a character requires equal parts observation and imagination; discovery and invention. You have to shift from your own paradigm and time into another's. Yet when it works well (and it doesn't always work well), my hand can't keep up with my brain because my brain seems to know more than I can articulate, and it knows these things faster than I can copy them down.

While I was discovering more about Darwin's biographical life, and identifying both correspondences (and large differences) between us, I was finding in the poems I wrote, new and previously hidden parts of myself. I read the honest revelations of a man who saw every emotion, sensation and metaphysical quandary in his own life as legitimate material for his science. I discovered a person who had difficulty at times in controlling his temper, his paternal guilt, the novels he read and liked best, his methods for deceiving headaches, the way his dreams affected his waking thoughts, how he woke in fear in the night ('The sensation of fear is

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accompanied by beating of heart, sweat, trembling of muscles and all those effects of violent running away...’); his pleasure in scenery, ‘warmth, exercise and birds singing’, his love for his dog, and how his intellect, perhaps unsurprisingly, was his main source of intense happiness.²³ Darwin’s observations of his children triggered memories of sitting on my father’s knee while he explained evolution to me, and my childlike confusion over how I’d been an ape before I became a girl. Reading Darwin’s notebooks about species raised existential thoughts on the nature of faith and death and how we sustain love over time. I was deeply moved by the simplicity of his scribbled questions to self: ‘why is life short’ and ‘Do monkeys cry?’²⁴

III

In the *London Review of Books* earlier this year, Steven Shapin wrote about the proliferation of homage to Darwin in the year 2009, bemused by how one mild, hardworking, amateur scientist, an ordinary historical man, could still generate such ‘hype’. He claimed that on 12 February 2009, Darwin’s 200th birthday, there were 750 commemorative events around the world, many of them artistic in some fashion.²⁵ What is it about Darwin, he asks; and why not Newton or Einstein? Although Shapin elegantly argues that we shape the historical man to match the concerns of our time (thus the nineteenth-century bird-shooting Darwin is now seen as the ‘father of ecology’), and admits that while ‘evolution by natural selection is something you could say was discovered, the text called *The Origin* was composed...artfully put together, invented’,²⁶ he perhaps underestimates the way Darwin, his theory and, subsequently, evolution itself, have come to stand as metaphors for the proliferation of changing forms and life’s very creative richness, in a way that Newton or Einstein do not.²⁷ There is no single Creator of this richness; each form in nature evolves its own: ‘from so simple a beginning endless forms most beautiful and most wonderful have been and are being, evolved’.²⁸ As far as invention goes, nature is an all-inclusive, open door art studio. Something that is fixed can be surpassed, lost in time, while something that continually changes, in a sense, never dies. As a noun, evolution is ‘development, fruition, growth, progression, advancement’; defined in the Darwinian sense, the word means more specifically changing forms over time. Just as the metaphors Darwin used grew out

of his own particular historical context, so too our use and interpretation of Darwin shifts over time, reflecting our present historical moment.²⁹ From ‘so simple a beginning’, how much continues to evolve from and be inspired by, Darwin himself and the ideas he generated. The forms we choose to represent Charles Darwin may change; his political value may change with time, but by definition, evolution is creative. By an act of transference, Darwin can be seen as a metaphor for the inventive energy of creativity and discovery, for life’s coralline-qualities, and for the great imaginative leaps and insightful flashes of conceptual thought. It is not fixed, but constantly growing, generative, and encompasses the whole of the natural world in its fold.

Likewise, the forms that best suit Darwin-as-metaphor will be open enough to allow us to imbue them with our imagination, instinct and invention. We each make our own Darwin, out of the stuff of our own existential history, our own philosophical questions. Are the portraits of Darwin we create the historical man? No, not any more than a strictly biographical portrait can represent the real person, no matter how accurate the research or chronology behind it.³⁰ Our Darwin(s) and the historical Darwin are related, distantly, but are not the same; perhaps they are not even portraits of Charles Darwin, but of us. Similarly, evolution’s randomness and unpredictability might also require forms equally unpredictable and random — coralline rather than teleological — to best bring it to life.

Perhaps what made many historians shrink from the cinematic portrait of Darwin as realised in *Creation*³¹ is precisely cinema’s need to pin a protagonist down to a specific human face, to a way of walking and talking, to 110 minutes and a fixed narrative form. While that is a risk in any bio-pic, in the case of a film that tries imaginatively to visualise the truth of evolution and its exuberance of forms, it is the film’s constant return to the rules of cinema narrative that ultimately suffocates it. While Darwin’s hypothesis is all about conflict and change over time, and cinematic narrative itself is built from conflict, and necessarily charts an arc of change its protagonist will follow over the course of the film (thesis, antithesis, anagnorisis, synthesis...), there is little room to breathe in such a structure, with its inherent imperative to end happily.³² Though *Creation* employs a mixed-chronology structure, a freewheeling use of flashback, various storytelling

techniques and visual montage in order to breath life into what is usually only a fixed chronological form, it still keeps its imaginative leaps on a leash.³³ It is only when it strays from classic narrative structure and enters into moments of pure imagining that the film has its finest moments.

The base of a tangled hedgerow is just a few feet away.
Looking into its tangled depths Darwin sees something gleaming white
— the skull of a sheep with briars growing through the eye sockets.

EXT. BASE OF THE HEDGEROW. TIME LAPSE. DAY

The SHEEP'S SKULL is half-decomposed.

In fast forward we see MAGGOTS pecking the remnants of flesh from the bone, birds feeding on the maggots.

A BIRD becomes trapped among the briars. It flaps madly upsetting a nest.

Eggs and blind featherless hatchlings fall down through the dark web of branches where they are devoured by moles and rats, then snails.

All the time TENDRILS and vines are growing, the skull-bleached white — now encased in a cage of thick spiny branches, fizzing with insect life, where ants and ground beetles feast on the bloated carcasses of slugs...³⁴

Even reading that scene as words on the page cannot do justice to the true horror of watching, in fast time-lapse, that montage of nature's 'savage attrition'; witnessing a process that might take several weeks or months in just a matter of seconds. I was struck in that moment by how film, over any other medium, can demonstrate in all of its gothic, narrative terror, the natural world as Darwin might have seen it: organisms battling for survival beneath the surface of human things. Surely, film is the finest form for visually representing this kind of thinking?

But how do you visually document the life of a mind, and its thought? 'How to suggest an actual human life on film?'³⁵ I keep returning to the cinematic portraiture of François Girard's *Thirty Two Short Films About Glenn Gould*, a film that was able to suggest — using a variety of short forms, viewed from different angles, like a prism — the shades and thoughts, the tasks and emotional passions, both the banality and the exuberance of days, that make up a real human life. Its

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energy is in its shape: multiple and shifting, unpredictable and strange, it still manages to tell a life story, and has you caring deeply about its lead character. Perhaps this would have been a better model for a film about Darwin — discontinuous and multiple rather than linear and singular (already I can imagine the squirming microscopic barnacles, dancing around the glass slide, as if animated, to one of Emma's more lively piano tunes). Darwin's ability to time-travel; to see far back and also beyond the time of daily life would have been wondrous to try and capture more forcefully.³⁶ To watch a man, disturbed by guilt and grief over his daughter's death (if that is to be the story), unable to 'remain' in the present tense, escaping into his work and therefore, into time's long arrow back into the geological past; who finds himself crumbling alongside the geological formations that rise and fall over eons; and seeing, wherever he looks, the dead birds being consumed by maggots, would give a truer picture of how Darwin probably saw the world.

As it stands, the most moving moments in *Creation* are those that occur out of narrative time: those few time-lapse sequences and the long, almost real-time scene that takes place in Jenny the orangutan's cage, all of which have great emotional, if not narrative momentum, and which allow the audience visually to understand evolution, but also to feel its raw power. The real moment of anagnorisis, or recognition (both in cinematic and evolutionary terms), occurs during the scene with Darwin in Jenny's cage as he interacts with her. Watching this inter-species affinity, one experiences something akin to what Darwin might have had during his visits to the Zoological Society in the late 1830s: 'Jenny was amusing herself by getting out ears of corn with her teeth from the straw and just like child (sic) not knowing what to do with them, came several times + opened my hand & put them in — like child'.³⁷ As we watch the orangutan dance, and actor Paul Bettany copy her; as he plays the harmonica, and she places her hands over her ears in protest, and Bettany exclaims, 'oh come on!' (a thoroughly modern statement and a natural response), and she grabs the harmonica and plays it herself, it is almost a moment of pure documentary, because no matter how well a monkey may be led to perform specific tasks before a camera — and in this case, the orangutan was living in jungle-captivity in Borneo where this scene was filmed — it cannot 'act'; a director

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cannot say, *look more human in this shot*. The recognition we feel in that moment is real. In a recent interview, the actor spoke of shooting those scenes with Jenny:

I defy anybody to sit down and play with an orangutan and say, “I don’t share a connection with you, or a common ancestor”. It’s one thing to say that, and another to have one looking into your eyes and playing with you. I was going to play the harmonica, and dance, and then she took the harmonica and played it, and she took my pens and started drawing. That wasn’t what we had planned.³⁸

The unrehearsed scene carries the most power; the past and the present come together in this moment, unsettle each other and create something new. It is both a work of art *and* a moment in history. Never again will this actor and this orangutan come together and interact in this way; never again will that interaction, that particular man/ape correspondence, be captured.³⁹ It’s not only a scene of ‘dialogue’ between two different species, but two different times: Darwin’s and ours.

IV

Charles Darwin really solved the problem of existence, the problem of existence of all living things [...] Everything we know about life, Darwin essentially explained. -- Richard Dawkins.⁴⁰

What is most compelling about Darwin is not that he ‘solved the problem of existence,’ but that he could not stop asking questions; and that he couldn’t answer so many of the questions he posed. Despite his ‘special instinct for arresting an exception’ as his son Francis put it;⁴¹ for ‘grinding’ (as Darwin, at the end of his life, said of himself), like a machine, ‘general laws out of large collections of facts,’ like most people, he couldn’t answer the problem of his own existence; he couldn’t stop life’s quick, irreversible passing.⁴²

It is the tangle of his questions and not the answers per se that yield the most richness. Instead, it’s the search after answers, in scribbled, human code that builds human affinity: in my case, a literary, philosophical affinity between a modern American-Australian woman and a Victorian Englishman, ever unfixed, which turned his code and questions into my poetry and allowed us for a moment to exist at the same time. What across time still links us, so different in ways, like an orang-

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utan to man, yet so similar, that even after two hundred years we are still asking his question, ‘why is life short’? While Darwin answered so much about the detailed, complex biological nature of the world, he could not answer this most seemingly simple question. He could not put to rest his daughter’s death. And he didn’t know, just as we don’t, what we will feel, biologically, emotionally or philosophically, when we come to the end of our own lives. Darwin is a metaphor for the existential questions we pose and cannot always answer as surely as he posed them in his own time, quietly to himself inside so many small leather notebooks. His species theory was a contest of forces, and what this contest created, or produced, was neither answer nor offspring, but something that, still, to this day, is branching out like coral.

¹ Emily Ballou, *The Darwin Poems*, (Perth: University of Western Australia Press, 2009).

² CD letter to Joseph Hooker, 17 June, 1868 CUL.MS.DAR.94: fols. 72-3.

³ As a child Darwin kept a small diary that noted the natural world as though he were composing poems: ‘25 Mon Holiday Dec A remarkably foggy day so much so that the trees condense the vapour + cause it to fall like days of rain.’ CUL.MS.DAR.129.

⁴ In his various researches on corals, Darwin uses the word *coralline* as both a noun, meaning: ‘of, consisting of, or producing coral’; and an adjective, meaning ‘resembling coral’ or ‘coral-like’. He also used it imaginatively when thinking up metaphors for his understanding of species. He wrote: ‘The tree of life should perhaps be called the coral of life...’ B Notebook (Transmutation of Species (1837-1838)) CUL.MS.DAR.121.

⁵ ‘I believe that...someone who is a writer is not simply doing his work in his books, but that his major work is, in the end, himself in the process of writing his books. The private life of an individual...and his work are interrelated...because the work includes the whole life.’ Interview with Michel Foucault quoted by James Miller, *The Passion of Michel Foucault* (London: Flamingo, 1994), p. 19.

⁶ One of the things that hampered the Darwin bio-pic *Creation*, is not so much historical inaccuracies—which bothered many academics—but its tonal distance from Darwin’s emotional life, especially as it was played out with his wife Emma.

⁷ In his *Poetics*, Aristotle defines ‘metaphor’ as: ‘...the application of a strange term either transferred from the genus and applied to the species or from the species and applied to the genus, or from one species to another or else by analogy.’ I love the cross-fertilisation in this definition, literary to scientific, through the use of the biological terms ‘species’ and ‘genus’.

⁸ Gillian Beer, *Darwin’s Plots: Evolutionary Narrative in Darwin, George Eliot and Nineteenth-Century Fiction*, (Cambridge: Cambridge University Press, 1983 (2000)). Beer also writes: ‘the

exuberantly metaphorical drive of the language of *The Origin* was proper to its topic. The need to establish more parsimonious definitions and to combat misunderstanding may help to account for that dimming of his imaginative powers which he so deeply regretted' (p. 34).

⁹ 'I, a geologist, have ill-defined notion of land covered with ocean, former animals, slow force cracking surface &c — truly poetical. (V Wordsworth about sciences being sufficiently habitual to become poetical)': Charles Darwin, M notebook (Metaphysics on morals and speculations on expression (1838)): CUL MS.DAR.125.

¹⁰ Darwin carried painter Patrick Syme's *Werner's Nomenclature of Colours* (1814) and used it to describe specimens by comparing them with Syme's colours of well-known objects from the Animal, Vegetable and Mineral Kingdoms.

¹¹ Charles Darwin, 'Rio de Janeiro excursion city. M. Video Bahia Blanca,' English Heritage.1.10.

¹² Steven Shapin argues that 'Every instance of what has been called "simultaneous discovery" lends credence to the notion that the individual does not matter in the course of science, or matters in a very different sort of way from authorial mattering in the creative arts'. Darwin was one of two discoverers of evolution by natural selection (Alfred Russel Wallace being the second). Shapin writes: If 'Mozart had not lived, there would have been no *Figaro*. But it's hard to suggest that if Watson and Crick...had not found the double helical structure of DNA, no one else would have done so.' Steven Shapin, 'The Darwin Show', *London Review of Books*, Vol 32. No. 1, 7 January 2010. <http://www.lrb.co.uk/v32/n01/steven-shapin/the-darwin-show> [accessed 31 August 2010].

¹³ The dream caused him to believe he was about to depart to Shrewsbury; and he jumped up half asleep and commanded his servant Covington to pack his bags. M notebook: CUL MS.DAR.125.

¹⁴ 'To study Metaphysic, as they have always been studied appears to me to be like puzzling at Astronomy without Mechanics. — Experience shows the problem of the mind cannot be solved by attacking the citadel itself. — the mind is function of body. — we must bring some *stable* foundation to argue from...'. N Notebook (Metaphysics and expression (1838-1839)): CUL.MS.DAR.126.20. Is this not philosophy as Spinoza once formulated it: the mind as an idea of the body?

¹⁵ In *On the Origin of Species*, Darwin's use of sustained metaphor was both rhetorical and secretive. He could speak of the descent of pigeons and let the reader supply the unspoken second term of 'apes-humans'. The reader must do the imaginative work. This is similar to the often ambiguous work of reading poetry and the way it can leap from one image to its unexpected counterpart.

¹⁶ M notebook CUL MS.DAR.125. Darwin also wrote later in M notebook: 'Singing of birds, not being instinctive, is hereditary knowledge like that of man.'

¹⁷ N notebook: CUL.MS.DAR.126.20.

¹⁸ 'David Porter...argues that (Dickinson's) dash links two words in order to "carry the freight of at least eight or nine words that must be supplied silently.'" Elizabeth Howell Brunner, 'Dashing Genius: Emily Dickinson and the Punctuation of Cognition', Cal Poly, 1997, <http://elizbrunner.tripod.com/Scholar/DashOne.htm> [accessed 31 August 2010].

¹⁹ The line breaks I have duplicated from his notebook; of course they are a product of the size of his notebook rather than any poetic intentionality on his part. When I say they are like poetry, I mean they are like a found poem a twentieth or twenty-first-century poet might create, rather than the formal verse of a nineteenth-century poet.

²⁰ B Notebook: CUL.MS.DAR.121.15-18.

²¹ N notebook: CUL.MS.DAR.126.

²² T.S. Eliot, 'The Love Song of J. Alfred Prufrock', *Prufrock and Other Observations*, (London: The Egoist, 1917).

²³ M notebook: CUL MS.DAR.125.

²⁴ 'why is life short': B notebook: CUL.MS.DAR.121; 'Do monkey's cry?' M notebook: CUL.MS.DAR.125.

²⁵ 'Even conceding the more expansive claims for Darwin's genius and influence, we're still some way from understanding what the festivities have been about.' Shapin, *LRB*, 7 January 2010.

²⁶ Ibid.

²⁷ A review of *Einstein for the 21st Century: His Legacy in Science, Art, and Modern Culture*, edited by Peter L. Galison, Gerald Holton and Silvan S. Schweber states: 'Although this volume devotes three essays to Einstein's influence on the visual arts, each of the essayists is ready to admit that there does not appear to be any causal connection between Einstein and artistic modernism. This finding provides a salutary antidote to the claims that cubism and other artistic movements of the 20th century owed their existence, in some part, to Einstein's work on relativity and early quantum physics.' Daniel Kennefick, *American Scientist*, January-February 2009.

²⁸ Charles Darwin, *On the Origin of Species by Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life (The Origin of Species)*, (London: John Murray, 1859).

²⁹ 'This metaphor-making...takes many forms depending on the work it is doing, so we have Darwinian creativity celebrated by corporate capitalism in the form of entrepreneurship.' Thanks to Paul White for this observation.

³⁰ You can often identify the work of this metaphor by the use of the surname 'Darwin' alone, like an idea; as opposed to Charles Darwin, adventurer and pudding-lover, reclusive scientist and backgammon player, an often sick, smoking, snuff-chewing cheeky husband and thoroughly modern father of his time.

³¹ Story by John Collee and Jon Amiel, screenplay by John Collee, directed by Jon Amiel, produced by Jeremy Thomas, with BBC Films and Ocean Pictures, 2009.

³² 'Collee admits he is an outlier to a fault and completely obsessed with story structure. "I generally do the cards, shuffle them around, go backwards and forwards over the short synopsis until I've got something that works," he says. "I think one of the mistakes young screenwriters make is they think you begin at the beginning and you just write to the end, whereas I think you begin with the concept of the whole film on one page." He then expands his one-page concept to a tight five-page synopsis and adds in his research and notes. This gives him a 30- to 40-page synopsis that

usually covers as many beats or sequences. “Each of these beats I’ve really described to myself,” the screenwriter explains, “basically what’s happening, who’s doing what to whom. Then you write the screenplay from there. That final section is just adding the dialogue...”.’ Peter Clines interviewing John Collee, *Creative Screenwriting*, January/February 2010.

³³ Collee identifies ‘a fantasy strand, a memory strand and a real-life strand.’ Ibid.

³⁴ John Collee, screenplay *Creation*, 2009.

³⁵ Robert Ebert, François Girard’s *Thirty-Two Short Films About Glenn Gould*, *Chicago Sun-Times*, 29 April 1994.

³⁶ Adam Gopnik, ‘Rewriting Nature’, *The New Yorker*, 23 October 2006, finely suggested that Darwin lived in two times simultaneously.

³⁷ N Notebook: CUL.MS.DAR.126.

³⁸ Paul Bettany interviewed by Jennifer Vineyard, AMCTV.com. 20 January 2010.

³⁹ In parallel, biological events are also products of historical contingency.

⁴⁰ As quoted by Steven Shapin, *LRB*, 7 January 2010.

⁴¹ Francis Darwin, ‘Reminiscences of My Father’s Everyday Life’ (Preliminary draft), 1884. CUL.MS.DAR.140.3.1.

⁴² Francis Darwin, ed., *The Life and Letters of Charles Darwin, including an autobiographical chapter. Vol 1.* (London: John Murray, 1887).