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## A Mere Heart of Stone: The Anti-Biography of Charles Darwin

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A Mere Heart of Stone:  
The Anti-Biography of Charles Darwin

Senior Project Submitted to  
The Written Arts Program  
of Bard College

by  
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Annandale-on-Hudson, New York

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## Dedication

To Devin J. Ayers



*“A scientific man ought to have no wishes, no affections, - a mere heart of stone.”*

—Charles Darwin



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## Prologue

*30 June, 1860—Oxford, England*

My father could not be at Oxford that day due to his ill health. If he had been, I have no doubt that things would have transpired quite differently. Still, I think it very much worked out in his favor.

The British Association for the Advancement for Science was a mere thirty years old. Its goal of bringing scientific discovery to the public had flourished into a full six days of talks and activities attended by thousands. Families travelled miles to stay in inns or with acquaintances. That week, they spent their mornings socializing, their evenings feasting, and their afternoons on organized excursions to walk Bristol's new suspension bridge, or see Derbyshire's caves by candlelight.

And then of course there was the science. In 1860, something called a phonautogram recorded the human voice. Men discovered and named acetylene, caesium, and cocaine. In a month there would be an eclipse. In Oxford that year, Messrs. Herchel and Whewell presented on their revision of the nomenclature of the stars. The Earl of Ross demonstrated his large reflecting telescope. John William Draper, somehow a chemist and a historian, tied them both together to speak on human development. The Prince Consort was there, and Lord Wrottesley, a lauded astronomer, was president. How grand it must have been to be in Oxford that summer: Oxford with its gleaming cream-colored stone, all the buildings tall and carved like Rome or Alexandria. One can tell it is a learned place just from the clean air and the manners of the people. It is the

best city for a British Association Meeting, and the best in which to have discussed my father's work.

Of course he could not present it, but there were a few notable talks which nodded to his new book, the most notable of course an essay by John William Draper entitled "On the Intellectual Development of Europe, considered with reference to the views of Mr. Darwin and others, that the Progression of Organisms is determined by Law." It is odd that he was placed in Section D—Zoology and Botany, including Physiology—but he would have been happy to be there considering it was always the most popular. That particular day—a Saturday, it was—the size of the crowd obliged the dons to move the talk to the library in the new Natural History Museum. It being so last minute and the museum being as yet unfinished, the carpenters were installing benches right up until the talk began at noon.

It was a splendid room. The benches sat round great grey columns from which arches sprouted and interwove on the ceiling like spider's webs. Into it poured seven hundred men of science, Cambridge dons, travelers and their wives, and rowdy undergraduates. Despite its great size the room soon filled up with heat. Of course I was not there to feel it, I myself being at that time only twelve years old, but I have heard it from Miss Brewster, whose mother was there that day. She and Mr. David Brewster took a bench towards the front of the room where Mrs. Brewster, pregnant at the time with Miss Brewster, could have a bit of space. From there they could see the platform. At the back of it was the chairman, John Stevens Henslow, Oxford's botanist and priest and a great friend and mentor of my father. Henslow tugged at his collar and his white curls, and waved his hand as though he were pushing a stake into a garden bed. Someone laughed, someone coughed, and then there was silence. He welcomed the attendees and intro-

duced Professor Draper. Draper was middle aged and American, and had a round face with white hair and sideburns flying up and away so that he looked like a half-sheared sheep. He had been born in England and moved away at a young age, and the dons leaned back in their seats to determine if he would merit his heritage.

A great man of science he might have been, but a great speaker he was not. He read his paper verbatim in the tone of a child learning to read, his head and eyes tracking the page from his right hand to his left and back again, until even the sharpest dons in the room were half asleep. They were only kept from being fully asleep by his grating American accent. Imagine it: an audience of avid learners squeezed into a room still smelling of paint and sawdust, the sun seeping in through the high windows and mixing with the heat of so many bodies. Mrs. Brewster flicking open her fan and crossing, uncrossing, and recrossing her legs while Professor Draper turned yet another page.

The thesis of Professor Draper's essay, as I understand it, was that "man in civilization does not occur accidentally or in a fortuitous manner, but is determined by immutable law." There is proof of the dominance of immutable law, he maintained, in the development of an organism from birth to death, in the series of animals that have lived on earth, and in the slow shaping of the earth. In all of these processes, said he, life is refined from sheer automatism, to instinct, to intelligence, and this holds true for society as well as it does for the individual, the two being inextricably connected, and he chose the Ancient Greeks as his example. It was at this point that he embarked on nearly half an hour's recounting of Greek history, from the Ionians to the Pythagoreans to the Eleatic philosophers to the Sophists, on to the Socratics and Platonics, who were doubted by the Sceptics, and on and on until Mrs. Brewster could hardly remember

why they were learning about the Greeks at all. She fanned her face a little harder and sat up in her chair. Draper did, at long last, bring his argument back to Europe, and somehow worked out that out of the five stages of life, we are only in the fourth. If Draper's later works are any clue, this last step likely had something to do with the vanquishing of religion by science.

When Draper at last ceded the platform, Mrs. Brewster clapped her hands to wake herself up, took a moment to wipe the sweat from her brows, and looked at the program while Henslow took a few questions from the listeners. Then he settled his gaze upon Huxley. Many these days will know Thomas Henry Huxley as a great proponent and interpreter of my father's work, coin-er of the phrase "survival of the fittest," looking somewhat like a macaque for the excessive white sideburns and pursed upper lip, but at that time he was still young, and when Henslow looked at him and raised an eyebrow, Huxley declined to speak. Huxley had not wanted to be there at all that day. He had only changed his mind at the very last moment.

The man who got to his feet instead was Samuel Wilberforce, Bishop of Oxford. Now, in the days leading up to this event, Mrs. Brewster had heard a rumor going round that certain individuals—namely Professor Richard Owen and Bishop Wilberforce—had designs to use Draper's talk to criticize my father's book, *On the Origin of Species*. They knew, too, that certain of his enemies, namely Huxley and Joseph Hooker seated beside him, would likely rebuke them. The attendance of so many people was due to this rumor, thought Mrs. Brewster—or at least her own attendance certainly was. Professor Owen did not attend, but Wilberforce was cool as he took the platform. Mrs. Brewster's eyes followed his robes as they billowed and swayed to stillness. The puffed sleeves of his white bishop's shirt crinkled like muscles. His dark widow's peak pointed to his small sharp nose, and a small mouth which unfurled into a smile upon the audience. Bish-

op Wilberforce was known as a great speaker. He had the confidence of such a man. He had no reason to rush. He began graciously enough, with that smooth style of delivery which Benjamin Disraeli once called *unctuous*.

“It is a most readable book,” he said, “full of facts in natural history, old and new, of his collecting and of his observing; and all of these are told in his own perspicuous language, and all thrown into picturesque combinations, and all sparkle with the colors of fancy and the lights of imagination. But,” he said, and this was the part Mrs. Brewster was waiting for, “with Mr. Darwin's ‘argument’ we may say in the outset that we shall have much and grave fault to find.”

Bishop Wilberforce's issues with my father's book were these: Firstly, that he could find no historical evidence that any new species had developed. “From the early Egyptian habit of embalming,” he said, “we know that for four thousand years at least the species of our own domestic animals, the cat, the dog, and others, has remained absolutely unaltered.”

Second, while he admitted that selection could have an effect on individuals, there was no proof of it eliciting a new species. Here he hit upon a subject very close to my father's heart, namely pigeon fancying, and declared that “with all the change wrought in appearance, with all the apparent variation in manners, when removed from the care and tending of man, they lose rapidly the peculiar variations which domestication had introduced amongst them, and relapse into their old untamed condition.” And moreover, the sterility of hybrids disproved altogether the idea that one species could develop from another. “Is it credible that all favourable varieties of turnips are tending to become men?”

Wilberforce then turned (and this I am sure my father would denounce wholeheartedly if he could) to the description of the slave-making habits of *Formica polyerges* over a smaller

species of black ant. "There seems to be no limit here to the exuberance of his fancy," he remarked, "and if we had Mr. Darwin in the witness-box, and could subject him to a moderate cross-examination, we should find that he believed that the tendency of the lighter-colored races of mankind to prosecute the negro slave-trade was really a remains, in their more favored condition, of the 'extraordinary and odious instinct' which had possessed them before they had been 'improved by natural selection.'" Mrs. Brewster plucked at the cloth round her midriff and felt the whispers of the crowd like flies in thick air. "Mr. Darwin writes as a Christian, and we doubt not that he is one. We do not for a moment believe him to be one of those who retain in some corner of their hearts a secret unbelief which they dare not vent. Now, we must say at once, and openly, that such a notion is absolutely incompatible not only with single expressions in the word of God, but, with the whole representation of that moral and spiritual condition of man." I personally believe that the bishop would have done well at this time to remember that my father was as much an abolitionist as he.

"But," he allowed, coming back to the theory of the book, "we are too loyal pupils of inductive philosophy to start back from any conclusion by reason of its strangeness. If Mr. Darwin can demonstrate to us our fungular descent, we shall dismiss our pride, and avow, with the characteristic humility of philosophy, our unsuspected cousinship with the mushrooms." Riding a little crest of laughter, Wilberforce then turned to Huxley and inquired, was it through his grandfather or his grandmother that he claimed to be descended from an ape?

The heat in the room seemed suddenly to increase. The fans flickered faster like a flock of birds and all sorts of exclamations were uttered. Mrs. Brewster shifted in her seat and folded her arms over her swollen belly, for she was not sure whether or not she had just heard some-

thing rather improper. She was feeling quite hot now, to the point of being short of breath. According to Miss Brewster, Huxley clapped his hand down on the leg of old Sir Benjamin Brodie, who shook like a rope bridge, and declared, “the Lord hath delivered him into my hands.” With that he stood up.

*On the Origin of Species* was not, he said, merely a hypothesis as Wilberforce had intimated. “It is a schema of explanation and interpretation capable of organizing the phenomena of natural history in a coherent and intelligible way.” It was, he said, the best explanation of the origin of species which had yet been offered. Then he turned to Wilberforce and said, “If then, the question is put to me, would I rather have a miserable ape for a grandfather, or a man highly endowed by nature and possessed of great means of influence and yet who employs those faculties and that influence for the mere purpose of introducing ridicule into a grave scientific discussion—I unhesitatingly affirm my preference for the ape.”

Imagine the room after such a comment: the laughter would have been raucous, the exclamations deafening. The undergraduates rose and stood upon their seats, and no feat of architecture could contain the tempest of the crowd. What I do know, having been told by Miss Brewster, is that it was at this moment that Mrs. Brewster fainted. Mr. Brewster and some other men carried her out of the room, and everything was chaos.

*“I regret...”*

In a corner someone was shouting.

*“...the publication of Mr. Darwin’s book.”*

Admiral Robert FitzRoy had stood and held aloft a Bible, which he was waving with the agility of one of the fossils in the museum. A few people listened to him. Many did not. He

looked older than he was. His cheeks were sunken, and his eyes. “I used to expostulate with him, on the ship. Things contrary to Genesis. It was mere entertainment.” His face crinkled even further. “It causes me the acutest pain.”

It was so hard to hear him over the rumpus that some deny it happened. Then again, people have said all sorts of things about Oxford. Wilberforce’s sons have claimed that Huxley phrased it as, “If I had to choose between being descended from an ape or from a man who would use his great powers of rhetoric to crush an argument, I should prefer the former,” or simply that he said he would rather be an ape than a bishop, but Huxley himself has denied this. I have also heard that he said he did not see that it mattered much to a man whether his grandfather was an ape or not—or perhaps this was said at the Thursday meeting, now I am not certain. As to Wilberforce, Canon Farrar says he did not address Huxley directly, that is “If anyone were to be willing to trace his descent through an ape as his grandfather,” and so on, and according to Professor Draper the exchange did not happen at all, but I do not believe that because if it were true, Mrs. Brewster would not have fainted.

No matter. The importance of the story is not the transcript but, now nearly thirty years later, how we remember it. When Henslow gave up and excused them with a God bless you all, and the audience members shuffled out like school children, I imagine that the white Oxford buildings were orangey with evening light, and before the people moved on to plans for supper or the next day, I can be sure that they pondered a few things they would not have considered that morning:

What kind of a creature is man?

And what kind of a man is Charles Darwin?

## Unhealthy Country

*20 July, 1817—The Mount, Shrewsbury, England*

From up in the attic, the people looked like ants. The way the black skirts of the women shook was like little insect legs moving. Even the way they walked in straight lines towards the carriages waiting in the drive was like the ants filing towards the anthill in the garden. He pushed down on the windowsill with his little hands to stand up on his little toes and look through the window. At first they were indistinguishable from one another, the ant-people, but as they passed out of the shadow of the house onto the drive, Charles could tell a few of them apart. His brother and sisters were intertwined like peavines. Caroline was the one in the middle, and she was the one who was crying, he guessed, because she was shaking, the same kind of shaking as from laughing. The little man with the book was the priest, making movements of the mouth that were meaningless to Charles from the attic window. And his father was a circle done over in shadows, and he and the three other figures carrying the coffin looked just like an ant carrying a morsel that was much too big.

It seemed an awfully long time since his mother had died. All the details of it had already left his mind like pond water on a hot day. All the time between then and now had been spent outside, in the greenhouse if it was rainy, and at the river if it was not. There was a tree by the river bank that was hollowed out on one side by lightning, so that it was the shape of a cupped hand. He would take the little rifle his father had gifted him and go down to the river and sit on the hollow side of that tree. He would peer out as though he were under siege and practice his shooting. He looked for hares and pheasants, mainly, and had yet to hit either. The idea was that

if he shot a hare he could bring it back to his father who could give it to the cook, and maybe that would be some sort of help. But mostly he just shot because he wanted to. When there were no hares he would claw at the dirt with his fingernails for pill bugs and worms, or tug leaves off the tree and pull them apart vein by vein. The time in between his mother's death and her funeral he had spent covered in dirt.

"Come and see your mother now," Caroline had said, or perhaps it was the governess. It was an afternoon. He was in the greenhouse, studying the roots that grew out of the bottoms of the pots. It was unusual that he should go and see his mother before dinner, or that she should be bothered when she had been sick so much. When he stood, covered in dirt, he had a vague notion of duty, of solemnity, and nothing else that he could recall.

His mother's room had been different than he remembered it; the furniture was all pushed away and in the center was the doctor's work table, a great strange thing with legs like an animal. It was adorned with things of metal, things of glass, cloth with stains and smells. He could not place the smells, neither then nor now. He wanted to pinch his nose but he had a notion that was wrong.

"Come and see your mother," they said, and so he approached the bed where she had lain sweating for so long. It was a tall bed, and he, a child, could see little but a waxy hand lying within the sleeve of a black velvet gown, a long gown, a thick gown, of heavy fabric almost blue like nighttime. No wonder she had sweated so. He had never seen that gown before, and yet he remembered it best of all. The gown best of all and his mother least of all. How it seemed so vast it could almost be the bedsheet, how somewhere inside it her limbs were arranged unevenly, and

the gown uneven too, draping off the bed and underneath her waxy hand, and above that, her hair, maybe, frizzed like an old wig.

He remembered meeting his father and his siblings there, or perhaps they came in after him, and they were all crying. How strange, the thought, that his father should ever cry. But Charles did not want to cry. Why had that been again? Resolve to be strong for them, surely? Or resignation not to compete with his tears against theirs? Caroline knelt, her skirts a puddle on the floor, her hair a puddle on the bed, sobbing and grasping her mother's hand as if she would feel it. But Charles did not want to cry and he did not want to touch her; after all, his hands were still dirty. Instead, he stood by the work table, toying with the cap to a bottle of medicine.

It seemed ages since his mother had died. It seemed longer still since she had lived. He recalled that she did not like fish, and that she preferred her breakfast in bed, and that she thought it was funny when he talked about the ants in the garden. But he did not recall if she had a nice laugh, or whether she laughed often at all. He could scarcely recall the color of her hair, frizzed or otherwise. Years of parties and evening teas, little complaints and visits to her bedroom, had all been distilled to that single afternoon, to that train of blue-black velvet grazing the floor. The white flowers on the first carriage in the line turned that same color when shadows fell on them. That would please her. Or wouldn't it?

His breath was fogging up the window and putting a gauze over his family and the rest of the people on the drive. When he scrubbed it off with the heel of his hand he saw that all the people had left the house now, and they were sliding his mother into the carriage with the flowers. She was going to the church yard now. And so were his father and his sisters and brother and all the other people on the drive, but he was not sure if he was. No one had told him where to be

and he himself did not know. He had come up to the attic because he did not want to be outside with the coffin and the priest, and now that they were leaving and they had yet to come for him, he could not make up his mind. Maybe he would go down to the river, and crouch in the hollow tree, and watch the water through the branches, and the sunlight through the spiders' webs. He could bring the rifle too.

But would his family miss him? Was he wrong to do that? Was he bad? Or was it best? The horses were restless, and their tails swam through the air like the tails of little fish in the river. His sisters were helping their father into the carriage, its curved top like a beetle shell, and he wondered, if they turned around and looked up at the attic window, what would they see?

## Tyrant-Flycatcher

*10 February, 1825—University of Edinburgh, Scotland*

“What’s to be done about his feathers, sir?”

John Edmonstone brushed a bit of sawdust off his fingers and went to look over Charles' shoulder.

“That’s very good, Mr. Darwin,” he said.

“But doesn’t he look a bit...”

“A bit what?”

“It’s only, none of yours look quite so dead.”

Charles made eye contact with an enormous cat, lounging atop a shelf of books and equipment, her spotted paw draped over the edge in a gesture of relaxation. On her tale was perched a crested owl with wings spread, as if making to fly across the room to the windowsill, where great grebes and tuco-tucos and capybaras were packed against the frost-covered window. Outside it was winter in Scotland, where it had been so for as long as Charles could remember. His nose was chapped, and his shoulders were hunched, if not from the cold then from classes, and he squinted everywhere to keep snowflakes out of his eyes.

But inside 37 Lothian Street it was always humid and full of strange smells. There were animals from more countries than Charles could name, done up so beautifully that they seemed to be basking always in tropical sunlight.

“That’s because he isn’t finished yet.”

Charles was holding in his hand a male vermillion flycatcher. Edmonstone had let Charles have it as a special favor. Charles had found it on the shelf in the corner, smaller than the palm of his hand, its chest and crest a daring scarlet red, even as a crumpled little specimen. Charles had stared at the red, the brightest color he had seen all winter, and Edmonstone had said, This is the bird you will work with. But now, after Edmonstone had shone him how to make the incision in its breast bone, skin him, and clear away the fat—even after he had helped him make a little replacement body out of soft wood—the flycatcher looked decidedly unanimated. The stitches were visible on his chest, one wing hung lower than the other, and the feathers were matted like those of any dead bird he found in his garden at home.

“Take this,” said Edmonstone, handing him a comb. “Brush him just like he were a little doll.” Then he sat down to the adult rhea that was laid out on his desk.

“Are they related to ostriches, sir?” asked Charles, eyeing the rhea at a side glance.

“Distantly, yes.” He pricked a scalpel into the breastbone and dragged it down across the belly, and the rhea’s chest peeled open like butter. A fetid smell rose into the air and Charles began to breathe through his mouth as he slipped the comb around the flycatcher’s beak.

“Where do they come from?”

“Argentina. Brazil. All over South America.”

“Have you been there? To South America?”

“I was born there. In Demerara. There, he looks a little better already.” The flycatcher looked smooth now, and pampered, like it was ready for its funeral. “Shall we wake him up now?” Edmonstone brought over a few pieces of wire and took the flycatcher from Charles’ hand. He slid the wire under the wing and slowly coaxed it to open, like a paper fan. Then with a

few pins and bends in the wire, he secured the wing in that open position. “You do the other one,” he said, and sat down to skin the rhea. Charles picked up the other piece of wire.

“How did you come to be in Edinburgh?” It was a question that every student had, how John Edmonstone came to be the only negro teaching at the University of Edinburgh. No one knew how to ask it.

“I came here with my master. Charles Edmonstone.” Charles pulled the wire out and tried again. “He taught me all of this. Then he moved here and he brought me with him, and then he freed me.” He had said more than he needed to. He knew Charles was curious, and it made Charles guilty. Edmonstone smiled at Charles, sprinkled some sawdust to absorb the blood, and then pulled a shoulder bone out of the rhea. “What bone is this?” Charles shook his head.

“But aren’t you taking anatomy? With Alexander Monroe?”

“I suppose I am.”

“Not enjoying it?”

“It’s only he’s so dull. And last week he lectured on phrenology.”

“The study of the shape of the human skull to determine the mental faculties. Yes, some people think it is radical.”

“I think it’s absurd.”

Edmonstone measured the bone and put it down. “The humerus.”

To cover up the sound of flesh pulling away from bone, Charles asked, “What is South America like?”

“It is a big continent.”

“In Demerara, say.”

“It is hot. There is water everywhere—humid air, waterfalls. The land goes down and turns into swamps and then the swamps become oceans.”

Charles looked over his shoulder at the snowflakes sticking on the windowpane like ticks.

“Could you find a rhea like that?”

“No, but you could find one like her.” He pointed with his scalpel at the cat eying them from the shelf.

“Pumas?”

“Jaguars. But pumas South America has, too. I once had a puma I got from a man in Brazil who found it in his sitting room. Look how nice he looks!”

Charles had finally pulled out the other wing and fixed the wire. Little brown wings that framed the bright red crest and belly. Edmonstone took the bird from Charles and fixed one more wire through the stitches, which he used to attach the bird to a tree branch already flocked with birds. With its wings out and its feathers reflecting the white light from the window, it looked, if not like a live bird, then like a painting of one. It looked proud of itself.

“Wouldn’t it be nice to keep one as a pet. To look at through the winter.”

Edmonstone shrugged. “They lose the red in captivity. Do try not to be late tomorrow.”

Charles put on his coat, his hat, his gloves, and said goodbye. The flat he shared with his brother Erasmus was just up the street from 37 Lothian. The snow never stopped except to swap with rain, and the ground was covered in a sad dirty slime. It stuck in the crevices on the stone buildings and made the spires just a little bit taller. As he reached for the door handle to the flat, cold snow burst on the back of his neck. Digging it out of his collar, he turned to face a man

slightly taller and older than he, and holding another snowball which he pounded into Charles' chest as if it were a dagger.

“You missed Anatomy again.”

“I overslept.”

“You said that last time. Where were you coming from? Just now?”

“I had class.”

“I have your schedule memorized.”

“Why would you do that?”

“Because Papa asked me to.”

“Well, I had class, Ras.”

“What class? When was the last time you attended a class?”

Charles crossed his arms. “Taxidermy.”

Erasmus stared. “With John Edmonstone?”

“What’s the problem with Professor Edmonstone?”

Erasmus pulled his hair with both fists. “He’s not a real professor, Charles.”

“He would make a better professor of anatomy than Monroe.”

“It doesn’t matter. You can’t get a degree in medicine with taxidermy, and you can’t keep missing classes. Really, think of Papa.”

Erasmus pushed Charles out of the way and went inside, and Charles huddled against the stone wall and let the snow cover him like a fur. The sun was down behind the buildings so it was colder, and the street was a washed-out grey. There was a chapter he was meant to have read for class the next day, but there was no use starting now, and so there was no use going to class.

He would have liked to take a walk somewhere open, only there would be too much snow. He would go to the library, then, before taxidermy. Perhaps he could sit someplace warm, and find a good book on South America.

## Beetles Alive in the Sea

5 January, 1832—North Atlantic Ocean

Pray my dear Charles, do write me one last adieu if you have a spare half hour before you sail. I should very much like to have something with your signature in your absence. You will see I have enclosed here something with my signature for you. Or rather it is not my signature but my very poor embroidery on this little purse I made. I made it while talking to my sister as a means of distraction, but I could not *completely* ignore her, and what with all the looking up and down and the trying to seem engaged I am afraid the embroidery has quite suffered for it. It was meant to be a border of flowers along the top in blue, do you see? Since I know you love flowers, well, plants generally, but it does not look much like any kind of plant at all. Although what do I know, perhaps you will find a plant that looks just like it on your voyages and you can name it after me.

Then on the one side is a picture of a fan. Well, I could not say why I chose a fan. I suppose I was hoping to wave off my sister's words like any hot air.

It is not that she is so bad, Sarah, really, only all she talks about is *marriage*. Her marriage, of course, because she is about to have one, you know. She thinks I am in accord with her about it, but really I care not at all about weddings, or at least not hers. I wish you were here with me, Charles, so you could talk to me about beetles instead of weddings. That is how bored I am.

But you I am sure are far from bored! There must be plenty to do while a ship is being fitted. There must be sailor songs and chummy midmorning breaks and oh yes I am sure you are working very hard also. Probably holding the ship up with your own two hands. I know you do

like hard work. And I am sure you will have even more of it once you set sail—woe unto ye, beetles of South America! Send me a drawing of your favorite one and I will sew it onto another ugly little purse for you. I have no doubt that you will find every one of them, so keen are your powers of observation. Do you remember when you found that button that had fallen off my dress into the flowerbeds? I still have the button but I still have not sewn it on again, because *I* do not love hard work. That is why I am a housemaid and you are an explorer. Can you imagine, me on a ship? I can imagine you on a ship, sorting through beetles and plants.

I know you will be so busy, and so busy observing, that you will be at risk to forget a simple housemaid. That is why I sent you this ugly purse. So you do not forget. I know you hope I shall not have forgotten you, but I shall not have been nearly so busy and nothing here will change, least of all my opinion of you. No, I am sure I will not forget, not even the way you describe beetles (with your hands in the air and your eyes quite wide) even though I cannot bother to retain any of their names. Just like I have not bothered to sew the button back on but I have not *forgotten* the button.

So do not, my dear Charles, talk of *forgetting*.

Sincerely, was the place where he put his thumb, over the word Fanny. Seeing it was somehow embarrassing, like reading an old diary entry. He had put his thumb there so many times that the name was starting to wear off, leaving only “Owens,” which he could cope with. That wasn’t what he called her. That could have been the name of a sailor or an island. Under his thumb the paper was growing sweaty. His whole body was covered in sweat and the scent of his own vomit was in his nostrils and on the deck the men were shrieking from the cat-o-nines. It took such hard work to focus on the words because behind his eyes everything was twisting, and

outside the cabin was a tangle of shrieking and creaking, and the whole ship was creaking and lurching, lurching so that his hammock swung and it had not stopped for fourteen days.

From somewhere between the sea and the sky entered Captain FitzRoy, his sideburns seeming to slip into his mouth and exaggerate that so-accommodating smile.

“How do I find you, Darwin?”

Charles was not sure if words or vomit would exit his mouth if he opened it, but when the world had been reeling for fourteen days everything felt more or less like vomit, so he risked it and said, “Hotter than yesterday.”

“Yes, we’re moving south. Water?” For fourteen days Charles had lain in this hammock or alternately on a table if they did not need the table, and he had been utterly sick either way. FitzRoy had brought him countless cups of water and bites of food and distracting stories. “The first week the gunner was drunk,” he said, sitting down as one might in his living room to tea, “the week after that he was disorderly. And this week he’s drunk *and* disorderly.” As if in protest, a shriek sounded from the deck. Charles hummed. “What is that you have?” Charles swallowed the lump in his throat back down. He had said many things to FitzRoy but he had not mentioned Fanny. They knew each other’s childhoods and their politics and the smell of each other’s feet, but Fanny was not a word that could be spoken or read. Nothing could know the word Fanny save the pad of Charles’ thumb. He read it whenever he was not drooling and when he did he was wrapped up in such a soft warm contentedness, such a fabricated brightness, that he could nearly forget about the sickness. It felt very real at times, as though it were possible that Fanny could actually say these things to him and he could hear them and respond. He was happy until he reached Sincerely, and then all at once he remembered he was reading and he felt sick again, and

embarrassed. He hadn't the nerve to say her name and he had no vocabulary to talk about her.

That was its own feeling of dizziness.

He had not answered FitzRoy's question.

"It's...a...nothing." He folded up the letter and put it back in the purse.

"What is it, Darwin? You look perfectly wretched."

What would it feel like to say to FitzRoy, Her name is Fanny? Could FitzRoy say something comforting to that as he did to everything else? Could he tell Charles a name in exchange?

But Charles could not feel the difference in his mouth between her name and vomit.

"It's the sickness," said Charles. "I just wish I could forget it."

## Water in the Bay Black and Boiling

*6 April, 1832—Rio de Janeiro, Brazil*

Robert McCormick slammed his trunk closed and fitted the padlock with a decisive snap. He stood and brushed off his uniform. His cabin was as bare as a vacant tavern room. They could keep the shelves and the French grey paint he had chosen himself. The floorboards creaked and the ship rocked on the waves, gently, indifferently. Out on deck, a saw yowled as it hewed through a board, and every time a hammer came down on a nail he clenched his jaw a little bit more. He huffed and marched out of the cabin.

Two figures were lounging on deck, and the crests of their laughter reached McCormick from a distance. The two seemed to be enjoying the ocean breeze, which peeled away the humid heat they would suffer from onshore. From where the ship was docked, the ocean tapered bit by bit to jagged hills and rocky outcroppings like some great serpent's tail, until it resembled an arrow pointing inland. Casting a passing glance over the bulwark, he saw the water growing bluer and more transparent in color as it reached the shore, and in that clear blue water, an expectant boat.

McCormick did his best not to look at the boys squatting in the pile of boards, nails, half-finished packing cases, cloth and bits of paper, but against his will his eyes rolled down to glower at Syms Covington, holding a nail between his teeth. He and the other boys watched him pass without quitting their noise. The pair of loungers did not stop talking as McCormick approached, then stopped and stood at attention. At length he gave a cough and said, "Captain, if you would

excuse me.” The two broke off their chatter and seemed at last to notice him. The captain’s caterpillar eyebrows dropped closer to his eyes and nose.

“Ah, McCormick.” He looked to his partner. “Excuse me a minute to speak to the good man,” he said.

“By all means,” said the man McCormick had until then avoided looking at. His confident boy’s frame was relaxed into the wooden chair, one foot up on the other knee, his chin scruffy with a mockery of a beard. At this point he stood with a bounce. “I’ll see you for dinner, then, FitzRoy,” he said, and strode off with a look of import to speak with Covington, his personal clerk. He hated that about Mr. Darwin—that he called the Captain “FitzRoy,” like they were equals, like they were just friends on a pleasure cruise. *By all means*, stuck in McCormick’s ears. Even that sounded smug when he said it. *By all means, FitzRoy.*

He and the Captain walked back to McCormick’s empty cabin. He waved the captain differentially into the single chair and sat on the trunk. He wanted the captain to speak first, so he waited until he said, “So this is it, then, McCormick.”

“Yes, sir.”

“I do wish we could have made it work out.”

“I do as well, sir.”

“Your services as surgeon are highly valued on the *Beagle*.”

“Highly valued, sir?” McCormick did not hide the bitterness. All he had ever wanted was to be highly valued. By all accounts he should have been. He was a Cambridge-educated naval surgeon, taken under the wing by the likes of Professor Jameson and Sir Astley Cooper. He had seen a great deal of the world already. He had more practical experience in the business of explo-

ration than the lot of them. He knew his worth. He had gone west to the Indies and north in search of the pole. As a medical student he had shown focus and skill, and as a surgeon he had used it. He had enough gumption to earn his place on no less than four vessels of discovery. And on each voyage the captain and crew had taken him for granted. In the Indies he had been denied higher pay even after saving the crew from disease. As they neared the frigid pole, he had been given nothing warmer than a midshipman's uniform, and his hands had been so cold he could hardly care for the men. Each time he strove for what he deserved, and each time the captain told him he was "highly valued" as he carried his belongings onshore. "Invalided" was the term they listed for his departure, a silly sailor's euphemism for disputes onboard. It wasn't a dispute. It was them failing him.

"They are, McCormick. You're an excellent surgeon. We could hardly have made it this far without your care."

"Due respect, sir. A ship's surgeon is more than he who administers tinctures." FitzRoy had his head propped up in his hand and when he furrowed his brow his face seemed all to fall to one side.

"To what are you referring, McCormick?"

McCormick squirmed atop the chest. He shifted into a new position to regain composure, and said, "Traditionally, sir, a ship's surgeon carries out all the duties of a naturalist." FitzRoy sighed and put his hands in his lap.

"Now, McCormick—"

"Seeing as he has inevitably been properly *trained* for it—"

"I understand that the situation is somewhat unusual."

“Am I the naturalist on this ship, or is it Mr. Darwin?”

The captain’s lip twitched. His fingers had curled a little and after starting several sentences his words were more pithy than before.

“I have done my best to insure, for the good of the voyage, that you and Darwin work as a team.”

“By leaving me onboard while the two of you frolic onshore like you did at St. Paul’s Rocks?” It had been a month since he had awoken and found the ship at anchor and a boat rowing far out towards shore, their sun hats the size of thumbnails. The *Beagle* had spent the day, it seemed to him, swimming in circles, and when at last the party returned, they were sun-ruddy and smiling, holding in each hand noddies that looked to have been clobbered to death. Not only did McCormick feel spurned by the lack of invitation—he ached to see how poor the samples were they had collected without him. “Here, McCormick, I’ve got a patient for you,” Mr. Darwin had said, lobbing a bird at his chest before, laughing, he strutted off for his cabin.

“I had tasks I needed you for on deck,” FitzRoy explained.

“Like catching fish for dinner?”

“They were very good fish.”

“Captain.”

“It was one day, McCormick. Can’t we look past it? I thought we—the two of you have gotten on well enough in the past, haven’t you? You’ve done a fair bit of geology together, haven’t you?” It was true that he and Mr. Darwin had been onshore together various times. He skittered across the ground with the uncontained energy of the child he was. He nearly ran circles around McCormick, and he wouldn’t stop talking. Worse still, he stammered when he got too

excited. McCormick thought he would strangle the boy if he had to hear him talk even once more about How nice the w-w-w-weather was for c-c-collecting. And what was more, he invented things. He imagined that the land was moving up or down like a leaf on water. He made generalizations based on minimal evidence and ignored every established rule. He was theorizing, it seemed, not for the good of the field, but simply to have a theory.

It was well enough to innovate. Any good geologist would. But what aggravated McCormick the most was Mr. Darwin's lack of formal training. So he slept with Lyell's book under his pillow and read it over breakfast like the Bible. But had he read the sources Lyell had so cunningly synthesized himself? Had he ever applied geology to his own lawn?

The same went for his naturalism. Mr. Darwin was a failed student, an idle sportsman with the money to play on foreign shores without care. His bouncy enthusiasm made McCormick unsurprised that he had lacked the focus to study medicine, that he had found the lectures of Jameson, McCormick's own mentor, boring. And his lack of a scientific degree of any kind showed in the way he worked. He misclassified things and balked at dissections. More than anything, McCormick worried about the accuracy of the *Beagle's* findings if Mr. Darwin was to be its chief naturalist.

"As I've said before, Captain, Mr. Darwin and I are perhaps not well suited to work together. And besides, it is now clear to me that you prefer his company to mine. I take it by the packing cases" he pointed out the door, "that you are sending Mr. Darwin's first consignment of specimens to London."

"Now, look, McCormick. I'll admit I think Darwin is a great fellow and I like his work. I've got some knowledge of geology myself, and I think he's right."

“*He* thinks he is right.”

“For Christ’s sake, McCormick, would you *learn some humility*.”

With some shock they both realized that the captain was on his feet leaning over McCormick. His hands had curled completely now into fists and his face was very red. McCormick stayed exactly as he was. Presently the captain took a breath and turned around. He wiped imaginary dust off the shelf with two fingers and braced his other hand against the wall as the boat tilted. When he turned around he was smiling again.

The two men were silent. McCormick was not sure what to say. He wanted the conversation to end and he wanted to be the one to end it.

“There is a boat waiting for me, if you’ll excuse me.”

“I take it you have everything arranged.”

“If someone could help me unload my belongings...”

“Yes, yes, I’ll send in a couple of the boys.”

And with that pretext of action, he left without bidding him farewell.

McCormick stood and tried without succeeding to nudge the chest towards the door with his foot. He considered carving his name into the underside of the shelf. Two of the boys on deck stopped making their racket and came in to wrestle with either end of the chest. Covington looked at him with the same absence of any sentiment.

Once the chest was lowered down to the boat below and it was his turn to follow, he looked back over his shoulder. The crew was lined up against the bulwark to watch him. Covington jaunted to Mr. Darwin’s right and crossed his arms. On his left was FitzRoy. McCormick almost wished they were smiling.

## Phosphorescence of Sea

*15 January, 1833—St. Jago, Cape Verd*

The ocean at night was as smooth and dark as spilled ink. Perhaps, he thought, the cuttlefish made it that way after years of little trickeries. He indulged thoughts like these sometimes. Whenever the sun drowned in the sea, the darkness seemed unconquerable, and yet on some nights the HMS *Beagle* received an entourage to guide it. Like a child watching a busy street from a balcony, Charles leaned over the bulwark of the ship and watched the glow. They were somewhere along the West African coast, and a strip of ocean longer than he could see, roughly following the current, was glowing a faint but undeniable yellow.

A year ago, Charles had known little about the ocean save what he could find in tide pools. A voyage across the sea had been for him really an excuse to step in the tide pools on other shores. But Charles was now discovering during these interims when he saw nothing but water for weeks that the ocean changed nearly as much as the land. It changed color and shape the way a child changed mood, and in fact the ocean too seemed to have moods. In it sometimes floated plants and animals, indistinguishable clumps of patches of sickly scum, and when he hauled up buckets full of water, it was sometimes warmer and sometimes colder. But for the ocean to glow? Even as he looked upon it he could not believe it. The first time, he had dismissed it as a pretty reflection of the moon. But it had glowed since then and of its own accord, whether the moon was out or not. For this reason he watched it in silence without any word to the rest of the crew. And it was pretty indeed. It had the shape of smoke and the color of flame. He stood with his body slung over the bulwark for so long that at last Matthews, the missionary, joined him there.

“What are you studying, my boy?” Charles did not reply. At length Matthews turned his gaze away from the profile of Charles' furrowed brow and out towards the sea, at which point he became very subdued. A cabin boy named Covington ran up on Charles' other side and hopped up on the bulwark, his fingers hooked over the top, his feet braced against the planks, and he too fell silent. For a long while the three of them stayed like that, pressed against the bulwark, un-speaking, and Charles suspected that silence meant that each of them was seeing the same thing: that there were lights inside the water.

“Is it possible?” Charles asked at length.

“Is what possible, my boy?” Charles blinked several times and straightened up.

“I am very...tired. Goodnight, Matthews.” He went to his cabin to sleep. As he lay in his hammock, the glowing ocean water blended with his sleep thoughts and he became convinced again that it had been merely the reflection of the moon.

He awoke to the sounds that accompanied the ship being anchored and he ran on deck, where people were running about and shouting to one another. He bounded up to Captain Fitz-Roy, who was bent over a map. “Where are we, Captain?” FitzRoy put a browned thumb on a speckle in the water, a sprinkling of islands labelled Cape Verd.

“I would be much obliged,” said FitzRoy, if you would go on shore, and bring us back some souvenirs.” Charles spun around to go collect his things and found Matthews in the way.

“I don't know, Captain,” said the missionary. “They seem more rock than land. Are we certain it's a reasonable delay?” But Charles had already run off to the boat. He piled into it with several other sailors and a canvas bag he had packed with jars, boxes, pins, hammers.

As soon as the boat had scraped up on shore, Charles took his shoes off and stepped into the tide pools. He dropped his bag of gear and tossed the shoes beside it and didn't bother to cuff his pants. The coast of Cape Verd was rocky, like Matthews had said. The surface was rough and full of crevices that caught at his heels and toes. But the pools were full of soft sand and mud and the slime of algae, the ridges of stones and shells. And there were creatures too. Within minutes he found an *Aplysia*, a sea-slug veined with magenta. He pried it off a rock and held it cupped in both hands, and picked his way up onto a rise that looked dry, but which soaked the backs of his legs when he sat. He stared at the purple skin and thought how Earle the ship's artist would surely like to paint it. The sea breeze was behind him and it cooled his damp clothes and the skin of his hands so that the creature on them was almost warm, and he was still and let it feel out his fingers.

From the sea below came a soft grating sound. The antennae of the *Aplysia*, tall and slender like the ears of some quadruped, seemed to swivel towards it. A jet of water suddenly splashed against his feet, and he spied in a little alcove in the water a gesture of pale yellow, like someone's arm. He got to his feet, remembered the sea slug in his hands, and looked between it and the specimen kit sitting inside the closed bag, just a few steps more inaccessible than the moment allowed for. He yelped, stuffed the slug into his shoe, and hurried down into the water as quickly as the rocks would allow, but by the time he arrived there was nothing there but rocks and barnacles. Slipping out of that same alcove, however, was a streak of black. He squatted and cupped a bit of it in his hands. It was a rich dark color, swirled into the water in tendrils that blended together and stained the cuffs of his shirt. He stood and walked back to his shoes. He turned them upside down. The sea slug was gone.

When he returned to the ship that evening for supper, Matthews asked what he had found.

“I found a sea slug, only I-I-I,” he paused, took a drink. “Lost it. But I think I saw a cuttlefish.”

“Is that so?”

“I’ve been trying to catch one. It’s very difficult, you see.” Matthews chuckled.

“And what makes it so valuable a catch?”

“They say it changes colors.”

“Now, I hardly think that’s true.”

“Ah, but I read it, in the *Encyclopedia of Anatomy and Physiology*. It can turn from grey to red as it pleases, and it can stain the sea black, and what makes it most special, some people say that it glows.”

“My. That seems far too grand a thing for a fish.”

“I—you don’t say.” Looking down at his plate, Charles decided he had had quite enough to eat and stood with the intention of casting the rest over the side, and when he peered over the bulwark that time the words slipped out unbidden. “Those lights!” he cried. The sailors looked up from their beer.

“What is it, my boy?” said Matthews, walking forward with a lantern.

“No no, snuff all the lights!”

“What is the fuss?” asked the captain, the heels of his boots beating the deck. The cabin boy was pegged to the bulwark, searching in the water for what he had seen before, and one at a time other men lined up and looked out into the dark. They put out several lights. The moon was behind a cloud. Someone murmured, and someone exclaimed. Then the ship rocked, a wave

broke against the side of the ship, and Charles roused himself and staggered over the deck to the place where he kept his tools. He rummaged and dug out a salt-encrusted metal bucket on a rope.

“What do you suppose will be in there?” asked the captain.

“I—I don’t know.” He lobbed the bucket over the side. The crew rested their elbows on the bulwark and watched it glint in the moonlight and tumble towards the water. After a quiet moment, Charles began tugging on the rope until he could lift the bucket over the side. He held it firmly in both hands and scrutinized it: a bucket of salt water in the darkness. Matthews swung his lantern towards the bucket, blinding him. “No—wait!” He stole away to a table where he procured a glass beaker and scooped it full of water. His eyes were still filled with flashes from the lantern and he blinked while they recovered. The missionary and the cabin boy stood nearby. The lantern swung, the ship creaked, and the water was peeled like a fruit over the prow. At last he exclaimed, “Ah—look!” Several sailors gathered in to see how, very faintly, the beaker was glowing.

“I say,” said one man.

“Would you believe it,” said another.

“Particles,” muttered Charles. The longer he stared at the beaker the more the general glow fractured into smaller and smaller points, little globs of matter that floated round the beaker. They seemed to twirl and drift like sprites, to pulse, and, he thought, to breathe. “I,” he said, “suppose we should leave it till the morning.” He placed it very carefully in a case with the other beakers. “I’d like,” he closed the lid gingerly, “I’d like to see what it does.” Suddenly overwhelmed by all the breaths on his neck, he excused himself and went to bed.

In the morning the beaker was nothing more than a glass of salt water and Charles felt a pang of guilt, of fear that he had killed the stuff, the things, the creatures. The *Beagle* anchored and to ease his mind he went out on shore.

The terrain of St. Jago was speckled and lumpy, like mold, but the water was as smooth as steel. He had a sense that it was following him, the cuttlefish was. Throughout the day he would see something yellow sliding under a rock, or feel an arm against his heels in the surf. He would wait still as long as he could bear, smiling, and then spin around, kicking up sea water, and there would be nothing there but a smear of chestnut-brown ink, which would diffuse into the silky darkness of the water.

By sundown he had been taunted often, and he was tired. He worked his way back towards the ship, searching for snails, his bare feet blistered from the rocky shore. Just as the sun stained the water like wine, the stinging on his feet was dulled by a spray of salt water. Nearly falling, he scoured the shore.

The cuttlefish had cornered itself in a little pool surrounded by rocks and was humming to him, like before. It had no route of escape, and he thought to himself that it would not commit such a folly unintentionally. Was this surrender? Was it rewarding him for his toil? And yet Charles was wary. He crouched down, submerged in sea water up to his chest, and held out his hands, almost as he would to a child.

There was a moment in which the only movement was the water, and then he lunged, the ocean giving a great sucking sound, and plunged his hands into the soft red flesh. He lifted it from the water to watch the arms curl around his own like forest vines. He stared at the great

bulbous head, at the painted orbs on each side that he thought must be eyes. At last the movement stopped, and he carried the cuttlefish onto shore, tight and pulsing around his arms.

On board, he spent a long while trying to extricate himself from the animal. Alternately laughing, and chiding it, and muttering to it, he peeled and shook off the tentacles until he could drop it in a tank in the corner. Then he squatted before the tank and studied his new shipmate.

It was dark and he squinted, but he knew what he saw. The cuttlefish was changing color. Only in records and fables and dreams was such stuff possible. In dreams and in St. Jago. He leaned in closer, and closer, until the putrid ocean smell filled his nose like slime, and watched the soft skin shudder from red to grey. He thought to himself, It misses the ocean.

That night, the *Beagle* lifted anchor. The ship lurched and coughed, and Charles could not sleep. Deep into the night he crawled from his hammock and took the beaker out of the case. He stared at it for a long while but there was no light coming from it. He returned the beaker without emptying it and reached for his hammock, and the tank caught in the corner of his eye. Inside it, the cuttlefish was curled up and swelling like a cat. And with each swell came a pulse of light. It glowed, with the same tender phosphorescence that the water had when it guided their way, the same hue that the beaker had only a night ago. The cuttlefish had become a vigil candle, a shrine of deep dark places. Together, rocking in the boat atop the char-black waves, Charles and the cuttlefish worshipped St. Jago.

## Interview with Savages

*20 February, 1833—Tierra del Fuego*

The first thing Darwin heard was a scream. It could have been the wind torturing some twisted tree trunk the way it did, or rubbing together by chance two sparse blades of grass. Only this sound had an animalistic quality to it, a primitive note of fear. He heard him before he saw him, and when he saw him, he was running, the wind making streaks of his missionary robes and his hair, grown longer. He was waving his arms and stumbling as the spongy moss caught at his feet, as though the boat might turn around and leave him, as though it were already leaving. He could have been a native but for the robes.

It took wild aspirations to take a mission like Matthews had. Such a daunting task would only seem desirable to a missionary who was not yet ordained. Matthews had been months at sea for a single destination, and for that reason he seldom manifested in daily ship life. Darwin knew him as a tall man, young but still several years his senior, his eyes dreamy with scripture and his back bowed beneath the weight of God. His piousness was quiet and serene, but they knew it was firm simply by his being there. Darwin sometimes saw him sitting round the deck with FitzRoy's three pet Fuegians, the one man sullen and jealous, the other round and laughing, the young woman demure with her hair in a bonnet. They, too, were here for one reason. Four years ago, FitzRoy took them from Tierra del Fuego, stowed them on his ship and took them home to England. There he gave them a little wardrobe, a little English, gave them tutors and lectures and lessons. He gave them the sort of names one might give to horses. He invested in their education

the way a man might his children, loved them, even, and mourned for the fourth one who died frothing from disease.

But he never intended for them to be Englishmen. Back they went on the next ship with their captain, their long hair and their rough tongue all gone, replaced by bits of propriety and starched shirts. They were going home now, to teach their tribes how to live and how not to be damned. They would be the mouthpiece for Matthews, his helpers and parishioners. Unlike Matthews, they expressed no interest in their fates. They rode the seas like cargo, like the animals in the hold, spouting mixtures of the Bible and heathen superstition and toying with the buttons on their shirts.

They were the same in one way, them and Matthews, thought Darwin. When they arrived in Tierra del Fuego they wore the same faces: quiet dismay and reluctance to so much as step off the boat. That was perhaps the first time Matthews doubted his decision. Though he did not say it, Darwin could see it in his every gesture. The ground was made of spongy moss and Matthews fought against it trying to pull him down, into the earth itself. Within minutes everyone's fingers had gone blue with cold and a halfhearted rain ran down their necks.

And the people, well... Darwin found it remarkable that they felt any desire to move at all in this land, but they ran and chattered and begged for food and knives and were worse than dogs. They were short, with foul faces and foul moods, with skin like leather covered over in paint that bled in the rain.

The Englishman started work the next day. They cut trees to turn into planks, but the trees were twisted and difficult to use. The missionary's cabin went up twisted too. It had gaps between the planks that they filled in with the moss from the ground and the mud beneath it. The

native men worked and the native women sat naked with naked babies and watched and all the while the cold rain ran over them. Darwin could find no displeasure in their faces, nor joy. He wielded a saw and out of the corner of his eye he watched the Fuegians' tawny monkey arms swinging axes. When they all sat down to eat, he watched their dirty fingernails prizing meat from the bones, so strange a contrast to the patterns of human speech and laughter. FitzRoy's Fuegians sat with the Englishmen and ate with kerchiefs round their necks. When their kinsmen asked them questions they pretended not to understand. Matthews sometimes worked and sometimes prayed. He picked at his food over an open Bible, which he kept to himself. There was an understanding that he would begin to teach it later, when the time was right.

When the three wooden wigwams were put up and two gardens dug and planted, they began to unload the supplies from the ship: wine glasses and tea trays, a mahogany dressing case and white cotton sheets. In a far distant England, these things seemed suitable for anyplace. Now Darwin was embarrassed to look at them. He was embarrassed to see the Fuegians dip wine glasses into muddy streams and hold them by the rim to their lips. The Englishmen put the glasses back on a new shelf, got back in the boat, and left Matthews on shore standing inside his new doorway.

Then for nine days they sailed the ship slowly back up the channel, because slowly was all that land allowed. It made Darwin's eyes soft and misty. He looked at the lumpy ground through the fog, the green-black moss-covered ground that rotted away sometimes into pock-marks or trickles of greyish water. Hills lurched upwards, jagged and bony, before falling back down again into mud or ice. Color came in the form of turned leaves spattered across some body

of water like blood. There was no redemption here. It was always raining. The people were always running about in the rain, the color of rain, grey-skinned people slick with grey mud.

How impossible, he thought, to picture white cotton shirts on those grey bodies, blue paint seeping through round the buttons. A shirt could not contend with their wily movements. It would be like putting clothes on a dog. And yet he saw how in only four years FitzRoy's Fuegians had become like good English children. As they sailed round the coast, they saw savages soaking wet and scrambling over the rocks. How good of Matthews to take on this burden. How relieving.

But when they returned to the mission to check in on Matthews before sailing away, it was still raining, the wigwams obscured by mist, and in the distance there was screaming. When Matthews reached the boat he tripped over it and they had to catch him as he tumbled. His skin was greyish and his eyes were wild, and it took him some moments to sort babbles into words. The Fuegians had not let him sleep. They had pestered him for knives. They had taken issue with his beard and pulled it out strand by strand with clam shells. He had feared for his life.

Matthews wanted the whole operation shut down. He wanted to pack up all the wine glasses, knock down the cabin if they could. He wanted to leave and never return. Leave and go home, where people knew how to read the Bible and wear shoes and drink tea. FitzRoy was peeved. He had banked so much on this mission. He held Matthews firmly by the shoulders and spoke to him, but Matthews could not be spoken to, so they patted him and wrapped him in blankets and sat him down in the boat, muttering half-comforts to him. And Darwin felt embarrassed by all of it. When he looked at Matthews he felt his spine rounding like that of a rabbit. Looking

back through the mist he saw FitzRoy's Fuegians standing on shore, skirts of rain pouring off the shirts they had stripped down to their waists, the miserable lords of their miserable land.

## Fear of Man an Acquired Instinct

*2 November, 1833—Argentina*

I have been a hunter ever since I was a child. Out by the river I would catch dragonflies and spiders. I would stick branches down snake holes, annoyed that nothing came out. I would pinch insects until they were still and line them up on my windowsill, and I would keep lizards in little covered bowls on my desk. Oh, my sisters hated it! Once a lizard escaped and perched atop Caroline's mirror, and when I came to capture it the tail came off and the rest scurried behind the mirror. Well, she liked that even less. She found it in her powder box some time after it had died and tossed the whole thing out. I kept the tail, though, and cut it open, but it was just a mess of flesh. I was just a boy and had no sense of science.

It all began with beetles. They were the slowest and the prettiest, and I would take home jars full of them, like collections of living marbles. Some of them I pinned, but this was long before Professor Henslow taught me the correct way. I would hold them too tightly and smash them all to pieces like a bit of toast. The smallest ones especially, I would miss the midline and tear straight through the side, the delicate cobalt shells crumbling like dried paint.

After a while I tried other insects. Ants were plentiful enough that one botched job, or several, was no tragedy, although they did bite liberally. Caterpillars were softer and easier to handle, and butterflies were a treat, their painted wings pumping until the very end.

Birds were only natural after flying insects, although harder to catch in a net. Professor Henslow didn't teach me to use a net. He didn't teach me to use a gun, either, for that matter. My father did, when I was a boy. He gave me my first rifle when I was still very young, and I used to

practice by myself after my mother died. I would go out by the river and shoot at the water, at the leaves on the water, at the leaves on the trees. At the birds in the trees, too, after a while.

When I was fifteen I shot my first duck. I went out hunting with my father and my terrier and I tried all morning without luck, until at last I aimed straight. I remember how it spiraled to the ground like a kite. The great squawking of the other ducks, the terrier bolting back out of the undergrowth and licking the blood from her snout. My father was quite proud.

The proclivity for collecting I had, but the skill I got from Professor Henslow. He would take me into the Cambridge gardens after class, and we would sit under the trees in the sticky grass and he would teach me how to catch insects with funnels, pitfall traps, or malaise traps, the differences between sweep nets and beating nets. We put beetles in killing jars before they damaged themselves trying to escape, and inflated caterpillars, first squeezing out the guts through an incision, then blowing air in with a straw. I spent so much time this way that my peers called me “Mr. Darwin, the man who walks with Henslow.”

And I hadn't a clue how to preserve mammals until a freed slave taught me taxidermy. He showed me how to look for the tiny organs, like prying out a chestnut from the shell. It is remarkable, the inside of a creature, organs small and green and warm. They are not like human organs. It has always been strange to me that they receive the same names. A specimen is just a specimen, full of pockets of blood and ligaments and cavities to be cleaned out, but the names for them are the names they taught me in the operation clinics at Cambridge. But a little pickled bird heart on a tray is not the same as a human heart in the chest of a child. It was a child they put up on that table in the operation clinic—a child! A little boy like I was a little boy. It was a great round room, like an arena, with students all round on the upper level, and doctors all round

on the floor, and the child strapped down on the table like an animal. This was 1827, mind, and chloroform was discovered in 1831.

This is how I know that I make a good hunter, but I would not make a good doctor. Rifles and pins kill quickly and cleanly, and once it is dead I do not mind the rest. When I explain this to my father he does not understand it. I cannot forget the sounds—I mustn't speak of it.

I have become an even better hunter since I began this voyage. South America has a vast array of new rodents, mice with big tufted ears that make curious sounds, rabbits with fur that might stay soft like velvet for years if preserved properly. Sea creatures were a world unknown to me, with their particular challenges, rubbery inside and out. I already have a large collection of fish and crustaceans, and a cuttlefish, too. I know how to identify a weasel's den, and guanacos are so curious that when I lay on the ground and kicked my feet up in spasms they would investigate and were easily shot. I have pillaged rheas' nests for eggs near as big as my head and folded up the long legs of the parents to stow on board. A few weeks ago we saw signs of a puma, but we could not catch it. I was disappointed, but perhaps it was best. Cats are fast and hard to shoot, and the sounds they make when they are injured unnerve me.

Nevertheless, there were many shots fired in Argentina, and not primarily by me. The government at Buenos Ayres equipped some time ago an army under the command of General Rosas for the purpose of exterminating the Indians. He has secured nearly seventy-four square leagues of land. He is an extraordinary man—an excellent general, a perfect horseman, and exceedingly kind. He has a most predominant influence in the country, which it seems probable he will use to its prosperity and advancement. He told us many war stories about Indians fighting like animals in the terror of death, women massacred in cold blood and men dying with their teeth round their

attacker's thumb. Wherever we went in that country—Patagones, Bahia Blanca, Punta Alta—there were always spatters of hoofbeats and gunfire. Troops of Spaniards on horseback would glide by, along river banks or on salt marshes, or as shadows on ruddy evenings. The road to St. Fe was especially perilous. We never felt safe among Indians unless we learned they were allies of General Rosas. St. Fe itself is a quiet little town, and is kept clean, and in good order. The governor, López, was formerly a soldier of Rosas.

I spent the past two weeks in Buenos Ayres. The city has seen fifteen governors in nine months and now Rosas had blockaded it. No cattle or horses could enter, nor meat, and the sentinels used the authority of their guns to rob at will. The people protested in cadences like songs and kicked up dust that settled on the columns and cornices of the buildings, and each day a few men were killed. Rosas' men helped me onto this packet ship to reunite with the *Beagle*. There was a letter for me here from London which said that the House of Commons had voted to abolish slavery on 26 July.

Before this voyage I had never seen war, or slavery. It is strange what our species inflicts upon itself—for I have no doubt that there is but one species of man, regardless of his state. Governor López's favorite occupation is hunting Indians: a short time ago he slaughtered forty-eight, and sold the children at the rate of three or four pounds apiece. But I believe in this respect there is little to complain of. As distasteful as the circumstance may be, I at least take comfort in knowing that the parents are mercifully dead and the children intact. And if their masters are anything like that of the freedman I once knew, they may one day learn a skill they can pass on to others.

## Leafless Bushes

*17 October, 1835—Albemarle Island, Galápagos Archipelago*

Charles stoops down to pick up the marine iguana which is waddling towards him from the sea foam. It reminds him of a dog, if a dog were drunk and bowlegged. Its legs jut out laterally and push at the sand as if they are broken or boneless. He tries to withhold judgement and remember that it is naturally a swimmer. As it reaches him, he grabs it by the midriff and lifts it to eye level. He looks it in its face, its snout dull and its eyes low down and rolling on either side of its head. It makes little effort to defend itself and he cannot really blame it.

“Mr. Darwin, sir?” says Syms Covington, picking between the boulders of volcanic rock and down to the beach dragging his rifle. He is a boy still, nineteen at the oldest, and he is scrappy, with red knees and a little fraying kerchief round his neck. “There wasn’t anything to be got round to the north.”

“Nothing at all?”

“Not unless you’d like another finch, sir.”

He keeps the iguana suspended at shoulder height and sighs, looking around. Behind him, chunks of volcanic rock litter the beach like coals. Between them grow trees of giant cactus, with scaly trunks and spiked branches, and shrubs the color and shape of tangled wire. To the north, there is a volcano, barely active, taking up a third of the sky as a pale blue half-circle. It is all barren, unfinished, disheveled. It reminds him of an iron foundry.

“Go down to the west then, round that hill.”

Covington runs off again, and Charles hurls the lizard as far out to sea as he can. There is a little splash like a log might make. Captain FitzRoy has left them on Albemarle Island for a week while the rest of the crew sails around the archipelago, so for a week, he and Covington have sat on the rocks and sweated. The rocks, having been heated by the noonday sun, give the air a close and sultry feeling. In some places the rocks cover the ground in swaths where lava once flowed, and it resembles the sea, petrified in its most boisterous moments. After too long on the rocks the shapes repeat themselves, the whole island becomes symmetrical, and he feels like he is walking in a labyrinth with nothing of interest at the center.

He is meant to look for animals to bring back as specimens, but there is scarcely any vegetation to nourish a living thing, so the creatures are few and dull. All he has found of birds is a set of small of nondescript brown ones—all finches, out of sheer lack of originality—and two mockingbirds, quite like the American variety, and another, with a slightly curved beak. The plumage of the birds is very plain, and like the flora possesses little beauty. The same could be said of the tortoises, which he figures to be deaf. He likes to run up behind them and jump on their backs. They make a deflating sound and thud to the ground, at which point he gives it a few raps on the shell and it rises up and walks away. He usually falls off. The breastplate roasted with the flesh attached to it is very good, and the young tortoises make excellent soup, but otherwise the meat to his taste is very indifferent. He would study the tortoises more if the men did not eat them so quickly.

So all he is left with are the large black lizards, which are so numerous, that if they had wings, they would be as pestiferous and stupid as flies. They do not even know to escape into the sea when pursued, though they can swim, and so the best use that can be got of them is to pick

them up and hurl them out to sea, and then to wait for their return to try and hit a better mark. He has opened the stomachs of several and found nothing but a soup of sea water and algae. Surely his stomach would look quite the same. Even their nests are a nuisance, and he has nearly broken his ankle several times by stepping in them.

He can hear Covington's gun clattering on the rocks a long way away. It would be just as well if he left it behind. A gun here is almost superfluous. Nothing on the island seems to have any concern for its own safety. Covington has killed them with a switch, or with his hat. Once with the muzzle of the gun he even pushed a hawk off a branch.

The lizard he threw is paddling back to shore and getting slapped back by the tide. He notices that it is the tail that does all the work of swimming and the arms lie limp by its side like sausages. So then its arms serve it for nothing at all. Covington runs back down to the beach. "Nothing," he says without having to look at the boy. He waits for the lizard to claw its way back onto the sand and walk right up to his feet, at which point he lifts it up and delivers his best throw.

"Nothing," Covington confirms, and the lizard plunging into the water is punctuation.

He thinks if he throws the lizard one more time he will surely go mad, so he turns around and the beach is covered with them, black like the rocks, munching on chunks of cactus that have fallen to the ground, and the little birds peck at the chunks with them, not so much to be friendly as to make the point that they can. One bird hops upon an iguana's back and no reaction is given at all.

Albemarle makes up for having no variety by having far too many of the animals it possesses. The island is crawling with lizards and finches and, further up, with tortoises, all of these

animals eating nothing and doing nothing and caring about absolutely nothing at all. Further up the beach, a lizard is slinging sand over its body, first with one arm, then with the other. He walks up behind it and gives its tail a tug, to which it gives him a look of mild affront and waddles a few feet away, where it splays out with its face in the sand and its arms alongside it, as though it were dropped there from some height.

“You know,” he says to Covington, “I think he’s got it,” and he gets down on his stomach on the sand, and waits.

## Their Moral State

*15 November, 1835—Tahiti*

Suddenly there were canoes. Dozens of them bobbed on the water, all the way from the shore to the ship. It was the clearest water Darwin had ever seen, the texture of diamonds and the color of crystal. It was so clear he could see the shadows of the canoes on the sea floor in the shape of Ts, the slim, compact boats with the support beams at right angles. Outrigger canoes. And in each one a figure at attention. It was a most regal welcome.

Still, he felt uneasy. He held to his chest a book by Otto von Kotzebue which he had read and reread over the 3,200 miles from the tip of South America to the island of Tahiti. If Kotzebue was to be believed, the mission at Tahiti was steeped in failure: untrained missionaries fighting violent, inebriated natives by crushing spirits and imposing rules. But the canoes were jaunty on the water and the air was sweet, and Darwin did not feel inclined to believe him. He looked at Captain FitzRoy, who was straightening his jacket, and snuck a glance at Richard Matthews, who watched the water dubiously with his hands held over the cross at his neck.

“You had better put that away,” said FitzRoy, indicating the book. “For appearances’ sake.”

Darwin slid the book back into the shelf in his cabin, and when he returned to the deck the captain, Matthews, and several officers were boarding the boats. The water was warm and the current gentle. The men in the canoes turned around and called to them, raising their paddles like beacons and beckoning them to shore.

On the beach at the bay of Matavai a crowd had gathered, and Darwin could get a better look at the people. They were built like Roman statues with broad shoulders and thickly woven muscles. Their spines were straight and their hands were strong, and their skin was like brass in the sun. They were smiling. They shifted furtively to get a better view of the newcomers. The men of most import stood towards the front with all the composure of English gentlemen, in white shirts and jackets bound to their waists by bright cotton bands. On their heads they wore straw hats. The others were mainly bare-chested and looked to have come straight from working, a gleam of sweat on their bodies like varnish. The women wore red or white flowers on their heads or through their ears, and they caught at children who wove through the crowd's legs as though they were trees. They were beckoning again, to a modest house, like all the others built with the trunks of coconut trees and thatched over with coconut leaves. The Tahitians broke into two groups, one on either side of the door, and watched as FitzRoy knocked. The man who came to the door was young and his hairline was receding. Even in the heat he was wearing his missionary's robe, a little more sun-bleached than Matthews'. FitzRoy shook his hand. "Father Wilson," he said.

"Please, come in," Wilson said, and stepped aside to let them pass. The interior was bare and the coconut trunks were exposed, but it sported an English table, chairs, and bed frame, and a shelf with several books and Bibles. "I imagine you must be hungry."

"Don't trouble yourself," said FitzRoy. "We have our own provisions."

"I insist. The island has plenty to give you."

There was nothing to do but sit at the table, where a bowl of fruit was set in the center. Wilson heated a pot at a fire in the corner and served them, and Darwin tucked into a bowl of

turtle soup—not his first, but perhaps the best. It was hot and fresh and a blessed change from hardtack.

“Do tell me,” said FitzRoy, after some polite comments about the soup, “about your project here.” Wilson lowered his napkin from his lips.

“I imagine you read a fair bit about Tahiti before you arrived.”

Darwin looked at FitzRoy, who cleared his throat. “We did come across one or two accounts.”

“Scathing ones, no doubt.”

“Kotzebue does have rather strong opinions.”

“What does Kotzebue say?”

“Well, he says that...what does he say, Darwin?”

Darwin had his mouth open to receive a spoonful of soup, and he quickly closed it and put the spoon down.

“Oh, only that—oh, let me recall. He says there is a history of—of—violence in Tahiti that has only been contained, shall we say, by force, and that all spirit the people may have had has been snuffed out in the process, and that the missionaries the Society provides tend to be power hungry and...” he fixed his eyes on his soup, “uneducated. Have I got that right, FitzRoy?”

“We would very much like to come to our own conclusions,” said the captain. “We are no strangers to the...challenges of missionary work.” Matthews’ shifting was belied by the creaking of his chair. There was a collective bite of soup.

“To that end,” Wilson said, I am obliged to provide you with anything you might desire during your stay.”

Darwin was quick to speak before the conversation turned. “Might it be possible to borrow one or two of your men? I would like to spend a day in the mountains.”

“I’ll arrange it straight away.” Wilson stood and the others followed suit.

“I do hope you enjoy your stay,” he said as they moved towards the door. “I hope you will find it, might I say, a home away from home.” FitzRoy laughed.

“That is a very high hope, Father. I have not felt at home since England.”

From the first, Darwin had turned his attention to the center of the island, where a set of mountain peaks spoked upwards like an English castle. He took along a bag of provisions, a spare set of white shirtsleeves, a vest, a cravat, khaki pants, and a blanket, all of which was lashed to either end of a pole and carried by the younger of the men who Wilson had selected to accompany him. The younger one had a squarer jaw, shinier eyes, and an ever-present smile. The older man had flatter cheeks, flecks of grey in his hair, and a regal nose. Darwin walked behind them, however, and by their backs they looked the same: strong and square-shouldered with spines so deep-set it almost seemed one could peel them open, and along each spine a deep blue-green tattoo like the trunk of a noble tree embracing a delicate creeper. Wilson had not given their names and Darwin did not know how to ask. In his mind, he christened the younger one Fox and the older one Grant, after friends back home.

“I say,” said Darwin, and they looked over their shoulders. Don’t you need—” he plucked at his shirt, “or—” he mimed eating. The Tahitians spoke both French and their native tongue, neither of which Darwin knew, as well as a very few words in English, so he could only gesture

and pray they understood. The younger man smiled and tugged at his skin. The older reached out a hand, plucked a green fruit the size and shape of a croquet ball, and handed it to Darwin. He twisted it and it split open, and inside was fragrant flesh the shade of watermelon.

“How do you—” he held out one half. “How do you call this?”

“Guava,” said the older man.

“Guava.” He spent the next while studying it as he walked, and when he looked up they were at the foot of the mountains, clothed as they were with a thick carpet of vibrant grass, as though colored with the most expensive dye. Their path was narrowing sharply as the mountains defined ravines as clear-cut as castle corridors, upholstered with moss, and as the mountains and the vegetation trapped the hot, humid air, sweat began to trickle down his long sleeves from his shoulders. He tugged at his cravat.

What intrigued him about the mountains was their shape. They were jagged, sharp to the eye, originating from points in midair and meeting the earth in razor-sharp ravines.

“Wait,” he panted. The men stopped. He needed water. He pulled it from his bag and leaned against the ravine wall to drink. “How—” he pointed up. “How did they form? The mountains?” They looked at each other and then back to him and shook their heads. “I mean, did they—did—I—never mind.” They watched him pant. “Water?” he said, holding it out to them. They declined. “All right.” He stood upright, straightened his clothes, and gestured ahead deferentially. “On we go, then.”

He looked alternately from the men ahead of him to his surroundings. The ravines continued to narrow. “Remarkable,” he muttered, and the men turned their heads. “Remarkable!” he repeated.

“Remarkable,” said Fox, and laughed. He said something to Grant. For a while the two of them had a conversation Darwin could not understand, in the tone and cadence of gentlemen at tea.

They were gaining altitude now. He reckoned they were at nearly two thousand feet. They curved around the side of the mountain and as they did so he could see straight out to sea. There were other islands in the distance, little pinpricks in the water that looked like Tahiti’s younger sisters. From there they resembled the tips of her mountains, as though she could sink into the sea and look just like them, or perhaps they could rise out of the water to match her.

Fox and Grant heard the sudden scuff of his boots and when they stopped and looked back, he had pulled out a notebook and was writing in it.

“They were all islands.” In between writing sentences he said, “The mountains were all little islands, and they rose up, very slowly, and the beach, and the—what about the ravines?” he asked Fox and Grant, and when they did not respond, he said, “Neither do I,” stuffed his notebook back in his pocket and started walking again.

Around midday, the sun was hanging directly above the ravine in which they walked and he was sweating heavily. He removed the cravat at his throat, folded it carefully, and placed it in a vest pocket. His sleeves were scuffing against the rock walls and he kept rolling them up to keep them clean.

All at once the ravine peeled open and revealed a grassy meadow, hemmed in on one side by a rock outcropping lined with banana trees, and open to a view of the ocean on the other. Near to the rock and the trees ran a quiet little blue stream. Darwin stopped to look, and his companions, seeing his body drenched and stooped, conferred between them and beckoned for him to sit

down and eat. He sat on a rock and watched them pull bananas and oranges from the trees. Fox had brought with him a small net stretched on a hoop, and in the deepest eddies of the stream, he crouched with the attention of a sportsman with his rifle. Grant, meanwhile, rubbed one stick into a groove made in another one until the dust sparked and a fire was built. In very little time Fox procured enough small fish and prawns for the three of them, and they wrapped the fish and ripe and unripe bananas in leaves and covered them with earth and hot stones. Then they all three sat in perfect unspeaking company and listened to the water and the fire until Grant unearthed the food again and put it before him. It took him some time to realize they were waiting for him to eat first.

“Please!” he cried, and waved at the steaming food, but they did not move. “That—that is hardly necessary,” he mumbled, and fumbled with an orange. He ate first one piece of fruit, then another, then moved on to the fish, and could not at any point bear to look up from his food. When at last he was done, they began to dine themselves, and Darwin relaxed. They ate contentedly and spoke alternately to each other and to him, and he thought how gleeful they must feel to have escaped the missionary for a short while, like children let out of school. Even the most well-mannered children looked forward to that.

He pulled out his notebook again and bent his head to it to give Fox and Grant some privacy. He gazed across at the mountains, the way they all pointed up towards a singular point, towards the sun. He thought, It would take something powerful to cut rock like this.

He stood. “There is a volcano, isn’t there, at the center of the mountains?” They got to their feet, shaded their eyes, and looked where he was pointing. “No, there is—” He walked in circles and wrote. He frowned. He took a step in the general direction of the mountains, as

though by staring at them from a distance he could find the answer. Then he looked back towards the beach, the flat island lowland far below. After several minutes of this he cleared his throat. "I would like to posit," he said to the Tahitians, "that your island was once several islands in the sea, and that streams of lava and beds of sediment were accumulated under water, in a conical mass, which, after being raised, has been cut by these profound ravines, which all diverge from the common center." Fox and Grant considered. They seemed to think that Darwin's standing up signified the end of the meal and his words his desire to move on. They nodded cordially. "I'll call it a theory, then." To celebrate, he pulled a small bottle of whiskey from his bag and took a sip. He proffered it to the Tahitians. Fox turned to Grant, who waved the bottle away and shook his head.

"No, please," Darwin insisted. "This propriety really is silly. Take it, I insist. Take it!" Reluctantly, even with looks cast over their shoulders, they took the bottle, took little sips, and handed it back. Darwin took another drink himself and held it out again.

This time Grant held his fingers to his lips and spoke the word, "Missionary."

"Oh," Darwin said. He gazed at the bottle. "Of course. I'm sorry." He sought in their composure some indication that they forgave him. The ripe fruit cast pretty shadows on their dark bodies and the grass filled in the spaces between their toes. They were so well suited to this land, and yet it made them seem less like savages and more like princes. In their natural state they were natural gentlemen. In their patient gaze he saw himself for what he was: pale, overheated, and overdressed. As delicate and over-domesticated as a greenhouse plant.

He took another determined swig and started off down the path again, and he put his foot down on some loose rocks and lost his balance. The bottle fell from his hand and shattered, and

his body tumbled a good distance and rolled into a thicket. Fox and Grant ran after him and pulled him upright, and as they pulled, the branches tore his hair and clothes. He waved their hands off him and caught his breath, eventually standing and shaking out his bruised limbs. “I—I—I’m all right I’m—I just it’s—fine.” His vest had torn open at the shoulder. He had lost two buttons, and when he wiped his face with his cravat he found blood, dirt, and leaves. He removed the vest. He thought about the spare one in his bag, but instead he slung the ruined one over the bush he had rolled into.

The bush had segmented stalks, almost bamboo-like, and wrinkled, heart-shaped leaves “Ava,” he said. “The ava plant.” He remembered reading somewhere that it was used traditionally as a hallucinogenic. “It makes your mind—” He waved his hands around his head. “Correct?” He pulled the plant so it bent in their direction, and they gave signs of refusal even stronger than they had with drink. “Come now, I won’t try it on my own.” He pulled off a leaf for each of them and the men took them but promptly dropped them. “All right then. Just me.” He crumpled the leaf and chewed it. It was acrid, like the worst tastes of medicine and burned toast and poison combined. He grimaced, and Fox and Grant watched him dubiously. “Am I meant to swallow it? Do I—? Never mind.” He extracted the wadded-up leaf and placed it gingerly under the plant. “Well, I don’t feel anything.” He stood slowly and felt out his bruised limbs. He paused to study the contrast of fabric on foliage. Then, wordlessly, the three of them continued downhill.

They made it back to the lowlands just as the sun took a plunge into the sea. They walked past the fields planted with yams, sugar cane, and pineapples, now greenish plant shadows close to the ground. “I still don’t feel anything,” he announced. “I don’t think it works.”

There was a crowd on the beach, gathered round a fire. In tacit agreement, they headed toward it. When they got closer, Darwin saw that it was mostly children playing. They had lit bonfires, which illuminated the placid sea and surrounding trees. Others, in circles, were singing Tahitian verses. He spotted FitzRoy and Wilson seated on the sand, watching. Before he went to them, he turned to face Fox and Grant. He shook each man's hand and parted ways with them.

"It's remarkable," said Darwin, sitting down next to Wilson. Wilson's smile was gently lit, as was the crown of his head.

"It certainly is."

The songs were sweet and hymnal. They seemed unrehearsed, as though they might have just been composed. One little girl would sing a line, and the rest took up their own parts, until the whole beach was running and flickering and singing.

"You've done a remarkable job," Darwin continued. "A voyager at the point of shipwreck on some unknown coast will most devoutly pray that the lesson of the missionary may be found to have extended thus far. Wouldn't you say, Captain?"

"I say throw Kotzebue into the fire," said FitzRoy. "The book or the man."

"It is the work of God," said Wilson simply.

More children had gathered and their singing grew stronger as the fire grew larger. He was sleepy, and mesmerized by the interplay of light and water, of bodies and light. The children were like parishioners, holding hands and churning in luminous concentric circles, like carolers, like churchgoers, or perhaps, even, like circles of angels in this kingdom of heaven.

## Types of Organization Constant

*15 November, 1835—The Mount, Shrewsbury, England*

A cold rain, close to snow, fell on the Mount, keeping the family inside. They sat in the living room with the armchairs pulled up round the fireplace. It was the season where complaining of the cold came not from real frigid air, but from the body's reluctant transition to winter. Dr. Darwin was reading a newspaper, and his three daughters sat in various images of proper repose. Caroline, matronly and only thirty-five in a grey bonnet, was working at her embroidery and the pop of the needle through the muslin was so constant that Catherine was distracted from her book. She watched Caroline's hands and then her eyes wandered to the window. The sound of the needle on the fabric. The sound of the rain on the window. Her father's breathing in his big chest and the spitting of the fire right beside him. Once in a while Susan would take a sip from the pink and white teacup pinched in her skinny fingers. Little sounds, accumulating to an impervious silence. Catherine let the book down on her knee. Caroline looked up without skipping a stitch and Catherine picked up the book again and pretended to read it.

"If you're bored, Catty," said Caroline, "you should write to Charles."

"Why don't you?" said Catty, tucking her legs under her pink skirts, and Caroline said what she already knew, which was that Caroline had written him last month, and Susan the month before. One of them wrote Charles a letter every month, and cast it out upon the seas, and by some miracle, some long trail of postmen and whaling ships and luck, the letter was delivered to him and then his reply was delivered to them.

When Catty received a letter from Charles in the post, she would hold it in her hands a long time before moving or opening it or bringing it to Papa. She would look for stains of salt water or beer and smell it, picking up traces of ocean and fresh earth and mold, or imagining she did.

“Do hurry, Catty,” said Susan, sipping from the teacup. “Don’t keep him waiting.”

“I’m sure he keeps himself busy,” said Papa. He was a moon-shaped man nestled in his armchair, and the newspaper hid only his head.

“But Papa, wouldn’t you like to know, if you were far away?”

The last time Charles had written he had been in Peru. There had been a desert just like *The Arabian Nights*, and big ravines carved by little streams of water, and Indian ruins. Charles' letters were long, and that one especially. He talked about sunburn and sand and Spanish. But in between the details of the landscape and the words of the crew were questions about home, and yearning for roast beef, and complaints of illness. He had said he would be on the ocean again soon, where there were sometimes storms that spun the ship like a children’s top. When they got a letter from Charles, they would sit around or sometimes stand and read it aloud. They read letters from their own little brother hushed and excited, like telling secrets. They usually responded within days. Catty had waited two weeks.

“I can’t think what to tell him about,” said Catty.

“Tell him what we’ve been doing,” said Susan.

The fire spat an ember out onto the hearthstone and the family watched it smoke out.

“Tell him,” said Caroline, timing her words to her stitches, “that we fixed the garden fence.”

“The garden fence,” echoed Catty. In Susan’s last letter she had told him that the corner fence post had rotted out and fallen over. In Caroline’s she had told him how the rabbits had eaten the pansies. It was Catherine’s job to water the garden every morning. Caroline pulled the weeds. Susan cut flowers to put on the table and in the bedrooms. Now it was November, though, and no flowers grew.

“Tell him,” said Susan, “that Marianne’s named her baby Charles.”

“Tell him Fanny Owen is engaged.”

If anything ever changed in Shrewsbury it was a constant reshuffling of the same people. Engagements and marriages. Occasionally a birth or a death. Everyone was getting engaged, it seemed, except the Darwin girls. Marianne, their eldest sister, was the exception. Even Erasmus, the other boy, had embarked on what seemed a life-long journey of cozy bachelorhood. In Charles’ letters, he complained that Erasmus never wrote him.

“Tell him,” said Caroline, “about the fossils.”

“The ones Professor Henslow sent to Mr. Cliff?”

“Won’t Charles be pleased they will be on exhibit in Cambridge?”

For a moment the rain stopped, but then the wind blew and fresh raindrops spattered the window.

“When he gets back he’ll be famous.”

In truth he already was. At the age of twenty-six, imminent academics, away in London, knew him for the astonishing specimens he sent back from faraway places, and for the letters he sent to Professor Henslow. They were awaiting his return.

“Papa,” said Susan, “I don’t think Charles is going to join the clergy anymore.”

Dr. Darwin inhaled and coughed. “Oh, he is certainly not joining the clergy anymore.”

Catty looked at her sisters discreetly. The angriest Papa had ever been was when Charles stopped studying medicine. They had heard him from the upstairs rooms. Now, there was only a rustle of newspaper. She would tell Charles about that. She would tell him he was free to study geology like that Mr. Lyell he liked so much. But if he did, she would tell him, he would not see the new garden fence. He would not see how clean Susan had kept his room. He would not see how old Papa had gotten—indeed, Shrewsbury would seem to him now like waking from a dream to find everything the same, only everyone grown older, even the dogs.

“Do you think he will go to London?” asked Catty, pulling on a lock of hair that had come loose from her coiffure.

“Ask him,” said Caroline. There was one last swell of wind and the rain stopped. In the hearth, the log was giving off smoke instead of flame. All right, she would tell him about the fossils and ask him about London. And her other question she would put out here, in this room quieter still than before, to keep it off the page:

“Will we ever get him back?”

Large Animals do not Require Luxuriant Vegetation

*6 April, 1839—12 Upper Gower Street, London, England*

“Emma? Where is the—” A few bottles fell and he broke off. “The—” and again. Half of everything on the closet shelves had been knocked to the floor, so he began searching on all fours through the goods he had already inspected. “I...was just certain we—” Emma stood in the bedroom doorway looking out at him, one hand pressed against her ear and pinning one set of curls against her neck.

“What are you doing?”

“Edwards tells me there is no w-wood polish in the flat, but I swore there was, so I thought I w-would look for it, but everything here such a—” here he knocked his head against the bottom shelf and toppled a bottle of calomel, “—but it would only take a moment to make up some more. I found the beeswax but the turpentine—I swear we had turpentine. Then again—” he sat on his haunches and slid into a cross-legged position, “—linseed oil would also do. Linseed oil and vinegar and lemon juice—or is it lemon balm?”

“You’re mixing up wood polish? Now?”

Her alarm took him by surprise. Sitting on the floor in the dust of the closet floor with his hair sticking straight up, he blinked and said, “Why, yes.” Emma crossed her arms.

“Why are you doing this now?”

“The table needs polishing.”

“Edwards must set the table.” The butler peered furtively out from the dining room and vanished. “And you ought to be getting ready.”

“Ready.” He was wearing white shirtsleeves and smears of dust and he plucked at the fabric to look. “Ready!”

“It’s quarter to three.”

“Oh! That won’t do!” He got up and took two steps to the window, fearing that somehow the guests would already be crossing the street. “We haven’t even got the table set yet.”

“I am just getting on it, sir,” said the butler.

“Charles, would you please be calm?” He stopped tugging at a sack of flour to look.

“W-w-would I what?”

“Haven’t you been to a party before?”

“Been, yes, but I’ve never—” he flicked a hand at the room in general. “It’s always been *somewhere else*.” He felt sweat on his upper lip and his temple gave a throb.

“Well, if you’ll just let the table be and sit at the head of it I’m sure it won’t be so very different.”

“Not true, not true!” He hurried into his tiny study. It smelled of a pine desk and parchment and it was dim like the shade of a tree. The window there was sootier than the rest, and the shadows caused by the light that came through it was condensed so that they made the stacks of paper look even taller, the books even crookeder. The stacks spread like fungi from the corner shelf, onto the desk, down onto the floor, and he cleared them with practiced hops and sat down in a creaky wooden chair. He opened up a notebook and couldn’t find a pen. Emma had travelled from her doorway to his and stood frowning.

“Have you seen a pen?”

“Charles, what are you doing?”

“Just some work that needs finishing.”

“You haven’t got the time. Please change.”

“If I don’t do it now it will have to wait until—”

“Until tomorrow?”

“I’m worried maybe Lyell doesn’t like pears.”

“And before that you were worried about the table and before that the couch and before that you worried Lyell had the wrong day.”

“Yes, maybe he forgot. What if we should have washed the windows? What if Edwards is stealing the forks?”

“Edwards is not stealing anything.”

He thought he recalled a pen in the living room and squeezed past her. Distracted by the window again he tried to recall what kind of hat Lyell wore and wondered if he could distinguish a top hat from a bowler at this angle.

“We should have washed the windows.”

“This was your idea, you know,” said Emma.

“My—*our* idea.” He rubbed the window with his sleeve. “And I wouldn’t do it if it weren’t expected. What time did you say it was?”

“Nearly three, sir,” said the butler, peering out again.

Charles shook a finger at him. “See? I bet he’s stealing the forks.”

“Sir?”

“He doesn’t mean it, Edwards.”

Charles fell onto the couch, and because it was bright red and hurt his eyes he closed them. Macaw Cottage they called it, he and Emma, because a previous owner had thought it a good idea to paint the walls Egyptian blue, line them with red plush couches, and seal out sooty London with marigold-colored curtains. Everything in Charles' mind was fuzzy like goose down and he felt as though he had not slept. Emma sat in the armchair and waited patiently. He put a hand to his head.

“Charles.”

“My head hurts.”

“If you would calm down.”

“I don't see how the two are connected. Isn't it hot?”

“Shall I open a window?”

“We mustn't. The air is bad.” Even from across the room and out the window he could see the brown smoke all over everything, all the buildings and the people on the street. “We must move out of London.”

“You don't mean that.” He massaged his temple.

“Don't I?”

“I'll tell you this. If you make it through the party without fainting, we never have to have another one.”

“And—w-what will people think?”

“That you are a very busy man.”

“What will people think of these horrid walls?” He had meant to have them painted every day for four months.

“I’m sure your friends will like you well enough anyway.” He opened his mouth to say something contrary and felt another stab in his temple.

“And the couches.”

“They are horrid.”

“Horrid. Didn’t we mean to change the drapes?”

“Too late.”

“I suppose so. Ah.” He pulled a pen from his pocket. “Here it is.”

“You may put that on your desk, but you may not sit down.”

“Yes, yes.” He got off the couch, tip-toed back through the books, and placed the pen atop the open notebook he had been writing in that morning. The sentence was unfinished, and the pen, soaked in shadow, pulled towards it, pulled all his weight forward towards the desk and the creaky chair that floated like an island in that small and safe dark space. He heard Emma stand in the other room, and with a great breath in he placed the pen over the bleeding sentence and hurried to the bedroom to find a clean shirt and a jacket.

He pried open the dusty cuffs of his shirt and noticed ink stains, and as he unbuttoned it and took it off he found them all down the front, on the collar and hems. He laid it out on the bed and wondered, When had he ever spilled so much ink on himself? and it finally came to him that it was cuttlefish ink, that he had worn this shirt hunting cuttlefish in the Atlantic. He recalled buying the shirt while in school at Edinburgh, when most of his parties were trips to the woods or the beach and supper was sandwiches while sitting on the ground. His next party would be like that maybe, a walk somewhere in the country.

He fumbled with the final fold of his cravat and when he had tugged it straight he walked out into the hall. Emma was wiping away the dust he had left on the couch, her back turned towards him. As he reached the study door his feet began to drag until, like a frog, he ducked in and sat down, arranging his papers around his notebook. He lunged for his inkpot and his knuckle met it square on. With a yelp he shoved all the paper to one side onto the floor to save them from the spill. He leaned over and inspected them with trepidation. "Good, he whispered, no harm done," but when he reached for his pen he found his arm resting in the puddle of ink. He lifted it to his face and watched the ink spread through the white fabric like ice crystals.

"Sir?" Edwards rapped at his door frame.

"Y-y-yes?" He dared not look away from the butler's face, but he could feel ink dripping onto his knee.

"A Mr. Lyell at the door for you."

## Wild Potatoes

*6 April, 1839—12 Upper Gower Street, London, England*

“Charles?” Emma asked again, bracing against the onslaught of talk. Various parts of plants were being verbally tossed about in an unceremonious way. To her left, Mrs. Henslow heaved herself forward in her seat, a great flush of burgundy fabric supporting a scarlet face.

“Mr. Darwin, dearie!” she crowed. “Your wife had a question.” The men’s conversation spluttered like boiling water taken off the flame. The four of them in their armchairs looked towards the three women squeezed onto the red plush couch, plus Leonora Horner to its right side in a chair.

Emma glanced at Mrs. Henslow, then cocked her head slightly and addressed her husband. “Shouldn’t the Fittons be coming?”

“Yes, yes. I’m sure they’re on their way.”

“I only ask because it’s been some time, but we wouldn’t want to eat.”

“Without them, no. We can all wait, yes? I trust Edwards will keep the tea warm,” and raising his voice he said, “Am I correct, Edwards?”

From the kitchen came a muffled, “Yes, sir.”

“Good, then,” said Emma, with a practiced smile, and conversation renewed in fits and starts.

“I’m quite afraid I’ll forget, Darwin,” said Professor Henslow, and reaching a delicate hand into his coat, he extracted a letter and presented it to her husband. “A response from Mr. Herbert I expect you’ve been—”

“William Herbert!” Charles exclaimed, taking the letter and opening it in one breath.

“I hardly think we need to open it now.”

“It’s quite all right Emma,” he said to the letter. “I wrote Mr. Herbert some months ago with some questions about plant breeding and domestication—he is an expert in the field, you know—and—” He chuckled. “—he said I’d asked too many questions and too detailed for a quick response. But look! He’s taken the time to address each one.”

From his place in the corner, the young Mr. Brown said, “Mr. Herbert, he wrote that great large book on...on...”

“Amaryllidaceae! Have you read it?” Mr. Brown shook his head. “I’ve only just read it. A very detailed study of ornamental lilies—plant hybrids generally—that’s his focus you know.”

Professor Henslow, reclining contentedly in his chair, smiled and looked to Mr. Brown who, Emma noted, was shrinking into his very clothes. “But, Mr. Brown, you know a good deal about lilies.”

To her right, Mrs. Lyell said, “I do like your choice of paint.”

“Oh, thank you, we hate it.”

“Oh, I’m sure, but at least it’s lively.”

“Lively indeed.”

“It sounds to me like your Charles is doing very well for himself.”

“He owes quite a bit to your Charles.”

“Well, my Charles just adores him.”

“I’m so glad.” Emma turned her attention to her husband.

“In South America,” he was saying, “in the highlands, they have a species of sedge quite like ours. Only it does better in the cold than ours ever could. It’s just like when a farmer selects for cold-hardy vegetables. Isn’t that curious?”

Emma looked towards the door as if the act of looking might bring the Fittons through it. If only she could eat something, she might be more inclined towards conversation. Leonora Horner sat forward strategically so that she was closer to Mr. Brown who was working quite diligently at unravelling his shirt sleeve.

“Mr. Brown,” she ventured. “I hear you come from Surrey. I have a cousin there, a Ms. Mary Horner. Perhaps you know her?” Mr. Brown flinched and tried to stuff the loose thread into his sleeve.

“Mary who?”

At that point Henslow leaned over to him and said, “Mr. Brown, tell Mr. Darwin what you told me about tubers,” and Mr. Brown swiveled his wide eyes in the direction of the scientists. Leonora Horner turned to the wives, gave a dour shrug, and sat back in her chair.

“Emma,” Charles called. “Would you go into my study and bring me the folder on yams. Third shelf from the top, fourth folder from the left.” Emma stood and walked to the study. It was a room she entered very seldom. It suffered from the same cloying blue walls, but they were offset by dark wood furniture and pale stacks of papers. The corners of the papers and the spines of all the books were in perfect alignment. Her husband spent most of his time here, scribbling many things, some of which he told her about over supper, and others, she assumed, which he did not. She ran a finger along the edges of the folders on the third shelf. They were smooth and

waxy. Most bookshelves were dusty, but no speck of dust would dare to enter this room. She found the fourth folder and pulled it out, leaving those on either side of it fanning free.

“The potato originated in the Andes, you know,” he was saying when she handed it to him. “They’ve got dozens of varieties they cultivated themselves.”

Emma squeezed into her middle seat on the couch and Mrs. Lyell said, “Has Mr. Darwin told you about the Andes?”

“Which bit of it?”

“My husband is quite curious about them. Something about the ground rising up—I can’t recall. I’m sure my husband would know.”

“No, let’s not—”

“Charles? No, not you, dear. Charles, what was it you were telling Mr. Sedgwick about the Andes?”

“Ahh,” Mr. Lyell exhaled and uncrossed his long legs. “Gradualism.”

“That’s the word.”

“They are the perfect study of gradualism.” Emma knew that Professor Lyell never spoke above a whisper, and so inevitably worshipful was his audience that conversation always dropped to a murmur whenever he deigned to speak. “That is, the Andes did not come up all at once...” Emma pinched herself. She thought how rousing just a single biscuit would be. Lyell was going on about the long-necked herds. Or maybe it was the fossil record.

“I think I know just what you mean,” said Charles, his enthusiasm nearly breaking the tone. “And it is that very soil that is so good for potatoes. I was very interested in their varieties.

I very much wanted to grow some myself and see if the crossbreeds reverted to the parent species, but unfortunately, all the specimens I stowed on the *Beagle* were waterlogged.

“You’re very interested in crossbreeding, Darwin,” said Henslow. “What’s it all about?”

“Oh,” said Charles, shifting in his seat. “It’s—it’s—w-uh-work, you know.”

“Certainly. But what are you working on?” In his lack of response, the conversation stalled. “Something to do with inheritance? Variation within species? Transmutation?”

“I hardly think so,” said Charles. His smile was sloping off to one side.

“Well,” Henslow continued. “If you were wanting someone to consult on those matters there is a very nice man by the name of Lamarck who would be thrilled to speak with you.”

Charles abstained from the laughter.

“You needn’t even write him,” said Lyell. “He’ll just stretch his neck right into your window from France.”

“Oh, now, but crossbreeding has its benefits,” Henslow said. “Perhaps Mr. Herbert’s letter can tell me if it’s possible to breed a lily that would finally satisfy my wife.”

“Perhaps,” retorted Mrs. Henslow, “Mr. Herbert knows a variety of paper my husband could get published on.”

“Now, then,” Lyell exhaled. “Everyone knows it’s thrice as hard to be a good man of science after marriage. I hope Mr. Brown will take advantage of the time he’s got. And I hope Miss Horner has mercy on whichever poor intellectual she finds.” Miss Horner raised an ambiguous eyebrow and Mr. Brown was newly amazed by his lapel.

“Now, Darwin,” said Henslow. “Weren’t you once going to marry a Horner girl? It was to be Miss Leonora or—your older sister, what is her name?”

“I—I—” Charles was crossing and uncrossing his legs, and Miss Horner was looking at the floor.

“Everyone talked about it. It was a done deal. Don’t you recall?”

“Oh!” exclaimed Emma. “Look who Edwards has brought in.” Standing in the doorway was the butler, preceded by the Fittons.

“Terribly sorry we’re late,” said Mr. Fitton. “The carriage has a tear in the upholstery and we expected it fixed by today, but it turns out they haven’t even got the fabric in yet, so we had to borrow one from our neighbors—very kind of them, good people—and well, you know how much harder everything is than it ought to be.”

“We’re only glad you’re here,” said Emma. She stood. “Now. Shall we all take tea in the dining room?”

“Yes—yes, very good,” said Charles, “We can continue the conversation there.”

## Little Owl

*2 March, 1841—12 Upper Gower Street, London, England*

Her name is Anne Elizabeth. Born quarter past seven in the morning—astonishingly blue day for the city—I wonder if she will take to waking early as I do. Eyes as blue as that blue sky, like Wedgwood blue. She is a princess & she is the perfect study of all good things & better than all of it anyhow. Emma—justifiably—slept the whole afternoon, thus she is mine. A new notebook is in order. I hold it in one arm & her in the other. Light as a bird, breathing & heartbeat fast as a cat's. If I put my pen in her hand her fingers curl round like ferns. Look, she is smiling.

*10 March*

More a little woman each day, unfolding flower-like.—Skin, at first blue like far-off mountains, is pinker, as if she is filling in. She will be a strong little girl & a regal disposition like her mother. Emma much amused by my propensity towards lifting & kissing her. According to her, no other father in England was ever so distracted by a baby, which is true & which is also heinous. If I spend an hour making faces at Baby instead of writing on coral reefs, the publisher must simply wait an hour longer.

*23 March*

Today discovered her toes. I like them far better than she. My little animalcule of a daughter is quite like a puppy w her tail.—& capable of every emotion. If I lift her before she's had her supper, outraged wrinkles form atop her cheeks. Squalls a good deal but I have learned when to fret.

Just last week she caught fever & I was nearly ill from worry. Always hungry hungry hungry & sleeping never. Little fond of loud noises.—Tdy I sneezed & set her crying. Repeated the noise w same results. When next I lifted her she squalled. I suppose I won't be trying that again.

*11 April*

He who never observed Easter w a new born has it all wrong. A baby, a lily bouquet, & honey cakes w tea—how better to celebrate birth & rebirth? Company notwithstanding I was compelled to leave the table at least half dozen times to give her kisses. Had over several friends & family—Annie quite overwhelmed by all the fuss over her—but when I carry her away she quiets. I am flattered. Has learned to put a hand in my beard whenever the chance arises. Must like the touch. How do we learn so quickly? Only just today yawned, stretched herself just like an old person, hiccupped, sneezes, sucked surface of hand placed to face, either instinctive or associated knowledge of warm smooth surface of bosom. How clever is our nature. How baffling.

## Arrow-Head, Antiquarian Relic

*20 March, 1847—Down House, Down, England*

Charles sucked in air and sat back, causing his head to spin. For a few moments after every wretch, after the muscles in his abdomen unwound from his ribs and the dizziness adjusted to his position, he thought, This is it. I have purged myself at last of whatever this is. For a few moments he felt something bordering on relief. He was foolish enough to hope every time, but relief never stayed. Nausea was his most constant and intimate companion, and it never left him for long. It slunk back out of whatever rotten corner of him it lived in and tugged at his guts like an untrained puppy.

Charles had little better to do than to count the days. Three weeks and a day since he had stood upright for longer than three minutes, or eaten anything without trepidation or regret. It had lasted six weeks the last time, and the time before that, eight. And this time? There was no telling. It started at as a headache, normally, a feeling like a chisel to the skull, which traveled as a dull ache down his spine and into his stomach where the nausea began. Three weeks ago and a day he had shuttered the window to this little guest bedroom and lay down on this little guest bed. He chose this room because it was far away from his bedroom and his children. It would be unfair to make anyone share a bed with him, or a daily routine. It was a clean little white room that turned a sort of yellow like the eyes of a sick person when the drapes were shut at midday. It had frilly white linens that he tried not to dirty. It had a brass bed frame that he grasped when he needed something cool. It had a vase of flowers on an ornate side table whose smell clashed constantly with vomit.

Lying back on his side, his heart fluttered for several seconds, skipping and thumping. It used to scare him more. Now he just imagined a tiny rabbit's heart in his breast, leaping against the arteries like chains. He wondered, did a palpitating heart really flutter, like butterfly wings? If his chest was opened up, if he unbuttoned it like unbuttoning a sweat-soaked shirt, could he see it judder? Or was it a more subtle thing, not perceptible to the eye? Was it a real thing that he was feeling at all? I am making it all up, he often thought. Good healthy men don't live their lives bedridden. He believed in proof. He believed in evidence. If nobody could find anything wrong with him, then there must be nothing wrong with him at all.

Perhaps the cruelest part of having a useless body was having a mind that still worked. His mind was trapped inside a body that did not oblige it. It ran like a mill wheel, churning out thoughts. Yes, his mind was keener than ever. When he had no fever, he thought about seeds, blown by wind, buried by soil, bursting through that soil and unfurling, growing its first two leaves and discarding them, roots lengthening and stems thickening and days passing, and then a late frost setting in. From somewhere, a memory of a pansy beside a geranium, the one in bloom, the other cold-blackened. He wondered why the pansy could take the cold and the geranium could not. He wondered why the leaves turned black. He thought about all the seedlings he had lost to frost and thinning and pests. He thought about species and entities and how the race was for the strong.

And when he did have a fever, he thought about the petals lining his stomach turning black. He thought about frightened rabbits' hearts on chains and wondered if the blood ever just stopped moving and if nausea was a thing with teeth.

But he was idle. He spent considerable hours wondering why, if he could contemplate a plant's life cycle, he could not pick up a pen. He had piles of unfinished papers and mountains of unfinished thoughts. He knew there were more letters on his study desk every day. Sometimes he would think of something that solved completely an issue in his work, and then he would be sick and the thought would be replaced with some useless question, like *Could my ribs actually be bending?*

I am still young, he thought, mostly. He was frustrated by the absence of reason. His ribs tried very hard to kiss and he pulled his head over the edge of the bed to expel some bile. What sense was there in that, for instance? He had not eaten or drunk anything all day, his arms were bundles of branches and his spine was a stem of thorns when he rolled onto it. And yet his body maintained that there was something more to be rid of.

The afternoon was wearing on and the fever was setting in. His skin and his shirt and the sheets all felt very far apart, and all at once he felt very cold. His heart ceased struggling and settled into a pattern so faint and fast that he felt he was short of air, and his stomach condensed into a point of nerves and pain. He was vaguely aware he was uttering something and helpless to do anything about it.

A swish of fabric passed the bed, a hand set fresh flowers, cleared the metal bowl beside the bed. He was shaking. She dabbed his forehead with a cloth, checked it with her hand, raked back his hair and slid her hand under his hollow cheek. The thumb passed over his nose and his eyebrow. There were very few times he could ever recall resting his cheek on a hand. When he was upright, there was no cause for it—in fact it was uncalled for. When he was upright there was an understanding of self-sufficiency. Without pain there was no need for succor. That was

the concession. If he could learn to be content without the comforts of food or water, without the ability to move or write, if he could be content to admire the strides others made in science, then he could at least know what a palm felt like on his cheek. Life did not move forward from here. The passage of time was done for. He had vomited up time long ago with the rest of it; all existence was condensed into the throbbing sensation of nausea. His faithful companion. One was at least lucky to have one of those. What else, he asked, could a man wish for than a close companion and a hand upon his face?

## Noise of Butterfly

*23 April, 1851—Malvern, Worcestershire, England*

Blessed silence. The doctor had not yet come and the maids had left him alone. He was in a sterile white room with little furniture and walls the sun turned yellow, and the sheets white too with stains from years ago bleached out. It was spring and things were growing, and outside was so placidly green that the eye had nowhere to look, but he had not been outside in nearly a month. After days of crying and retching, of feeling guilty for sleeping, of consulting the doctor and kidding himself, at last he was alone with his little daughter Annie, laid on his lap, cold.

The cold did not surprise him—it was the fever that had been alarming. Unremitting fever. Fever that grabbed a ten-year-old by the throat like a snake. Cold was what they had looked for, the cool of a broken fever, a broken snake, and when it had come, it had been relieving. But they had been deceived.

He did not answer the knock at the door but it opened anyway. “There, now,” said the doctor. He had the watery eyes and pale smile of someone who had given hope to many people who had died. “She looks very peaceful, doesn’t she?”

“Angelic,” he replied.

“That’s right, Mr. Darwin,” said the doctor. “Like an angel.”

With practiced tact, the doctor said nothing else that did not need to be said. Time became a series of concrete objects: The doctor’s briefcase. A linen sheet. Some papers to sign. A carriage waiting to take him home. In the carriage he thought about angels. There was not really very much he knew about angels. They were messengers, he was pretty sure. Where had his mes-

sage been, then? There had been no premonition to wake him in the night and warn him the end was nigh. He had not seen it in dreams because he had dreamt nothing in weeks, and the sky had been obdurately spring-bright for days, not heavy with dread or clouds. It had been just past noon, and he had wanted to hold her because he loved her and she had died then.

The bounce of the carriage from the cushioned hills down onto the street brought him back to physicality in a way he could not remember feeling recently, and he realized he felt sick, to his head and to his stomach. Perhaps he had for a while. Why did people always compare little girls to angels? Wasn't it little boys who were angels? Or rather angels looked like little boys. They were not really children at all, but bringers of auspices. Yet there was nothing auspicious about these circumstances. Nothing auspicious about a little girl's diaphragm convulsing or her mouth spewing grass-green bile, nothing about the smell of sweat-soaked sheets, about her tedious change from freezing to burning, or about her sweet, breezy breaths while wrapped in the arms of her father, where she died. There was nothing auspicious about grief.

Perhaps there was some luck in it, though. By luck he meant merely some favorable outcome of chance. He had lived all of it himself—the hand pressed to the stomach, the trembling upper lip, even the color in the metal bowl. He had known when to lift the bowl or apply a cool cloth because he had experienced all her symptoms before. It hadn't made it any more predictable, it hadn't made it any easier to bear, but it had made him fear that she would live to be an invalid like her father, and now that fear was gone. She was lucky, then, but not an angel. Angels were little boys with fat pink bodies that were not bodies at all and could not sweat or burn or spasm. They had no beginnings and no end. No, angels had no place here.

The carriage drew up outside of Down House and he stepped out into a field of children. They had heard the wheels churning the gravel and had come out to meet him. They were silent as old people and attentive. They had been told. In the way of children they wanted him to say something that would restore order to their simple lives. He did not pause. As he passed them on the way to the house, he picked up the smallest boy and carried him to the front door. His little ear was warm against his father's neck, and his grip was tight round his wrist. Just inside he set the boy down and walked to where he knew Emma would be, in their bedroom. The bedroom was full of sweet spring light that softened the red carpet and wallpaper and set the white sheets glowing. Emma used the floral canopy over the bed to pull herself to standing before he could tell her not to, her back bending against the pregnant swell of her belly, her lips wilting below parched cheeks. She was very unsteady on her feet and he put down his suitcase and supported her swollen figure as she inclined against him. In opposite corners of the house the wailing of the staff reached them gently like a choir, but in the bedroom there was no sound.

At length she pushed herself back and sat on the edge of the bed. Her face was haggard but her eyes were big with conviction or madness, and glossy as if the very sky shone through them. "Let's say a prayer for her," she said, her pink tongue and lips already sculpting the first words of the many prayers she could say, likely had said many times while he was away. He took a step back, took a breath long and slow, like a man preparing to jump into cold water.

"No," he said, and turning to lift his suitcase from the floor, he walked from the room.

## Lampyris and its Larvae

*24 July, 1857—Down House, Down, England*

“Get out of the way, Henrietta!”

From the top of the stairs Francis glowered at his sister, nested in cream skirts and taunting a yellow kitten with a duck feather.

“Etty, move, I’m going to run into you!” With a sigh of disgust, Henrietta scooped up the writhing kitten and plopped down a few feet to the right in the puddle of sunlight coming in through the door. Taking hold of the bannister, Francis stepped up on the slide. It was made of several planks of sturdy polished wood nailed together by Parslow for this particular purpose and laid against the slope of the stairs. “Hold it for me, Lenny!” Behind him, his younger brother took hold of the end of the slide in his tiny hands while Francis settled himself onto it.

“I’ll give you a push!” said Leonard, and as soon as Francis let go of the bannister, Leonard shoved him from behind. The force knocked him onto his stomach and for a few ecstatic moments, he careened down the length of the staircase before sprawling onto the floor.

“Don’t go yet, Lenny!” he shouted, but he had already heard the thump of Leonard hurling himself onto the slide, and a moment later, he shot head-first to land atop his brother.

At the top of the stairs, their older brother George was holding a bag of marbles, which he promptly emptied onto the planks. The marbles made a tremendous cracking and clattering as they shot down the slide and then out upon the hall and the boys. The kitten chased one of them outside and Henrietta raced after it.

“Francis Darwin!”

The boys perked up at the call. Francis extricated himself from Leonard's legs and trotted through the open door of the study. The far end of the room was all windows looking out onto a little patio and the blooming gardens beyond, and yet the room still maintained a cozy darkness. Never had a room been so full of articles and yet so meticulously organized. In the far corner were shelves laden with books and sheets of paper, and below them pens, bottles, tubes, and tools Francis had no name for. One shelf was completely filled up with rocks, and another with bones. The wide windowsill was arranged with small terracotta pots, from which little plants reached for the summer sun like babies for their mothers. About the room were tanks and jars filled with dirt and water with floating things, and the room smelled always of fish and alcohol and summer soil.

“Yes, Papa?”

His father was seated at a large round table, working with a pair of scissors. He was bent over with such concentration that his squint brought his thick eyebrows down over his eyes, his round nose was close to the table, and he risked trimming his beard with the scissors. At the sound of Francis' voice, however, he looked up.

“Come here,” he said, stretching an arm and beckoning. “I need your help.”

“Does Mama know you're cutting her bonnet into little bits?”

“In fact she does.”

With concerted effort, he separated another piece of fabric from the whole and slid it by one finger into a pile of similar pieces. “I'd like you to put these,” he spun around on the arm-chair he had fitted with bedstead wheels and picked up a handful of slim wooden switches, “on these.”

Francis picked up a piece of the fabric. Papa had cut out the little blossoms from the pattern of the cap.

“You cut off one of the petals.” Papa paused and eyed him.

“All right then.” He plucked the blossom from Francis’ fingers and replaced it with the scissors. “You can do it.”

As Francis maneuvered the dull scissor blades round the petal shapes, Papa picked up one petal at a time and poked it through with a switch.

“Is this for the humble-bees, Papa? Do you think bees like fabric flowers? Even with no nectar?” Papa pointed a skewered blossom at him.

“Very good. I’ve got a solution.”

“Papa!”

Etty scampered through the door with a box.

“From Dr. Hooker, and a letter from William.”

“Which shall we open first?” he asked as Etty put the post on the table.

“The package!” the children cried. Papa raised his eyebrow.

“I’ll tell Willy about this.”

He took the scissors back from Francis, and began to open the package a little bit at a time. Leonard spilled into the room and crowded round the table. Papa’s nose was nearly inside it and from the other side of it Francis could only see his eyebrows rise.

“What’s there?”

“In here...” he said, reaching just his fingers in the partial opening as though something might escape, “...some bottles of seeds. Labumums, very good, and ah, the directors at Kew mustn’t know about this.”

“What else?” the children howled. Without breaking eye contact, he reached into the box and removed, “a pigeon.” The children shrieked.

“How did he kill it?”

“His letter says it was trapped inside a greenhouse.”

“But how did he kill it?”

“I think he found it that way, Lenny. Now, I must find Parslow.”

He rolled over to the window and tugged on a string which he had rigged up to a bell on the wall just outside. Henrietta ran back outside in search of the cat and half a minute later Parslow appeared through the study door. He was a tall man in his middle age, with salt-and-pepper coloring for both his hair and his trousers.

“Dear, dear Parslow. I have a most important task for you.”

“Sir.”

“Would you take this good bird, and relieve it of everything but its skeleton?”

“Sir?”

“I’m quite eager to study its humerus, you see.” He held out the pigeon and Parslow raised up his bare hands to meet it. “And would you do me the kindness of asking the cook for some honey and flour?”

“Sir, as I understand it, the cook is still bitter that he never got back the gravy boat.”

“If it is any consolation, tell him it made a very good wormery.”

“Would you like me to tell him this before or after I dispose of the bird, sir?”

“You make a good point.” Papa took the bird back and Parslow left the room again.

“What do you need a pigeon skeleton for?”

“I wanted a wild pigeon,” he said, returning to the switches again, “so that I could compare it to the ones in the aviary, which I have bred. Hopefully, in three or four generations, we can breed pigeons with smaller wings.”

“Does Parslow know how to peel a bird?” asked Lenny.

“I have complete confidence that Parslow can accomplish whatever task he sets his mind to.”

When the last fake flower was assembled, Parslow reentered with a jar of honey and a flour shaker. “Splendid. I’ll give you the bird back, then. Do let me know when you finish it. Endless thanks, Parslow.”

The butler left the room holding the dead pigeon with his hands stretched far from his body. At that moment Henrietta ran into the room holding the kitten, who had all twenty claws out and swimming.

“Papa, George has got the boomerang you got in Australia and he’s tossing it round the garden.”

“I’ll take care of that in a moment, Ety. Now.” He held up the handfuls of fake flowers on sticks. “Who would like to watch the bees?” He gave the flour to Ety and the honey to Leonard, whom he hoisted up onto his shoulders, and told him, “Watch your head,” as he and the children exited the study.

In the yard, George threw the boomerang at them as though certain this time it would work, but instead it smacked into Papa's knee and he picked it up. "Not like that, George," Papa said. "Like this." He aimed it high back towards the house, and the boomerang headed eagerly for the roof. There was a clatter. "Perhaps not quite like that. I am sorry George. Would you like to help us watch the bees?"

George joined the procession of Darwin children following their father through the garden like a tail. By the cucumber patch, Papa took Lenny off his shoulders, who had been eating honey with his finger and nearly getting it in Papa's hair, and instructed him to put one drop of honey on each blossom. To the rest of them, he said, "We are taking inventory of all of last year's buzzing places." If everything was as before, the bees would start at the ash tree and go down the path away from the house, at which point they would circle around the house to the beech tree, across to the thorn bush, and begin the cycle again. The fake flowers were meant to try and trick the bees, and were one of Papa's new plans. Papa always had new plans. "Now, when you see a bee marked with flour, I'd like you to say, 'Here is a bee!'"

"Here is a bee," came the fitful chorus.

"And if a bee visits your fabric flowers, say, 'Mama's cap.'" The children giggled. Papa gave them each a handful of fabric flowers and a post: Francis by the beech, George to the thorn bush, Lenny by the salvias, Etty at the wallflowers. He would be by the ash tree like he always was.

Francis walked down the Sandwalk, the gravel path circling Down House, making buzzing sounds with his lips. He stationed himself against the trunk of the beech tree. It was a great old tree that had lost branches and had others propped up by Papa. It was wrinkled and

gnarled and looked like a massive piece of driftwood, but it still put out leaves in summer, fresh and tender to shade its scarred bark. It stood guard outside Papa's study and was visible from nearly every window in the house. He could see it when he played in the nursery, when he watched Papa at work, or over supper. When he climbed it he could see straight into Mama and Papa's bedroom.

From his corner of the Sandwalk, he could see Papa standing at the ash tree. William had found a hole in the ash several years ago which the bees flew in and out of and had told Papa he had found a humble-bee nest. Papa had cleared away the spot to look, but it was merely a hole. The discovery prompted a proper investigation. They now knew that the bees had a number of such places, which they called buzzing places. The humble-bees buzzed not only at flowers, but at tree roots and thorn bushes and little ditches. They returned to most of them every year. It was unclear what they wanted with those places, if they were looking for something or simply resting. Francis was not a bee, so he did not know how to tell if a bee was busy or relaxed. Even Papa did not know, so Francis figured no one ever would. Francis squatted and stabbed the little flower stakes into the earth, and across the garden, the rest of the family did the same. At a distance, he could see Papa hunched over the ash, the flour shaker poised above the hole.

Watching the bees was a tradition, like Christmas or teatime. Some of his siblings watched them some years and not others. William was away at school now, but that did not stop them. Sometimes the year was hard and the winters were long, but bee watching meant it was summer again. It was no holiday for the bees—the bees buzzed all summer, but the bee watching only happened once a year.

“Here is a bee!” Papa shook the flour and pointed with both hands.

By the flower plot, Lenny stiffened with vigilance. Only a few moments later, he shrieked, "Here is a bee!" All eyes turned to Etty, save for Papa, who was still shaking flour onto bees.

"Here it is," Etty called.

"They should come to you now, Franky," Papa called. Francis slid down against the trunk and fixed his eyes on the particular knot in the tree roots where the bees always buzzed. For the next long while, Papa, Etty, and Leonard announced bees one after another, and Francis waited. Several minutes in, he heard a buzzing at his feet and opened his mouth to shout, but this bee was still done up in black and gold. There was no dusting of white from the flour. He huffed and stood up to pace around. He picked at the bark of the tree and watched the ants crawling on it in lines, then held the trunk in one hand and circled it, stepping from one root to the next. He practiced whistling and sang a tune and even climbed up into the tree a few feet where he could see the investigation from above. After a while he began to worry and hopped back onto all fours to watch the buzzing place. What if he had missed them? What if they got to George at the thorn bush before he got his chance? Then he thought, What if something is wrong with the bees? What if they changed their course? What if they were somehow hurt and couldn't fly there? What if they sensed the beech was dying, and didn't want to buzz at it anymore? They always came here. It was one of their favorite buzzing places. If he were a bee, he would buzz at the beech tree first of all.

Across the garden, little fidgets and sighs started up. Papa scribbled something in a little book and tapped the pen against the cover.

“No bees, Franky?” He had marked a good number of bees and had put the flour down.

“Are you really watching for them hard?”

“Of course I am!” he retorted. Suddenly he felt a little bit like he might cry. The buzzing places had always had a certain value. They meant the bees were behaving as they should, which meant summer was behaving as it should. It didn’t matter if William wasn’t there, or if the fabric flowers were new. It didn’t matter that Papa couldn’t figure out what they were for—what they were for was not important. It was routine, it was ritual, it was part of what defined his home.

There was a little zap of sound, short, it could have been his own snuffling. Francis covered his mouth with his hand lest it happen again, and a bee landed at the base of the tree roots and scrubbed some flour from its thorax with its hind leg, then pushed up and zigzagged in place, a mere hairsbreadth from the dirt.

“There was a bee!” he shouted. “A bee!”

He was up on his feet and it was gone but it didn’t matter, and when George called out from the thorn bush and applauded himself, the Darwins all exhaled.

“Here he is,” Papa said, and at that moment Francis saw his second bee.

From then on, the bees came round the corner steadily, and “Here is a bee!” became a rhythmic chant round the yard.

After a while, Francis noticed that Papa was distracted. He had turned his gaze from the hole up to the branches of the ash and had stopped counting bees. Francis gave up his post and ran to his side, and George followed.

“Watch,” Papa said. He turned towards the thorn bush and waited for a bee to come.

When it did, it passed right by the hole it had buzzed at the last time and flew up through a crook

between two great branches. Francis and George ran around the ash and the surrounding flower beds like dogs after a pheasant.

“Where did they go, Papa?”

“They’ve disappeared.”

He said it with some wonder but this, too, was routine. No creature, not even a bee, could go in circles all day. Each year, after some number of laps, the bees flew up through this crook in the ash, and they had never found where they went to.

From the salvia came the cry of “Here is a—” interrupted by a shriek and then sobs.

Lenny appeared down the path, guided by Etty. Lenny was crying and Etty was laughing.

“A bee wanted the honey on his nose.”

“So what did you do?” Papa asked, crouching and pulling Lenny’s hand away from what was revealed to be a very red nose.

“I squoze it,” Lenny snuffled.

“Well, it wouldn’t have liked that.”

As Etty propelled him down the path towards the house, fussing over him patiently, Francis heard a carriage pull up in the drive. Parslow, composed but for a shirt covered in down, approached.

“Sir, a Mr. Huxley here to see you.”

“Ah,” said Papa, as though waking from a dream. “He’ll have those books I asked for.”

“Papa,” Francis said, sensing his father was about to run off and the bee watching was at an end. “Did we learn anything?”

Papa looked back towards the ash tree.

“Nothing new, I don’t think, Franky. But isn’t it wonderful? You must apologize to that bee,” he said, brushing Lenny’s cheek and hurrying towards the house.

The flour shaker was tipped over by the ash tree and the honey was full of ants. Through the study window, Francis could see Papa sit down with his guest. The fake flowers were still stuck in the ground all across the garden. So far as he knew, not a single bee had mistaken one for a real flower. Francis began to pull them up one by one. He would keep, them so they could try it again, next year.

## Condor, Range and Habits

*3 June, 1858—Down House, Down, England*

“Charles, I wish you wouldn’t.” Emma was perched on the edge of a white cast iron garden chair. Her hair was done up very nicely beneath her bonnet and her hands were in her lap. Other than the way she pulled at her fingers, her composure was absolute.

“Wouldn’t what?” He did not look up from his notebook except to take glances at the little boy in the flower garden. He had the bow-legged posture and tactile ineptness of the average one-year-old child, but he pondered the tulips with more gravity than any child Charles had ever seen, or at least of all his children. He made a note.

“He’s a child, Charles, not, I don’t know. He’s *your* child.”

“That’s why I take so much interest in him.”

The child pulled at a scarlet tulip with all his tiny force, trying to tear away even a single petal. It was normal, he remarked, for young children to have such fascination with things, to look at flowers, pull them apart, taste them, even. Babies had very good attention spans, but this baby was exceptional. Only the other day he had noted that the boy had studied a blotch on his own arm for nearly an hour.

“It’s just you don’t look at him any different.”

“Any different?”

“Than a bird. Or a barnacle.”

He looked at his son. He had rolled forward onto all fours in his battle against the tulip. The sun shone through the flower petals and cast bright red onto his cheeks.

“That’s certainly not true, Emma.”

“It’s just all that writing. What could you possibly be...” She leaned back to try and peek at the page. “What are you writing?”

Charles watched the effort the baby gave to lifting his arm, the rudimentary frown which could be construed, he supposed, as fatigue. More likely he was just pensive. Just curious. Perhaps his own parents had noted the same tendencies in him. Nothing, not even a baby, smiled all the time. He conceded it was true that Henrietta’s first symptom had been fatigue, but a tired baby and a tired fifteen-year-old girl were entirely different. He and Emma had nursed Henrietta continuously for days, but she had been asleep when last he checked, so it was all right that they both get some air. At least that way they could get the baby out of the house for a while. Because a baby with scarlet fever and a fifteen-year-old with scarlet fever were entirely different.

“Won’t you tell me, Charles? Tell me what you’re writing?”

The baby gave a single cough and both parents started. He lost his grip on the flower and seemed to think very hard about whether or not this upset him, but decided to reach for a different one. It was only a cough, of course. Scarlet fever did not manifest a cough. And the baby had been attentive since he was a newborn. He could concentrate on anything, his father’s face or the lace on his chemise.

The petal slipped out of his fingers and he rolled back onto his haunches. As the flower bobbed back and forth over his head, the bright red on his cheeks looked very much like a rash. His little head sank down onto his chest and it appeared he would fall asleep on the spot. It was time to go back inside. Charles closed the notebook and stowed it under his arm.

“It’s quite all right, Emma,” he said. “Never mind.”

## Ornithology, Curious Finches

*1 October, 1859—Down House, Down, England*

Why am I sitting on this rock? Because I finished walking my seventh lap around the Sandwalk and I felt a little tired. There is this little gap in the hedge here so I crawled in and sat down. Why don't you come here and sit beside me, right here, there is a spot. It feels nice to sit outside on the rocks, doesn't it? You can just close your eyes and feel the warmth of a volcanic rock, coal black and rippling like the sea, petrified in its most boisterous moments. It has been soaking up sunlight for millions of years, and when you sit down on it, you feel warm from above and below and you could almost fall asleep for the sound of the ocean. But then again, you can't fall asleep because you're too busy looking at how black the rocks are and how blue the water is, and how funny it is to see huge trees of cactus lining the shore. The desert and the tropics in one picture.

When we first pulled up on shore, the crew called it godforsaken. They hated the hot sand and the cactus plants, how rough the surf was on the rocks. We had been weeks at sea and I felt wretched, and it seemed most unfair that after dreaming of land for so long, this was the land we got. When I felt better, I walked around looking for specimens, and there were hardly any insects, and there were hardly any plants or any animals, and what was there was brown or black like the sand and the rocks. The crew talked endlessly about how much they hated it. They ate and they drank and became so rowdy that I went out walking to clear my head. It was sundown, and there was orange and blue and purple on the water, and velvety shadows cast by the rocks on the sand and on my shoes, and for the first time I really looked at the island.

Look at this rock we are sitting on. What do you find interesting about it? Come now, surely not nothing? Look, here is a little bit of moss. Moss is a living thing, you know. And if we were to lift it up we would find a whole village of insects, I am sure. No, we won't do it. I probably would have back then, but now I am too old and you're too young. We will let the insects sleep today. Just remember that at times the most interesting lives are the least ostentatious.

I rose early that next morning. I took samples of plants and collected insects. I waded around in the water and looked at the crabs—the crabs! Bright orange and red with little eyes on stalks. I tried for hours to catch one, but each time I got near they moved out like the tide. I found twenty-six species of land birds. Hawks, owls, swallows, and finches. I am pretty sure they are all found nowhere else, perhaps particular to each island. It's a shame that I was over-excited and forgot to label them. Not the mockingbirds, though—those I have still and I have been thinking about them lately. I have a mockingbird from four different islands. On two islands they appear the same, but the other two are different. The Charles mockingbird and the Hood mockingbird look quite similar, but the Charles mockingbird is darker all over and has a white stomach, and the Hood's beak is longer. And do you know, there was a man I met there who was governor of that place, and he boasted he could tell from which island a tortoise had come just by the shape of its shell. I didn't think anything of it at the time. They are such little islands, but they seem to bring me somewhat near to that great fact—that mystery of mysteries—the first appearance of new beings on this earth.

Yes, I suppose I was in a bit of a fog for a moment. I was thinking. That's why I came out here, to think. I like my desk and my books perfectly well when I'm writing, but for thinking nothing is better than a stroll among the hedges and fall leaves, or a sit on a nice warm rock. Not

all that warm, you say? Yes, I know it is a cloudy day in England. Isn't it just October? Well, it was just this time of year when we made anchor in the Galápagos. But it was like the middle of summer there, hotter than you've ever felt.

I suppose it's tea time and that's why you're here, to tell me to come back inside. You go on ahead and tell Mama I'll be along shortly. I think I'll sit on this warm rock a little longer, and remember what a blue sky looks like—a truly blue sky, with nothing between me and bright sunlight—and listen to the tide come in, and watch the little birds hopping on the cactus branches.

## Limit of Fruit Trees

*5 August, 1860—Down House, Down, England*

Charles Darwin thought he heard a sound outside and glanced round at the mirror attached to the study window. He had placed it there so he could see anyone approaching the house. There was no one there, though, just a little circular view of the damp empty drive, a granite colored sky, and a little section of the table where he studied *Drosera*. It was a small plant, the size of a cup and saucer, with fleshy leaves the shape of spoons, and all covered over with fine blood-colored hairs. At first he had thought it might in fact be blood, but now that he had studied it so long he knew it was not.

He had found *Drosera* in a marshland with three little spoon leaves clamped down over three different flies and had taken it home. He had kept *Drosera* for weeks now and fed it the same times as he fed his dogs. Finding *Drosera* was like finding the butler had been stealing the spoons. A dark place where innocence had been. Any book that praised plants for feeding on sunlight and soils had not seen *Drosera rotundifolia* grasp a house fly by its legs and wrap it into itself like a python, but slower, sharper. The little hairs were soft to his calloused old finger, but they could run an insect through and release it a day later as nothing more than a bit of brown paper.

He knew the rest of the fly ended up inside the stems and leaves, deep inside the cells and fluids, but he did not know how. Could the hairs feel the fly like his finger could feel the hairs? Could they digest it? Was the concave pad of the leaf like a stomach, like his own stomach, turned inside out?

Butlers snatched silverware like thieves and plants ate flesh like animals. And *Drosera* had appetites like an animal. He had from time to time searched for a brain, but instead of nerves and blood found only roots and opaque unfeeling plant fluids. How clever, to be a carnivorous plant, and kill cruelly without faculties of remorse.

*Drosera* liked house flies best of all, big and slow and full of green fluids. Gnats and moths and soft humble-bees would do as well. He had on his desk a terrarium where he put any fly or ant or beetle he found about the house. Some were naturally predators of the others, and whichever creatures happened to survive the rest was food for *Drosera*. When he brought it bits of meat, it preferred raw over cooked but would eat them both. While his breath was not enough to tempt it, anything animal would cause the leaves to curl. He could feed it milk or eggs, even his own saliva, mucus, or urine. But like a dog or a child, *Drosera* knew what it wanted. Wood chips from the garden, sponge from the kitchen, feathers and moss he found outside did not whet its appetite. He tried feeding it syrup, starch, oil, and tea. He could touch it with a needle, run it all the way through and elicit not even a tremor. Chloroform, however, would paralyze a leaf so completely that nothing could tempt it to move for several days. When he used half a dose, the hairs would twitch like a dog in sleep. At half of that dose, the fly had escaped by the time it doubled over, and at half of that the death of its victim was prolonged even further, a quiet fitful buzzing on his desk that he watched until it stopped.

The sound again. Two figures were on the drive wearing white skirts. There was the harsh wet sound of their feet on the damp gravel, and a thin wail. Without looking away from the dropper, he tracked the sound of their movements up the drive, through the front door, and down the

hall. "I'm working," he said preemptively, but the door swung open to admit a tumble of white skirts and sobs. "Knock at least," he said, putting the dropper down on the desk.

"Henrietta would like to speak with you," murmured his wife, hanging back by the door and trying to hold the girl there with her. She had developed the frizzed hair, pale oily skin, and bony arms of a child who had been bedridden a long time. Over the years many of his children had contracted scarlet fever and some had recovered better than others. Fevers, as he knew from his own faulty frame, could be as slow a death as if by *Drosera*. The unpleasantness had ended for Anne and Charles Waring, thank goodness, but Henrietta persevered in a state neither worthy of living nor justifying death. She pulled free from her mother and stumbled forward on crooked legs.

"You killed her," Henrietta slurred.

"Henrietta, I say." He pushed back into his chair.

"She's gone and you did it."

"You're talking nonsense. You should eat and sleep."

"The cat," Henrietta moaned. "She was mine, you gave her to me and now where is she?"

He picked up the dropper again and leaned forward. "It was getting into the pigeon coop."

"I knew it, how could you."

"Henrietta, this is really not a good time," he said, filling up the dropper with a diluted solution. "Emma, take her upstairs."

"Papa, stop that and look at me!"

Her shoulders were crooked and her eyes were wild, and he slapped a hand on the table and said, “Get to bed!”

There was a moment of rancid silence, in which he held the dropper above *Drosera* and a bead of chloroform trembled on the tip, before Henrietta lurched from the room. Emma was left in the doorway with a look too tired to be reproach.

“Get her to eat something.”

“I’m trying.”

She left without shutting the door and he had to get up and close it. When he did, his stomach cramped and his head spun and he sighed as he walked across the room. Eventually the discomfort backed off enough for him to sit down. He shuffled the notes on his desk and tried to remember where he had been. His jaw clenched with frustration. Distractions took him from his work. He had spent weeks hunched over *Drosera*, so close he could smell its soil, trying to ignore the dizziness that sometimes blended its leaves into a red-green whirl, while upstairs his wife tempted Henrietta with bits of different foods and was unsuccessful.

He remembered the dropper. The chloroform had leaked out and left a streak on the desk. He filled it up again. With the leg of a centipede he had found on the study window, he tempted each of *Drosera*’s leaves one at a time. The largest leaf had received the last full dose of chloroform and still would not react. It had been three days. When he scratched it with his fingernail it felt scaly, like eczema. He prodded a smaller leaf and noticed it had turned from the color of fresh blood to dry. Even the newest leaves, not yet tested, were unresponsive.

He would have to change tactics. When something would not eat, he knew the tricks. He had seen them performed by his father on his mother, by him on Anne, by Emma on him and

now on Henrietta. All those broken stomachs, rejecting every attention and yet hating to be ignored. As a hungry child he had not understood how a stomach could be so finicky as to be fatal. And as a younger man he had made no connection between his own misery and an ailing woman he hardly remembered. It was not until he had stood before three sweating children, and seen in their contorted faces flickers sometimes of her portrait, sometimes of himself, and other times both, that he began to see the connections. A stomach did not just hold food. It held clues. It held lineages. It held guilt. There was a pattern, he reckoned, not begun or designed by him but certainly continued by him, and perhaps worth dying for just to make it stop.

But before death there was always one more trick. Sometimes when Henrietta would not take her medicine, Emma would give her a treat. A bit of citron or marzipan or a spoonful of jam. He removed the lid from the terrarium and with his finger fished a small brown spider from its web. Keeping hold of its thread as though it were a marionette string, he glided it over to *Drosera* and onto the largest leaf.

The spider curved each little leg around the leaf hairs like a dog weaving through reeds. The little bit of thread trailed behind it as it scuttled down the stalk and across the newest leaves. From one small leaf there was a single tremor, a convulsion more than an appetite, and then stillness.

He watched the chloroform leak out of the dropper. He watched *Drosera* turning greyer by the moment. He saw out of the corner of his eye the desolate grey drive, and from somewhere in the house he heard a moan. The spider crawled over the table leg and out of sight. What kind of a man was he, he wondered, and what had he done?



## Notes

The story titles are subheadings from Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839.

The following lines are quotes, either exact or nearly so, from the sources listed.

*Prologue*

- 5 “It is a most readable book... fault to find.” Wilberforce, Samuel, (Review of) ‘On the origin of species’, *Quarterly Review*, 1860, 226.
- 5 “From the early Egyptian...unaltered.” Wilberforce, Samuel, (Review of) ‘On the origin of species’, *Quarterly Review*, 1860, 237.
- 5 “with all the change...condition.” Wilberforce, Samuel, (Review of) ‘On the origin of species’, *Quarterly Review*, 1860, 235.
- 5 “Is it credible...men?” Wilberforce, Samuel, (Review of) ‘On the origin of species’, *Quarterly Review*, 1860, 239.
- 6 “There seems to be...natural selection.” Wilberforce, Samuel, (Review of) ‘On the origin of species’, *Quarterly Review*, 1860, 253-4.
- 6 “Mr. Darwin writes...condition of man.” Wilberforce, Samuel, (Review of) ‘On the origin of species’, *Quarterly Review*, 1860, 257.
- 6 “But...strangeness.” Wilberforce, Samuel, (Review of) ‘On the origin of species’, *Quarterly Review*, 1860, 231.
- 6 “Was it through...an ape?” Foster, Stephan. “What Actually Happened at the 1860 Wilberforce-Huxley Debate?” *The Victorian Web*, 19 Mar. 2018.
- 7 “the Lord...my hands.” Foster, Stephan. “What Actually Happened at the 1860 Wilberforce-Huxley Debate?” *The Victorian Web*, 19 Mar. 2018.
- 7 “schema...way.” Lucas, J.R. “Wilberforce and Huxley: A Legendary Encounter,” *The Historical Journal*, XXII, 2, 1979.
- 7 “If then...the ape.” Huxley, Thomas Henry. Letter to Henry Dyster. 9 Sept. 1860.
- 7-8 “I regret...acutest pain.” Browne, Janet. *Charles Darwin: The Power of Place: Volume II of a Biography*. Alfred A. Knopf, 2003, 123.
- 8 “If I had to choose...the former.” Lucas, J.R. “Wilberforce and Huxley: A Legendary Encounter,” *The Historical Journal*, XXII, 2, 1979.

- 8 “If anyone...his grandfather.” Lucas, J.R. “Wilberforce and Huxley: A Legendary Encounter,” *The Historical Journal*, XXII, 2, 1979.

*Beetles Alive in the Sea*

- 19 “Pray my dear Charles...before you sail.” Owen, Fanny. Letter to Charles Darwin. 2 Dec. 1831.
- 20 “woe unto ye, beetles of South America!” Watkins, Frederick. Letter to Charles Darwin. 18 Sep. 1831.

*Interview with Savages*

- 40 “the miserable lords of their miserable land.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 305.

*Fear of Man an Acquired Instinct*

- 43 “The government...advancement.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 78 and 85.
- 44 “St. Fe...of Rosas.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 148.
- 44 Governor López's...pounds apiece.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 148.

*Leafless Bushes*

- 46 “The rocks...feeling.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 454.

- 46 “the sea...moments.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 455.
- 46 “The plumage...little beauty.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 462.
- 46 “A few raps...walks away.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 465.
- 46 “The breastplate...very indifferent.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 459.
- 47 “A gun here is nearly superfluous.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 475.
- 47 “The muzzle...a branch.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 475.

*Their Moral State*

- 52 “like the trunk of a noble tree embracing a delicate creeper.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 482.

- 55 “net...hot stones. Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 486 and 488.
- 56 “several islands in the sea...common center.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 482.
- 56 “over-domesticated as a greenhouse plant.” Browne, Janet. *Charles Darwin: Voyaging.* Princeton University Press, 1996, 306.
- 58 “A voyager...thus far.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 483-4.

*Little Owl*

- 76 “yawned...surface of bosom.” Darwin, Charles. *The Correspondence of Charles Darwin, Volume 4: 1847-1850.* Edited by Frederick Burkhardt and Sydney Smith, Cambridge University Press., 1989, 411.

*Arrow-Head, Antiquarian Relic*

- 78 “the race was for the strong.” Darwin, Charles. Letter to Charles Lyell. 6 July 1841.
- 80 “content to admire the strides others made in science.” Darwin, Charles. Letter to Charles Lyell. 6 July 1841.

*Ornithology, Curious Finches*

- 97 “the sea...moments.” Darwin, Charles. *Narrative of the surveying voyages of His Majesty's Ships Adventure and Beagle between the years 1826 and 1836, describing their examination of the southern shores of South America, and the Beagle's circumnavigation of the globe. Journal and remarks. 1832-1836.* London: Henry Colburn, 1839, 455.
- 98 “somewhat closer...on this earth.” Darwin, Charles, and H. Graham. Cannon. *The Voyage of the Beagle.* 2nd ed., Dent, 1959.

*Limit of Fruit Trees*

100 “stomach, turned inside out?” Browne, Janet. *Charles Darwin: The Power of Place: Volume II of a Biography*. Alfred A. Knopf, 2003, 147.