

## REWRITING NATURE.

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Darwin's Delay is by now nearly as famous as Hamlet's, and involves a similar cast of characters: a family ghost, an unhappy lover, and a lot of men digging up old bones. Although it ends with vindication and fame, rather than with slaughter and self-knowledge, it was resolved by language, too--by inner soliloquy forcing itself out into the world, except that in this case the inner voice had the certainties and the outer one the hesitations.

The delay set in between Darwin's first intimations of his Great Idea, the idea of evolution by natural selection, in the eighteen-thirties (he was already toying with it during his famous voyage on the H.M.S. Beagle), and the publication of "On the Origin of Species," in 1859. By legend, the two events were in the long run one: Darwin saw the adapted beaks of his many finches, brooded on what they meant, came up with a theory, sought evidence for it, and was prodded into print at last by an unwelcome letter from an obscure naturalist named Alfred Russel Wallace, who had managed to arrive at the same idea.

It seems to have been more complicated than that. One reason Darwin spent so long getting ready to write his masterpiece without getting it written was that he knew what it would mean for faith and life, and, as Janet Browne's now standard biography makes plain, he was frightened about being attacked by the powerful and the bigoted. Darwin was not a brave man--had the Inquisition been in place in Britain, he never would have published--but he wasn't a humble man or a cautious thinker, either. He sensed that his account would end any intellectually credible idea of divine creation, and he wanted to break belief without harming the believer, particularly his wife, Emma, whom he loved devotedly and with whom he had shared, before he sat down to write, a private tragedy that seemed tolerable to her only through faith. The problem he faced was also a rhetorical one: how to say something that had never been said before in a way that made it sound like something everybody had always known--how to make an idea potentially scary and subversive sound as sane and straightforward as he believed it to be.

He did it, and doing it was, in some part, a triumph of style. Darwin is the one indisputably great scientist whose scientific work is still read by amateurs. As Edward O. Wilson points out in his introduction to "From So Simple a Beginning," a new, single-volume edition of four essential Darwin volumes--"The Voyage of the H. M. S. Beagle" (1845), "On the Origin of Species" (1859), "The Descent of Man, and Selection in Relation to Sex" (1871), and "The Expression of the Emotions in Man and Animals" (1872)--we still read Darwin to get a sense of what Darwinism is all about, in a way that we cannot read, say, Newton or Galileo to understand physics. (Wilson also supplies annotation to the texts, and an afterword that argues eloquently for "scientific humanism" as an alternative to religious dogma.) Of course, the theory of evolution by natural selection would have been true even if it had been scratched in Morse code on the head of a needle. But it would not then be Darwinism: a "view of life," in its author's words, not an ideology. (An ideology has axioms and algorithms; a view of life has approaches and approximations.)

Darwin was not a writer just by inclination; he was, uniquely among the great scientists, an author by trade. His books, even some of the most technical ones, were published by a commercial publisher, and he was subject to the same trials as other writers: editors who cut too much, royalty statements that show too little. And Wilson's collection, read right through, shows that Darwin really was one of the great natural English prose stylists. He wasn't a "poet" in that vaguely humane sense of someone who has a nice way with an image; he was a man who knew how to cast his thesis into a succession of incidents, so that action and argument become one. And, as with all good writing, the traces of a lifetime's struggles for sense and sanity remain on the page. Reading Darwin as a writer shows us a craftsman of enormous resource and a lot of quiet mischief. But it can also remind us that recent efforts to humanize him--to assure readers that the truth is not so hard to take; that Darwinism does not expel us into a void of cold chance--are unnecessary. The most humane and poetic side of Darwinism is already there, because he put it there when he wrote it down.

Charles Darwin was a conventional man from an unconventional background. His grandfathers, Erasmus Darwin and Josiah Wedgwood, were, as Jenny Uglow shows in her beautiful book "The Lunar Men" (2002), close to the beating heart of the North of England Enlightenment in its most progressive phase. In the reaction that overwhelmed the country after the French Revolution, their circles were

persecuted, but the family tradition remained one of plain speech and free thinking.

Yet Darwin also went to some lengths to make himself seem just another Victorian gentleman-naturalist, ear pressed to the ground for the rumble of obedient earthworms. He lived in the country on an independent income, like Jane Austen gentry, surrounded by loyal servants and faithful gardeners. ("I have always felt it to be a curious fact," his son Francis wrote later, that "the chief of the moderns, should have written and worked in so essentially a non-modern spirit and manner.") He was an extremely English Englishman, with an Englishman's desire never to sound like a know-it-all coupled with the Englishman's conviction that he alone knows it all.

So Darwin, though filled with bright ideas and keen arguments on almost every imaginable subject, was reluctant to be placed in the position of a Wise Man or Oracle, even as he became one. He felt helpless faced with the kind of universal questions great men get asked: What should we make of the future? Will the United States be the major power? A group of a hundred and fifty German naturalists once sent him, as a weird, touching keepsake, an album of signed photographs of themselves--one imagines them bespectacled and scowling and impressive. It was the kind of thing that wore Darwin out. "We have been rather overdone with Germans this week," his wife sighed on another such occasion. When he wrote an autobiography, meant as a gift for his children, it was candid and affectionate but distant and a little formal. He shrank from confrontation and violent statement while remaining stubborn, opinionated, and convinced beyond reason that his view of life was the one that a man of common sense should hold. Clean-shaven in his youth, he grew a proper set of whiskers as he began to go public, and, photographed by Julia Cameron, he was every bearded inch the sage.

Like most Englishmen of his class and time, Darwin was a prisoner of respectabilities and of encircling embarrassments. Safe within his own garden, though, he was far from diffident or unsure. The tone of his notebooks, as of his private letters, was ironic, impatient, quick-tempered, and he rushed to confident speculations on the basis of small evidence. Few documents are more fun to read than his notebooks of the eighteen-thirties, where his ideas about evolution are already alive, and you see his mind at work, unafraid. Plato, he writes, says in *Phaedo* "that our 'necessary ideas' arise from the preexistence of the soul, are

not derivable from experience.--read monkeys for preexistence." Read monkeys for preexistence. Metaphysics is instantly collapsed into biology. In public, he struggled for another manner, decorous, careful, and unhurried, in which the myth of pure induction--observation uncontaminated by ideas--is kept in place. This makes the somewhat overpraised "Voyage of the Beagle" the most conventionally "naturalistic" of his major books.

It was only in the late fifties, when he finally sat down to write "On the Origin of Species," that he found a way forward. He realized that he had to write a completely new kind of story, in a tone that made it seem arrived at; he had to present dynamite as brick, and build a house, only to explode the old foundations. Long-felt speculation had to be presented as close-watched observation, and a general idea about life had to be presented as a sequence of ideas about dogs.

At the start of "The Origin," after Darwin announces that he will study and treat the Great Problem of species--"that mystery of mysteries, as it has been called by one of our greatest philosophers"--there is a sudden deceleration of intensity. He devotes the first chapter to an exhaustive examination of the techniques of dog breeders and pigeon fanciers. A feeling of disorientation is followed by a rising sense of delight. We feel a bit as we do at the beginning of "Henry IV," when we are told that the young prince has surrounded himself with dangerous companions--only to meet a fat old knight and his pathetic hangers-on.

Turning the pages, we realize that Darwin, the greatest Victorian sage, does not write like a Victorian sage. He writes like a Victorian novelist. Absent from his work is the pseudo-Biblical rhetoric, the misty imprecations favored by geniuses of a more or less reactionary temper, like Ruskin and Carlyle, or the parliamentary ponderousness of the writers of a more or less progressive sensibility, like Macaulay and Arnold. Darwin's prose is calm and exact and, in its way, witty--not aphoristic, but ready to seize on a small point to make a large one, closer to George Eliot and Anthony Trollope than to his contemporary defenders, like T. H. Huxley and John Tyndall. But then Darwin had a novelist's problem when he sat down to write: how to reconcile the endless variation of the natural world with a set of organizing patterns. ("Variation Under Domestication," the title of the first chapter of "The Origin of Species," could be the title of the collected works of Eliot, as, for that matter, "Selection in Relation to Sex" could be that of Trollope's.)

The point that Darwin wishes to make through the agency of his setters and birds, though not directly demonstrative of his thesis, is brilliantly illustrative of it. If a wolf--within a time frame so short that it can be almost entirely recorded, and by means so simple that they can be mastered even by illiterate people--could be transformed through selective breeding into everything from a Great Dane to a toy Pekinese, then surely Nature, working on a time scale so much greater, could produce even more dramatic transformations--say, monkey into man. Similarly, if one kind of pigeon can become all kinds of pigeon--some to deliver mail and others just to pout and look pretty--then one kind of animal could surely become many others as it descended through time and the pressures of specialized niches.

Instead of entering the argument by the front door of the temple, where people debate the origin of Earth and the destiny of man, Darwin, with an artless shrug, enters through the back door of a barn: Do we really know what happens when animals change? Well, yes, he says, and here's what we know, very exactly. Nor is this a mere gesture, occupying a page or two ("One need only look at the rich achievements of the domestic breeder to see . . .") and pointing in a general way toward an acknowledged truth. Darwin offers instead a complex and exhaustive demonstration of how animal domestication and breeding work, by someone who has been in the shed with the birds and the eggs. We learn countless details about how pigeon fanciers change pigeons, and about how cattle vary in pasture. His immersion in the field enables him not only to make his primary point at length but also to make a critical secondary point: that even when domestic breeders aren't trying to vary their cattle, the cattle vary anyway, through isolation and inbreeding. Change happens when you want it to happen, and when you don't.

What's more, the proud domestic pigeon breeders, ignorant of biology, insist that each of their many breeds must derive from a unique species, even though biologists know that the many kinds of domestic pigeon arise from one common species, our old familiar Central Park friend. Darwin gently uses the biologist against the breeder, the breeder against the biologist. The climactic passage of "The Origin" 's opening chapter is at once innocently wide-eyed and scalpel-sharp conclusive, using the amused first person to make the central, impersonal point:

I have discussed the probable origin of domestic pigeons at some, yet quite insufficient, length; because when I first kept pigeons and watched the several

kinds . . . I felt fully as much difficulty in believing that they could ever have descended from a common parent, as any naturalist could in coming to a similar conclusion in regard to the many species of finches, or other large groups of birds, in nature. One circumstance has struck me much; namely that all the breeders of the various domestic animals and the cultivators of plants, with whom I have ever conversed, or whose treatises I have read, are firmly convinced that the several breeds to which each has attended, are descended from so many aboriginally distinct species. Ask, as I have asked, a celebrated raiser of Hereford cattle, whether his cattle might not have descended from long horns and he will laugh you to scorn. I have never met a pigeon, or poultry, or duck, or rabbit fancier, who was not fully convinced that each main breed was descended from a distinct species. Van Mons, in his treatise on pears and apples, shows how utterly he disbelieves that the several sorts, for instance a Ribston-pippin or Codlin-apple, could ever have proceeded from the seeds of the same tree. . . . May not those naturalists who, knowing far less of the laws of inheritance than does the breeder, and knowing no more than he does of the intermediate links in the long lines of descent, yet admit that many of our domestic races have descended from the same parents--may they not learn a lesson of caution, when they deride the idea of species in a state of nature being lineal descendant of other species?

A revolution in human consciousness is made from the self-deluding vanities of rabbit fanciers and poor Van Mons's obvious mistake about Ribston-pippins. The argument is airtight, inescapable, and cunningly faux-naif. Darwin uses empirical instances not inductively, to build proof, but infectiously, to weaken resistance.

Darwin's gambit of beginning with dogs and pigeons was almost too successful; one of the readers employed by his publisher, John Murray, recommended in his report on "The Origin" that the book would sell much better if it were all pigeons, without the weird speculative stuff that came afterward. Yet Darwin made the literary decision along with the practical decision--he knew that he was going to write his book, and he embarked on his program of pigeon fancying in order to help himself get started. The decision was both ethical and rhetorical: Darwin looked for evidence in the homely, the overlooked, the undervalued, and the artisanal. This enterprise of learning from the low--of making the mere naturalist and fancier into a peer of the scientist--was an effort to shift the sources of knowledge and models of thought.

In a revelatory book published this year, "Pilgrim on the Great Bird Continent: The

Importance of Everything and Other Lessons from Darwin's Lost Notebooks," Lyanda Lynn Haupt has a mind-changing chapter on Darwin's relation to the "pigeon fancy," the largely working-class London and Birmingham pigeon-breeding enthusiasts with whom he studied, and from whom he learned much of what we read in the first part of "The Origin." Haupt, a bird lover herself--good Darwinian writing continues to come from the edges as much as from the center of the field--points out how obsessive and complicated Darwin's relation to bird breeders was. "He traversed, with glee, a boundary clearly marked in both the social and scientific sands," she writes. He attended pigeon shows, sought out the prize-winning specialists, and then had his children help him as he bred his own flocks. "I am hand & glove with all sorts of Fanciers, Spital-field weavers & all sorts of odd specimens of the Human species, who fancy Pigeons," he wrote to a friend. He formed a close working alliance with a self-educated pigeon fancier named William Tegetmeier, the poultry editor for the naturalist journal *Field*, to the point that Tegetmeier claimed a partnership with him. (Darwin gently demurred.) This enthusiasm for the overlooked was not peculiar to pigeons. As Gerald Weissmann has argued, in his remarkable essay "Darwin's Audubon," Darwin, against the grain of his time, chose to take Audubon, the American rogue artist and amateur bird collector, seriously, and not just as a source of information but as a model of truth seeking. He set out to widen the scope of what counted and who was allowed to count in science while seeming only to count heads and pigeons.

Admiring a scientist's prose, we usually try to humanize it by mapping the pattern of metaphor within it: look, Einstein was a visionary just like Keats. But the remarkable thing about Darwin as a writer is not how skillfully he uses metaphor but how artfully he avoids it. He argues by example, not by analogy; the point of the opening of "The Origin" isn't that something similar happens with domesticated breeds and natural species; the point is that the very same thing happens, albeit unplanned and over a much longer period. The notebooks and letters and earlier drafts show that analogies--not least the very idea of "selection," nature conceived as breeder--were powerful tools for him, as for anyone else; but it was part of his shrewdness to use them parsimoniously in his exposition.

Reading "Selection in Relation to Sex," for instance, your urge to draw analogies between his study of the way that birds' plumage and song affect their

reproductive success and the way men dress up and show off in order to attract women is so overwhelming that you practically have to bite your tongue to avoid it. Darwin bit his. (Generations have not so bitten, with predictable results.) Page after page goes by, in which the analogies to courtship, love, and flirtation are soberly avoided; when a French naturalist is quoted who uses just such larksome language, Darwin dutifully keeps it in the original French, as Gibbon kept the sexual escapades of the looser Romans in the original Latin.

But this turns out to be buildup, not letdown. After fourteen chapters of copious detail on the preening of the bronze-winged pigeon of Australia (which "whilst standing before the female, lowers his head almost to the ground, spreads out and raises perpendicularly his tail, and half expands his wings") and the song of the European male bustard (which utters during breeding season "a peculiar sound resembling 'ock' "), the argument once again gets paid out:

What then are we to conclude from these facts and considerations? Does the male parade his charms with so much pomp and rivalry for no purpose? Are we not justified in believing that the female exerts a choice, and that she receives the addresses of the male who pleases her most? It is not probable that she consciously deliberates; but she is most excited or attracted by the most beautiful, or melodious, or gallant males. Nor need it be supposed that the female studies each stripe or spot of colour; that the peahen for instance, admires each detail in the gorgeous train of the peacock. . . . Nevertheless after hearing how carefully the male Argus pheasant displays his elegant primary wing feathers and erects his ocellated plumes in the right position for their full effect; or again how the male goldfinch alternately displays his gold-bespangled wings, we ought not to feel too sure that the female does not attend to each detail of beauty. We can judge, as already remarked, of choice being exerted, only from the analogy of our own minds, and the mental powers of birds, if reason be excluded, do not fundamentally differ from ours.

Having studiously avoided comparisons for hundreds of pages packed with ornithological detail, the entire book springs to, so to speak, wild life. Beauty and melody and gallantry, elegance and display, female choice--all are asserted to be as much a part of nature as egg laying. And so, at last, is a firm insistence: we are on a mental continuum with pheasants and peacocks. Analogy is avoided, and then the most unsettling analogy of all is grandly asserted, and without apology. They're us; we're them. This is Darwin's method: an apparently modest

allegiance to mere fact gathering abruptly crystallizes into a whole world view.

To call this novelistic is not to assert a cosmetic likeness; it is to see how closely bound storytelling and truth-seeking can be. Both Trollope and Darwin work in the mock-epic mode: the acts of very small and humble and comic creatures, archdeacons and earthworms, are shown to be not just illustrative of heroic and cosmic workings but an aspect of them. Trollope's Barchester is a smallish place, but its acts are not diminutive; every kind of passion and betrayal and tragedy can be found within those narrow provincial precincts. Dr. Grantly is a Greek hero and Mrs. Proudie as big as Clytemnestra if we pay them the right kind of attention. England's pastures are small, and its kennels cozy, but for Darwin they contain the keys to all creation. The delight that we take in the work of both is the delight we take in being shown the vastness of the cosmos in a teabag. (Darwin's own motto of cautious empiricism, "It's dogged as does it," was drawn from a character in "The Last Chronicle of Barset.") Yet the empirical overcharge never becomes a mere data dump. Darwin had the gift--the gift of any good novelist--of making the story sound as though it just got pushed out by the descriptions. The plot seems to grow out of his observations rather than being imposed by his will; in reality, the plot came first, as it usually does.

Gillian Beer, in her influential 1983 study "Darwin's Plots," identified basic ideas about variation, purpose, and development that Darwin learned from his philosophical predecessors and shared with the novelists of his day. No one who has read Beer's book can ever read "Middlemarch" again without seeing it as a kind of mirror of, or practical application of, "The Origin." (Darwin and George Eliot were friends, and once, out of curiosity, attended a seance together.) Darwin's writing, as much as Eliot's, takes speculative argument and makes it look like empirical record-keeping. But the man in the notebooks, with his breezy provocations, keeps peeking out even from the work of the whiskered eminence. Darwin's ability to look pious while demolishing every piety can be seen at its best in what may be the single most explosive sentence in English, which appears in the last chapter of "The Descent of Man": "We thus learn that man is descended from a hairy quadruped, furnished with a tail and pointed ears, probably arboreal in its habits, and an inhabitant of the Old World."

We can be startled by its boldness today; we know what its effect was in 1871. Yet how beautifully it is situated within the book, after hundreds of detailed pages on sexual selection, on peacocks' tails and mammals' tusks, by which point it is

presented not as a thesis to be demonstrated (although that was exactly what it was) but as a conclusion forced inexorably on the unwilling author. And then the sly use of words--the "hairy" quadruped (unnecessary for the point but necessary to make the image maximally disturbing) and the dynamite of that tail and those pointed ears, with their specific invocation of the diabolical, and the use of the domestic verb "furnished." There are a thousand ways the sentence could have been written in order to minimize its damage to belief; for example, "Those primates closest in organization and structure to man may have had their early origins among arboreal quadrupeds native to the old world." But, a decade after "The Origin," he writes, instead, the mortar sentence, the one that makes the minimal noise incoming and does the maximum damage on arrival. There's your grandfather: in a tree on all fours, his ears sticking straight up and his tail swinging through the branches.

Everywhere in Darwin's work, the radicalism of his points is half-concealed by the calming expansiveness of his syntax. He is gentle but unyielding on the religious question. "I am aware that the assumed instinctive belief in God has been used by many persons as an argument for His existence," he writes toward the end of "The Descent." "But this is a rash argument. . . . The idea of a universal and beneficent Creator of the universe does not seem to arise in the mind of man, until he has been elevated by long-continued culture." In short, belief in the divine is man-made, not God-given. As Haupt points out, Darwin called his book "The Descent of Man," not the "Ascent," denying his readers the solace of an upward arc. Believers search for a crumb of comfort or teleology in Darwin, but what looks promising always turns out to be poisoned. At the end of "The Origin," for instance, Darwin feints toward reassurance, suggesting that life will "tend to progress" over time. But his insistent, immediately adjacent point is that the future in which that progress may happen will be like the past--a vast stretch of geologic time, unstructured by plan or purpose. "We may look with some confidence to a secure future of equally inappreciable length," he writes, and though the words "confidence" and "secure" provide cushioning, the plain sense is that there is no God or plan to interrupt a coming span of time beyond our control or even our imagining. It is the blank prospect that Larkin saw from his high windows: more grains of sand, and more shaking.

Darwin's strategy was one of the greatest successes in the history of rhetoric, so much so that we are scarcely now aware that it was a strategy. His pose of open-

mindedness and ostentatiously asserted country virtue made him, in his way, as unassailable as George Washington. The notion persists to this day that Darwin was a circumspect observer of animals, not a confident theorist of life. As early as Charles Kingsley's 1863 children's story "The Water Babies," "Mr. Darwin" appears as a humble and unworldly figure, head in the clouds, pockets filled with fish and fossils--the sort who couldn't harm a fly, or a fair-minded theologian.

Darwin was humble and modest in exactly the way that Inspector Columbo is. He knows from the beginning who the guilty party is, and what the truth is, and would rather let the bad guys hang themselves out of arrogance and overconfidence, while he walks around in his raincoat, scratching his head and saying, "Oh, yeah--just one more thing about that six-thousand-year-old Earth, Reverend Snodgrass . . ." Darwin was a civil and courteous man, but he was also what is now polemically called a Darwinian fundamentalist. He knew that he was right, and that his being right meant that much else people wanted to believe was wrong. Design was just chance plus time, greed not a sin from the Devil but an inheritance from monkeys. "Our descent then, is the origin of our evil passions!!" he wrote in his notebooks. "The Devil under form of Baboon is our grandfather!"

Yet the rhetoric explains one of the most easily missed things about Darwin's revolution. Given that his was the most profound and successful challenge to dogmatic religious belief that had ever been launched--in a single generation, it caused intelligent people to accept claims about history and man's place in it that had been heretical for thousands of years--its reception was remarkably peaceable. Of course, it inspired enormous controversy, but that controversy was far less battering than he had imagined it would be. Galileo and Einstein suffered far more for their more abstract ideas than Darwin did for his. Victoria read him, Disraeli mocked him, debates were held, and Darwin, the man who told Europeans that their forebears were monkeys with pointed ears in trees, was proposed for a knighthood and buried in Westminster Abbey, as grand a figure as Tennyson or Browning.

You don't achieve a triumph of this kind without knowing what you're doing, and Darwin was a cagey man when it came to carrying his day. He was pleased to let other men, particularly his great friend and champion T. H. Huxley, do the dirty work of polemics. Throughout thirty years of friendship, he and Huxley played, knowingly, a kind of good-cop, bad-cop game in public. Their correspondence shows that each knew his given role--when Darwin at last was put forward for an

honorary degree at Oxford by the reactionary Lord Salisbury, it was with the severe corollary that Huxley could not get the same. Huxley and Darwin, sharing the same basic views, enjoyed the joke. When Huxley had his famous debate with Bishop Wilberforce, Darwin kept silent, safe in the country, but wrote to his defender, "How durst you attack a live Bishop in that fashion? I am quite ashamed of you! Have you no reverence for fine lawn sleeves?" And then, "By Jove, you seem to have done it well!"

The discrepancy between the public and the private Darwin, the ingenuous naturalist and the canny backroom politician, can make him sound like a bit of a phony, or at least like a shrewder operator than we want our saints to be: Janet Browne shows how carefully the Darwin-Huxley alliance took over the key positions in the London scientific societies of the day. Yet we have also learned how much a sense of personal loss lay behind "The Origin." The tragedy of Darwin's life, the death of his daughter Annie, in 1851, had overwhelmed him and his wife in the years before the book was written, and lent a particular delicacy to his implicit attack on religion. Darwin and his wife had ten children, and, in the remote and awkward but heartfelt way of his class, he loved them all; but he had a special feeling for Annie. In "Darwin, His Daughter, and Human Evolution," published in 2002, Randal Keynes, a Darwin descendant who had access to previously private family papers, makes the case, quietly and convincingly, that the view of existence that underlies "The Origin," with its sober stoicism about the role of death and destruction in making new life, was shadowed by Darwin's experience of his child's death.

Annie fell sick in 1850, with what seems to have been a form of tuberculosis, and her frantic parents spent months trying all the futile therapies that people had in the nineteenth century, not unlike the delaying actions of many contemporary cancer treatments. In the end, nothing helped, and Annie died at the age of ten, after a long vigil. Heartbroken, Darwin wrote a ten-page memorial and locked it in his desk. It is written in his best naturalist's manner: "She danced well, and was extremely fond of it. She liked reading, but evinced no particular line of taste. She had one singular habit, which, I presume, would ultimately have turned into some pursuit; namely a strong pleasure in looking out words or names in dictionaries." But the inventory was not unemotional. "She must have known how we loved her," he concludes. "Oh that she could now know how deeply, how tenderly we do still."

After Annie's death, Darwin abandoned the remaining vestiges of Christian faith, the last preference for even Unitarian theology, and became, essentially, a stoic. He believed that the contemplation of the immensity of time, and the repertory of feelings, was all that was left to us. There was no inherent meaning in Annie's dying at ten, except the recognition that mortality was the rule of existence; serenity could be found only in the contemplation of the vast indifference of the universe.

As Darwin worked on "The Origin" in the ensuing years, Keynes shows, he was haunted by Annie's death. In earlier musings, he had written of "the dreadful but quiet war of organic beings going on in the peaceful woods." But after Annie's death these words seem to have been inadequate. Now he wrote, "Nothing is easier than to admit in words the truth of the universal struggle for life, or more difficult--at least I have found it so--than constantly to bear this conclusion in mind. . . . We behold the face of nature bright with gladness. . . . We do not see, or we forget, that the birds which are idly singing round us mostly live on insects and seeds, and are thus constantly destroying life." It is this view of life that illuminates the famous passage at the end of "The Origin" where Darwin writes of the "entangled bank" of existence, "clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth," all produced through the blind agency of natural selection. "Thus, from the war of nature, from famine and death, the most exalted object which we are capable of conceiving, namely, the production of the higher animals, directly follows," he went on. "There is grandeur in this view of life, with its several powers, having been originally breathed into a few forms or into one; and that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved."

Darwin was not especially preoccupied by the problems that move some Darwinians today: he readily saw through the puzzle of ostensibly intelligent design. (An eye that works well evolved from eyes that worked less well.) And, because he didn't know about genes, the great hole at the center of his argument--how did inheritance happen--was one that he never solved. But he was obsessed with the problem of time: How old was Earth? Had there been enough time for evolution to happen? As men dug up the bones that showed just how ancient life really was, what lessons could you learn? How could you

imagine time in a way that seemed to make sense of our own lives and emotions?

In Darwin's work, time moves at two speeds: there is the vast abyss of time in which generations change and animals mutate and evolve; and then there is the gnat's-breath, hummingbird-heart time of creaturely existence, where our children are born and grow and, sometimes, die before us. He wrote one of the founding documents of developmental psychology, a series of detailed notes on his son's first twelve months. The space between the tiny but heartfelt time of human life and the limitless time of Nature became Darwin's implicit subject. Religion had always reconciled quick time and deep time by pretending that the one was in some way a prelude to the other--a prelude or a prologue or a trial or a treatment. Artists of the Romantic period, in an increasingly secularized age, thought that through some vague kind of transcendence they could bridge the gap. They couldn't. Nothing could. The tragedy of life is not that there is no God but that the generations through which it progresses are too tiny to count very much. There isn't a special providence in the fall of a sparrow, but try telling that to the sparrows. The human challenge that Darwin felt, and that his work still presents, is to see both times truly--not to attempt to humanize deep time, or to dismiss quick time, but to make enough of both without overlooking either.

A new book, "Darwin Loves You: Natural Selection and the Re-Enchantment of the World," by George Levine, a professor emeritus of English at Rutgers University, tries to vindicate Darwin for students of literature by emphasizing his modest "sense of wonder," the almost mystical awe at the sheer existence of life in the universe; Darwin disenchanting believers in Heaven, but he reenchanted lovers of Earth. Levine's book is one of the most appealing and subtle attempts to bridge biology and the humanities. It proposes an "enchanted secularity"; because Darwin robs mankind of place and purpose, he gave us a chance to love and revere nature "precisely in its refusal to be like us."

Levine is always on the side of the angels. But sometimes he is on the side of the angels when he ought to be on the side of the apes. If Darwin offers us a disenchanted universe--a universe drained of magic and of meaning--what would it be like to live in an enchanted one? Religious faith, after all, often sees itself as bedevilled and beleaguered even when it reigns more or less unchallenged. Conversely, the soulless materialism of the Darwinian universe can be a comfort: one wishes that a Darwinian could have been by Dr. Johnson's deathbed as he sank into desperate fear of eternal damnation for having lusted after actresses in

his youth. He would have found solace in the idea that there was nothing out there save oblivion, and that the world would remember the things that he had said on Earth.

Although we can deduce from Darwin a new doctrine of "enchanted secularism"--or, indeed, Edward O. Wilson's proposal of a "scientific humanism"--we don't need to add to him to love what he says about life. For Darwinism has never been a threat to humanism; it is humanism, in flight. By humanism, we can mean two things. One is that man is the measure of all things; the other, that all things can be measured by man. The first view, essentially religious in origin, inspires Renaissance painting and the Sistine ceiling and Vitruvian proportions. The second view--that what makes people uniquely interesting is their capacity for gauging their environment and changing it; that the more we measure, the more accurately we see what things are actually like--has been what we have meant by humanism since the scientific revolution of the seventeenth century, and Darwin is one of its greatest exponents and examples.

Reading Darwin as a natural novelist shows us a Darwin as complex as good writers should be. He ended as a skeptical materialist who had proved that the forms of life were shaped by history, not by a supervising mind. But reading him also shows us that no emotion we would fear losing is lost in the transformation. The hardest Darwinian view of all is still roomy enough for ordinary love to breathe in. Darwin was a Darwinian fundamentalist. But he was not a Darwinian absolutist. He knew that what feels to us like soul or spirit--the flash of understanding at an infant's smile or grief at a child's death--can never be argued away. He thought that he had found the secret of life. But he knew that nothing could solve the problems of living. That takes all the time we have.

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