

CONTENTS

Preface ix

Maps xv–xix

1	A Happy but Downwardly Mobile Family	1
2	Taking Measure in the Borderlands	18
3	Beetling and Big Questions	37
4	Paradise Gained . . .	60
5	. . . and Paradise Lost	86
6	Down but Not Out	118
7	Sarawak and the Law	142
8	Crossing the Line(s)	178
9	Eureka: Wallace Triumphant	212
10	Island Hopper	243
11	First Darwinian	276
12	A Tale of Two Wallaces?	306
13	A Socially Engaged Scientist	339

14	Onward and Upward	374
	Coda	410

Acknowledgments 417

Notes 421

Figure Credits 495

Index 499

Color Plates Follow Page 252

C H A P T E R 1

A HAPPY BUT DOWNWARDLY MOBILE FAMILY

KNOWING WHAT we know of Alfred Russel Wallace's later achievements in biogeography and evolution, it seems most appropriate that he was born atop a boundary in space and time. He came into the world on 8 January 1823, in a modest cottage in the hamlet of Llanbadoc, near Usk, South Wales, on the banks of the River Usk. The eighth of Thomas Vere Wallace and Mary Ann Greenell Wallace's eventual nine children, he was one of just six who survived to adulthood. Three sisters died in infancy or childhood, a tragedy not uncommon in those days and the likely reason why his parents had the infant Alfred Russel quickly "half baptized" in the nearby Llanbadoc church, as a precaution until a proper "full baptism" could be done. A fourth sister, Eliza, died in early adulthood, and his surviving siblings included William, the eldest (some fourteen years older), Frances ("Fanny," ten and a half years), John (four and a half years), and his younger brother Herbert ("Edward"), born in 1829 when Alfred was six.

Their home, now called Kensington Cottage, was a modest but handsome house on the west side of the river, backed up against a long, steep, north-south-running ridge just a quarter mile from the fine five-arched brick bridge leading to the Usk town center. Picturesque and bucolic, there was nothing outwardly remarkable about the site—but in fact this lovely place of Wallace's birth is a borderland of deep time, a place marking continental collisions, ebbing and flowing ancient seas, uplift, deformation, and untold eons of erosion, all yielding the curious geography of Wallace's early childhood. There, between ridge and river, Wallace was born atop the Llanbadoc Fault, a deep fracture in

the earth's crust that the River Usk found on its meandering journey from the uplands of the Brecon Beacons to the Bristol Channel.

This fault lies at the eastern edge of the great Usk Inlier, a more or less oval-shaped formation truncated to the northwest and measuring about four miles at its widest east to west and eight miles at its longest north to south, the whole dating to the Silurian period some 420 million years ago.¹ In geological terms an *inlier* is basically a formation of older rock surrounded by younger rock, typically formed by the erosion of overlying younger rocks to reveal the older ones beneath. One way they can form—true of the Usk Inlier—is from the horizontal layers of rock being squeezed from the sides and pushed up into an arched dome, in this case beginning about 350 million years ago. As erosion slowly but surely does its work, the bowed strata are exposed as a series of more or less concentric bands of rock in a definite age sequence: oldest in the middle, successively younger bands of rock to the outside. The different kinds of rock making up the layers differ in hardness and so erode at different rates. The tougher rocks are worn away a bit more slowly than the softer ones, over time becoming higher ground—just like the long ridge behind the cottage of Wallace's early childhood, a bit of ancient Silurian seabed tilted sharply and teeming with fossil bryozoans, corals, and brachiopods. This wall-like bank of Wallace's earliest memories comprises the youngest, outermost rocks of the Usk Inlier, 420-million-year-old limestone projecting above terrain just across the river, lower but younger still and with a wholly different geology: Devonian-period old red sandstone stretching for miles around, a piece of old Avalonia, as paleogeographers now know that ancient continent, named for King Arthur's island paradise.

Wallace could not have known any of this history, of course, not just because he was so young but because the science of geology itself was still in its early childhood. That doesn't mean we cannot appreciate the resonance: the man whose greatest contributions to science were insights into the interplay of the geological and biological forces giving rise to the ever-ramifying evolutionary tree through time while shaping species distributions as we see them today—the man of the eponymous Wallace Line, demarcating two of the planet's great biogeographic realms—was himself born atop a great divide, a boundary marking the meeting of continents and other slow-motion cataclysms of the distant Paleozoic, creating the singular geography of his childhood.



Kensington Cottage, Usk, ca. 1900.

At the time it was the geography that left the longest-lasting impression on his mind. His recollections of early childhood in Llanbadoc and Usk were strongly visual, and he commented in his autobiography how all the main features of *place*—the cottage bounded by river and steep bank, the old bridge, a quarry further up the ridge, the distant mountains—were more vivid in his mind than the people in his life. He well remembered scrambling up the steep bank many a time with his siblings—including one occasion when, inspired by Thomas Day’s children’s book *The History of Sandford and Merton*, a favorite, his older brother John led them up and over the ridge on an adventure: “John provided himself with the matchbox, salt, and potatoes, and having climbed up the steep bank behind our house, as we often did, and passed over a field or two to the woods beyond, to my great delight a fire was made, and we also feasted on potatoes with salt, as Sandford and Merton had done.”²

It was one of many happy memories of his childhood home in remote Wales despite the financial duress that had brought the family there to begin with. His father, Thomas Wallace, qualified as a solicitor but never practiced, preferring literary and artistic pursuits as a young man. He was a man of taste, fond of theater and wordplay, but also something of an idle socialite, living off an inheritance and frequenting fashionable spa towns like Bath in season. In 1807 he married Mary Ann Greenell, of a prosperous Hertford family, and by 1810 the couple had two children. When the realities of a growing family

motivated Thomas to seek additional means of income, they moved to Marylebone, the dynamic central London district where several notables, fictional and real, have taken up residence over the years. The artist J.M.W. Turner and polymathic mathematician and engineer Charles Babbage lived there at the time of the Wallace's residence, and Charles Dickens, Frederic Chopin, Elizabeth Browning, and even Sherlock Holmes were residents at various times later in the century (Baker Street was a short walk from Wimpole Street in Marylebone, where Arthur Conan Doyle had his ophthalmology practice); Paul McCartney and John Lennon were among Marylebone's twentieth-century luminaries. Rather than resort to law practice, Thomas Wallace embarked upon the first of what was to become a succession of disastrous business ventures, starting up a new large-format illustrated magazine of art, antiquities, and literature that was in his son's words "one of the most risky of literary speculations." All too predictably, it soon came to grief, owing to the cost of the lavish engravings and stubbornly low subscription rates. In the meantime the family continued to grow, with two more children born in Marylebone. The family soon moved to Southwark, South London, which was a bit more affordable. But additional mouths to feed and further deteriorating finances soon induced the family to move once more, this time to a place "where living was as cheap as possible." Rural South Wales it was, to the picturesque town of Usk, Monmouthshire, where Alfred and then his brother Herbert Edward came along. In his autobiography, Wallace commented on just how cheap the living was: rents and provisions of all kinds were half the going rates in London, and his father further provisioned the family from their own garden and taught the children himself. It was surely, he later thought, the happiest time of his father's life.

And most likely his mother's too. As a child Wallace knew little to nothing of his parents' financial travails, probably because they themselves were undaunted. By all accounts their marriage was quite a happy one, marked by great mutual affection and respect. No, what young Alfred was sensible of was security and joy at that juncture of his life. Their father read aloud in the evenings—Shakespeare, the poetry of William Cowper, Sandford and Merton, and of course the staple fairy-tales and legends: "Jack the Giant Killer," "Little Red Riding Hood," "Jack and the Beanstalk," "Aesop's Fables," and more. Wallace recounted being struck by Aesop's fable of the fox and the pitcher. More commonly known as the crow and the pitcher, in this tale a thirsty crow puzzles over how to reach water at a frustratingly low level in a narrow pitcher. The clever bird's solution is to drop pebbles into the pitcher one by one, displacing

the water until its level is high enough to drink. Whether fox or crow, this trick “seemed quite like magic” to the three- or four-year-old Wallace. He decided to try the experiment himself. He poured an inch or two of water into a bucket and with a little spade scooped in stones and gravel (and probably some soil). It proved to be a failed experiment: “Instead of the water rising, it merely turned to mud; and the more I put in the muddier it became, while there seemed to be even less water than before.” The moral of this story for Wallace was never to believe experiments out of storybooks, but it does show an inquisitive turn of mind.³

Again, place was indelible in this memory—the scene of the experiment, the small backyard between the kitchen and the steep, rocky bank, “has always been clearly pictured before me,” Wallace later wrote. The river, too, remained vivid in his mind. He recalled fishermen bobbing in the River Usk in their coracles, traditional single-person vessels resembling a large floating walnut shell. Or maybe “turtle shell” is more apt: a coracle is typically carried on one’s back, and men transporting them resemble some bipedal version of a giant tortoise. Constructed of split willow sticks tied with bark and covered with waterproofed animal hide, coracles are designed for shallow rivers and were traditionally used for river fishing in Wales, the English West Country, Ireland, and Scotland. The name is derived from the Welsh *cwrwgl*, which has cognates in the Scottish and Irish Gaelic “currach,” still used today.

Wallace and his siblings did some fishing too, but not from coracles. Great slabs of limestone from a quarry near their home, where the steep ridge of the Usk Inlier comes close to the river, provided convenient fishing platforms for the kids. He remembered the fearsome thrill of blasts at the quarry, where larger charges used some time in the past had flung huge slabs into the river. Equipped with old saucepans and washbasins, Alfred and the others excitedly scooped up young eel-like lampreys making their way in shoals back to the sea. Lampreys are anadromous fish, spawning in the gravelly shallows of freshwater streams and rivers but living most of their lives in a marine environment. They make for good eating, and the Wallace kids’ catches were typically fried up for supper, to Alfred’s delight.

Another vivid memory was beautiful and romantic Usk Castle, where family friends lived in the gatehouse attached to the ancient castle ruins. Strategically situated on a hill overlooking the town’s north side, the Norman castle (still there today) dates to the early 1100s, though the commanding position of the hill was recognized by the Romans, who earlier had a fortress on the same site. Picturesque and evocative, the ancient castle inevitably conjured



A Welsh fisherman carrying his coracle turtle-style.

up visions of knights, giants, and prisoners in dismal dungeons to young Alfred. While most kids must be content with pretend castles in their playacting, the Wallace kids and their friends staged their pretend battles on the parapets of a real one.

Alfred's companions in his daily exploits at this age were typically his brother John and one or two of his sisters. John was the one constant playmate, as two sisters, Mary Anne (yes, spelled differently from his mother's name) and Emma, died in childhood at the ages of five and eight, and Frances (nicknamed Fanny) and Eliza, being some eleven and thirteen years older than Alfred, were more nannies than playmates. Their oldest brother, William, already fourteen when Alfred was born, had left home to become an apprentice surveyor in Kington, Hertfordshire. His visits home were cause for celebration in the close-knit family, and Wallace recalled the esteem his brother was held in. Besides his talents as a budding surveyor and businessman, William was a young man of some literary and scientific taste, even becoming involved, like their father, in a publishing venture, a monthly magazine of literature, science, and local events. The magazine may not have been the financial debacle that his father's was, but it was evidently not successful insofar as it does not appear to have lasted long. Alfred recalled his brother



Romantic Usk Castle, ca. 1838.

showing the family copies of the magazine, pointing out one article in particular that he may have authored and using diagrams to convey how the reflections of distant hills were sometimes visible in the river depending on small differences in water level. It may say something that Wallace recalled this despite his lack of understanding of the principles involved—it was a curious natural phenomenon of place.

Those distant hills were very much fixtures of place too, and Wallace well remembered the beautiful view up the river valley where the distinctive peaks of Sugar Loaf, Bloreng, and the Skirrid, in what is now spectacular Brecon Beacons National Park, marked “the beginning of the unknown land of Wales, which I also heard mentioned occasionally.”⁴ For in some ways, the Wallaces were strangers in an unusual but beautiful and welcoming land: the family was not of Welsh extraction, and as a child the flaxen-haired Alfred was nicknamed “the little Saxon” by the locals. Indeed, their very home was uncertain territory. The status of the county of Monmouthshire had long been disputed, at times considered part of Wales, at times part of England, a dual identity reflected in the county motto: *Utrique fidelis*, “Faithful to both.” It seems appropriate, then, that the landscape of Wallace’s birth was a borderland twice over, a geological

one of deep time underlying a politico-cultural one on a human timescale. Monmouthshire's split personality persisted for centuries, until the county was firmly situated in Wales by virtue of the Local Government Act of 1972.

Such borders may be more political than natural, yet they can leave their imprint in the form of dual if not divided cultures, languages, and psyches. The question of Wallace's "nationality" as Welsh or English is a point of contention among some today, but though Wales was the land of Wallace's birth, he is most fairly considered an Englishman—as he regarded himself to be—though one with affection for Wales and the Welsh people.⁵ Given Wallace's affinity for languages, it is a pity that he never learned to speak Welsh, though he became competent enough at reading it. He would surely have become adept had he been able to remain in Wales longer, but his childhood idyll ended in 1828 at the age of five when his mother came into an inheritance from her stepmother, Rebecca Greenell. The family soon relocated to her hometown of Hertford, in England.

Getting there was memorable in itself—a journey that today takes about three hours by car and under five by train was a multiday undertaking, though following much the same route beginning with the passage from Wales to England across the broad estuary of the River Severn. The Severn is Britain's longest river and also happened to be the river, far upstream, of Charles Darwin's youth as it courses through the border market town of Shrewsbury, the highest navigable point. An especially high tidal fluctuation—possibly the world's largest after the Bay of Fundy in Canada—and fast, changeable currents combined with high and unpredictable winds made the mile-long Severn crossing a dangerous proposition even under steam. Wallace recalled the passage as "a little awful," and he had good reason to be apprehensive. Their route was known as the Old Passage, crossing at the narrowest point from Beachley on the Welsh side, near where the River Wye joins the Severn, to Aust on the English, essentially the same passage point used since the days of Roman Britain.

Although a steam ferry service had opened in 1827, the Wallaces went by sail, young Alfred recalling the small boat heeling sharply and the party having to stoop to stay clear of the boom as it swung back and forth. That was the most dangerous way to attempt what are surely the region's most treacherous waters, with many a boat lost in the attempt over the years. In the eighteenth century,

Daniel Defoe, who knew something about shipwrecks, was alarmed at the “sorry boats” on offer in Aust. “The sea was so broad, the fame of the Bore of the tide so formidable, the wind also made the water so rough, and which was worse, the boats . . . appeared so very mean” that he and his party refused to take the “ugly, dangerous, and very inconvenient ferry,” electing to use a safer passage far upriver at Gloucester.⁶ The steam ferries were safer than sail but still dangerous—a decade after the Wallaces’ safe crossing, the Beachley-Aust ferry sank with all aboard on 1 September 1839, and another was lost five years later.

We might consider this the first of Alfred Russel Wallace’s many dangerous sea voyages. Fortunately, it proved uneventful, if scary, and the family made their way to London, where they first stopped to visit relatives in Dulwich, south-central London near their previous Southwark home. As Thomas Wallace made arrangements for their Hertford home, Alfred stayed temporarily at a boarding school in Ongar, Essex, where he recalled both misadventures (accidentally sending a stone lawn roller careening downhill into a pond) and an intriguing bit of natural history: belemnites, the fossilized internal guard, or rostrum, of extinct squid relatives. Located at the tail end of the living animal, where they likely played a role in balance, the hard bullet-shaped rostrum is all that remains of these creatures that swarmed the Jurassic and Cretaceous seas that covered much of Britain. Wallace and his friends picked the “thunderbolts” out of the gravel—ancient lore held that belemnites fell in thunderstorms—no doubt seeking choice specimens to fill a box or jar in perhaps his first collection. He would have known nothing of their true origins, but they excited curiosity enough even as worn and broken tubular fragments. Sometimes smooth-sided and sometimes rough, in cross section a central hollow was visible around which radiated glittering lines like so many crystalline wheel spokes.

It was not long before the family moved into number 1 Saint Andrew’s Street, Hertford, the bustling market town of Hertfordshire just north of London. His mother’s family had lived in the area for generations as solidly middle-class professionals and tradesmen, with a host of lawyers, architects, mill owners, and the occasional alderman and mayor. Situated in the heart of town, the house (now no. 11, a doctor’s office) was a sturdy three-story brick structure, half of a kind of duplex with a covered passage between mirror-image houses. It did not take young Alfred long to meet the neighbors: a little boy about his age peered over the garden wall and greeted him with a “Hallo! What’s your name?” It was George Silk, who was to become a lifelong friend.

About a year later, the family moved to a more spacious house just up the street on Old Cross (now no. 23, a barbershop). This one was heaven, with a side yard, a flower-filled garden in the back, and, most excitingly, a stable with a loft that soon became Alfred and John's headquarters. "Almost like a robber's cave," Alfred later recalled, "our greatest delight." It was their lair, hideaway, lab, and shop, where they spent untold hours playing, reading, and inventing.

But the great outdoors was their main theater of fun. Again his sense of place was strong, his memories filled with scenes of streams and rivers with great working mills coursing through a varied landscape of farms, woodlands, and flower-filled meadows. "One of the most pleasantly situated county towns in England," Wallace declared, a rolling and verdant landscape emblematic of Blake's "green & pleasant Land." The Hertford geography of Wallace's memory was a map of favorite play spots and wonders crisscrossed by rivers, lanes, and footpaths. Located on the western side of the East of England, Hertford lies at the confluence of four river valleys, where the River Lea, the main river through town, is joined by the Rivers Beane and Rib from the north and the Mimram from the west. The east-flowing Lea turns to the south as the canalized Lea Navigation, coursing toward London and the Thames. A favorite swimming hole in the Beane was the site of Alfred's first brush with death not long after the family's arrival when a cavorting friend pushed him into the water. Struggling, he may well have drowned had it not been for his brother John quickly jumping in to save him. Though scary at the time, the incident did not much alter his affinity for the rivers, or water generally. The four and a half years separating Alfred and John held less significance as John became his closest companion in explorations and exploits.

Favorite haunts in and about town were vividly recalled. There was Hartham Common, today the same broad park on high ground between the Lea and the Beane that Wallace knew as a "first-rate" cricket field and playground—he would surely be impressed with the range of sports on offer there now, from football, rugby, and tennis to kayaking and canoeing on the rivers. It also boasts a gym and swimming pool. Immediately beyond Hartham and the Beane to the north was a steep, wooded slope that Wallace, John, and friends knew as the Warren, atop which the lovely village of Bengeo sits. Just to the west of town along the Mimram were Hertingfordbury and Panshanger Park, once the estate of the earls of Cowper. Wallace does not mention the grand Panshanger House, still standing at the time. Rather, a sight grander still to him was the awe-inspiring oak tree dating to the time of Queen Elizabeth I. Already some 19 feet (5.8 m) in circumference in Wallace's youth, "one of the

sights of the district,” the venerable tree had grown to about 25 feet (7.6 m) before its deterioration led to its removal in 1978.⁷ In Hertford, too, they had a castle, although not nearly as evocative as the one in Usk. The town has medieval origins, with records of tenth-century earthwork fortifications guarding the ford over the Lea against Vikings and later a castle built by the Normans and reconstructed by Henry II in the twelfth century. By the nineteenth century, only parts of the walls and the beautiful gatehouse, itself rather imposing, remained of the old castle. The kids scrambled up the parapet and could imagine marauders kept at bay by the moat that had once girdled the castle, flowers marking where water diverted from the Lea had frustrated would-be invaders—and, who knows, perhaps marked some of their graves. Then there was their “racing field” near Bayfordbury, a favorite play spot perhaps close to today’s modern observatory and greenhouses of the University of Hertford, and the “chalk cave” near elm-lined Morgan’s Walk, a deep hollow in a chalk bank well hidden by overhanging shrubs and well stocked with candles, a tinderbox, potatoes, and sundry other provisions, where Alfred, John, and their coconspirators fancied they were brigands hiding out in a secret lair. To slake their thirst, they could steal out to the bubbling brick-lined spring in the field to Dunkirk’s Farm, just at the end of Morgan’s Walk: “We seldom went this way without running down to it to take a drink of water and admire its purity and upward bubbling out of the earth.”

The area was renowned for the purity of its springs—notably, Chadwell Spring, a large and circular bubbling spring that gives rise to the New River, which is not a natural river but a remarkable eighteenth-century aqueduct that follows the one-hundred-foot contour some forty miles to Islington, in London. The spring was famous for its turquoise blue-green waters, a tint that says something about the area’s geology: chalk and limestone bedrock topped with chalky soil and gravels, reflecting at least two epochs of geological history. The chalk and limestone were laid down in Cretaceous seas (the very name derived from “creta,” or “chalk” in Latin), while the much younger gravels are the product of the slow grinding and conveyor-belt transport of rock by Pleistocene-era glaciers. Dissolved minerals and suspended calcium carbonate from the bedrock scatter light at the blue end of the spectrum, conferring a vivid blue-green color to our eye. While Wallace recalled the “exquisite shades of blue and green in ever-varying gradations” of this spring, he also lamented in his autobiography that it had since been ruined by ill-considered well drilling in the area, altering the hydrology: “Thus does our morbid civilization destroy the most beautiful works of nature.” Indeed, for some time in the early twentieth century

the spring was dried up altogether, its subterranean waters diverted. It wells up again today but is no longer the “exceedingly beautiful” color Wallace remembered. The chalk was a universal feature of the landscape of Wallace’s youth, never far belowground and surfacing in stark white outcroppings here and there. “In the total absence of any instruction in nature-knowledge at that period, my impression, and that of most other boys, no doubt, was, that in some way chalk was the natural and universal substance of which the earth consisted, the only question being how deep you must go to reach it.”⁸

The prodigious “nature-knowledge” that Wallace later became famous for had its origins here, but not in the way one might suppose. It was a slow osmosis, the product of the odd seed of incidental remarks and observations chancing upon the fertile soil of his mind. That fertile soil was enriched mainly by play, books, and a loving homelife and very little by formal instruction. School was to be endured. About a year after the family moved to Old Cross, Wallace started attending Hertford Grammar School, run by headmaster Clement Henry Crutwell, “a rather irascible little man.” John was already attending, smoothing the transition. The school, founded in 1617, had a single long classroom for about eighty boys, an open fireplace on either end, desks for four teachers on the sides, and rows of desks for the boys down the center. Instruction consisted of the usual staples of Latin, history, geography, and a bit of French, all with a heavy (and tedious) emphasis on memorization. The school day started at 7 AM and on three days of the week continued until 5 PM—beginning and ending in twilight, if not darkness, in the depths of winter, when the boys were expected to provide their own candles by which to work. “Buzz Wallace,” as he was known to his schoolmates, enjoyed hearing “Old Cruttle” the headmaster declaim Homer or Cicero far more than “blundering through” the forty or fifty lines he and his schoolmates were often assigned.⁹ “When we were called up, it was all a matter of chance whether we got through well or otherwise.” The word “painful” appears seven times in Wallace’s recollection of his school days, but he evidently performed well enough considering that, a few years later, he assisted by tutoring the younger students in reading, writing, and arithmetic, though that was not a role he relished. After 313 years, in 1930 the growing school moved to more spacious grounds and was later renamed to honor founder Richard Hale, a prosperous seventeenth-century merchant. Yes, school was to be endured, but for all that this most famous “Old

Boy” of the Richard Hale School would be touched that he, too, is honored there now, lending his name to one of the school’s six houses and, more poignantly if utterly unimaginable to the young Wallace, an annual scholarship to support student travel and study abroad. What better tribute to one of the greatest scientific travelers of modern times?

As Wallace himself later acknowledged, his real education occurred outside school, as is so often true in families that encourage eclectic reading and give kids free rein to pursue creative interests. Both boxes were checked with the Wallace family. For all his lack of ambition, Thomas Wallace kept the house well stocked with books, further aided by taking a position at the town library at one point. The town boasted several societies or book clubs supported by annual subscriptions, circulating books among members and in some cases extending borrowing privileges to nonsubscribing local families. Not one but two reading rooms well supplied with newspapers, reviews, and magazines were available to boot, one frequented by the “gentlemen of the county” and the other for the general populace.¹⁰ A steady stream of books and magazines flowed through the house as a result, including classics, histories, plays, and travelogues: Milton, Pope, Defoe, Fenimore Cooper, Byron, Scott, Swift, Goldsmith, Bunyan, Dante, Cervantes, Shakespeare, Mungo Park, and more. Serials like Dickens’s *Pickwick Papers* were much anticipated, and the family devoured issues of the *Rambler*, the then new *Spectator*, and the great favorite *Hood’s Comic Annual*. Thomas Wallace would read aloud at home, and when he worked in the library, Alfred would often join him—especially once John left for London—helping fetch or shelve books but usually off reading in a corner.

Unsurprisingly, perhaps, the family’s eclectic literary tastes seemed to go hand in hand with toleration, at least to a point. While they were fairly orthodox members of the Church of England, attending church twice on Sundays, their circle of friends—close enough friends that the Wallaces would sometimes attend their services—extended to Dissenters and Quakers. Bored with the prevailing silence of the Quaker meetings, Alfred found the Dissenters’ chapel far more exciting. The spontaneous prayers and attestations, passionate singing, and vigorous preaching were a welcome departure from the sedate proceedings of the Anglicans, let alone the Quakers. The experience even piqued some religious feeling within him, but lacking “sufficient basis of intelligible fact or connected reasoning to satisfy my intellect,” the feeling did not last long and never returned—though some thirty-five years later he would become another kind of dissenter as a spiritualist, which had quasi-religious overtones.

Imbibing all he experienced, as kids do, at the time Alfred's exposure to the non-conforming religious communities of the town surely left its mark as part of a growing social awareness. In those years, too, he had occasion to witness sessions of the court of assizes, recalling sheep rustlers on trial, aware that the penalty could well be transportation—exile to some far-flung penal colony for life, a form of punishment that ended in the 1850s. The nine-year-old Alfred surely felt the palpable excitement coursing through the town at the passage of the Great Reform Act in 1832, celebrated by a great outdoor feast for the working-class families of Hertford. The bill changed the electoral system rather dramatically, eliminating centuries-old traditions like the forty-shilling franchise (wherein the right to vote was based on the ownership and value of property) and the many pocket or “rotten” boroughs, which amounted to reserved seats (and thus influence) in Parliament even if the borough had few or no inhabitants.¹¹ His father's disapproval of the act may have given Alfred his first inkling of political division and the winds of social change, very much on display when the radical member of Parliament Thomas Slingsby Duncombe was ceremoniously “chaired” through the streets after his electoral victory.¹²

Alfred was much later to propose his own radical social and political reforms (of which his father surely would have not approved), but here and now, as a kid, what Alfred really lived for day-to-day and recalled most vividly later in life were the endless diversions with his brother in the beloved loft over the stable, their private lab and lair in the few years the family lived on Old Cross. John was something of a natural engineer, with a talent for mechanical contraptions and carpentry. He would surely have explained the workings of the great linseed mill in town that so fascinated his little brother, who vividly recalled its great rotating vertical millstones and curved scoop continually sweeping back and forth, grinding the seed into an ever-finer meal. The adjacent stamping mill for compressing the linseed meal into oil cakes was more awesome still—some two dozen or more great vertical rammers cycling up and down, striking and rebounding from the molds at different rates in a mechanical clockwork din as deafening as it was oddly musical. Alfred remembered that time tinkering and experimenting with his brother as “certainly the most interesting and perhaps the most permanently useful” of his whole childhood.

William Clarke's *The Boy's Own Book*, an encyclopedia for the “amusement and instruction” of Britain's “men in miniature,” was their go-to manual for all manner of inventions and games.¹³ First published in 1828, the popular how-to gave detailed instructions for making things that would give a modern publishing attorney nightmares. Stocking up on gunpowder, sulfur, charcoal, iron

filings, and saltpeter, for example, John and Alfred were all set for homemade fireworks: squibs, firecracker strings, Roman candles, and revolving Catherine wheels (spectacular when they didn't just burst into flames) were all favorites, especially on holidays like Guy Fawkes Day. He did not recall anyone getting injured, even when "now and then" some hapless friend had crackers or squibs explode in a pocket. Nor did they get hurt, fortunately, firing off the six-inch brass cannon they got in a trade, especially considering that they liked to pack the barrel "to the very muzzle" before carefully snaking a trail of powder a few feet away, giving them a bit of time to dash off to safety after lighting it. The ear-ringing explosion would send the cannon jumping into the air. The miniature "key cannons" they constructed were fairly harmless by comparison. Using the hollow shank or stem of old brass skeleton keys as a barrel, the little guns made a satisfyingly loud report: "By filing a touch-hole, filing off the handle, and mounting them on block carriages, we were able to fire off salutes or startle our sister or the servant to our great satisfaction." More innocuous were the popguns they made with hollowed-out elder branches and the elaborate miniature spring pistols that fired peas—so skillfully made that John sold them for a shilling or more at school. They had more constructive, even educational, toys, too, of course: John and Alfred made their own cricket balls, and cherry-stone chains and ornately carved bread seals were favorites. Their father purchased a model wooden building-block bridge illustrating the principle of the arch and keystone, and the family pored over large dissected maps of Europe and England, challenges that had the added benefit of instructing the kids in geography. Alfred attributed his lifelong love of maps to those puzzles.

He thought their father was at his most content those few years on Old Cross, gardening, making beer and wine from their own large and productive grapevines, working at the library, reading to the family. This is not to say it was idyllic: Alfred had a dangerous bout of scarlet fever, and he remembered his family's acute grief when his older sister Eliza succumbed to tuberculosis in 1832, at age twenty-two. Around this time, too, their remaining sister Fanny left home to become a governess with a family in the nearby village of Hoddesdon. All was not well with family finances either, but that was not something he was even dimly aware of—though that awareness soon grew.

If he had not known before, Alfred knew that something was amiss when the family moved again. The trouble started in late 1833 or 1834, a perfect storm of

financial disaster brewing. Mary Ann Wallace's brother-in-law Thomas Wilson, a solicitor and one of the executors of her father's estate, imprudently invested what remained of the family's already modest assets in a speculative building project in London, only to go bankrupt. Somehow Mary Ann's inheritance—and that of the children—also became a casualty of the bankruptcy, drastically reducing the family's income. Things went from bad to worse as Thomas Wallace's own savings were lost in ill-considered investments, and the family was forced to exchange their comfortable house on Old Cross for part of an old house near All Saint's Church, the former vicarage now part post office and part residence. Other moves soon followed—about this time a dizzying series of changes rapidly unfolded for Alfred in a relatively short period of time. Precise dates are unclear, but in the space of the few years from about 1834 through 1836, his sister Fanny left home to perfect her French in Lille, John was packed off to London as an apprentice carpenter, and the family moved to a smaller house on Saint Andrews Street, then into a portion of an old house near Saint Andrews Church. This last at least had the double virtue of having Alfred's friend George Silk once again living next door and a large fruit-laden mulberry tree in the garden that he and George loved to climb, where they would "feast luxuriously."

Mary Ann Wallace was beside herself with worry over the family's sinking fortunes, especially the question of the children's modest share of their grandfather's bequest. She wrote increasingly urgent letters to her brother-in-law: "The object of this is not to harrass [*sic*] you—but to request of you to inform me How I ought to act with respect to the claims my children have on you as their Grandfather's Executor." She trusted to his honor that he would "do the best for my dear children and will acknowledge the debt due to them." Fanny needed funds to remain in France, as she was never paid her inheritance, and what do to about John—he owed half a year of board in his position as apprentice carpenter and would be discharged if it was not paid. And poor William was afraid of showing his face in London where "that Elkin the apothecary has threatened to arrest him for his debt of £20. . . . It would be William's utter ruin if anything of that nature was to occur."¹⁴ She turned to Louisa Draper, the daughter of Richard Draper, family friend and the other executor of the estate, for advice, imploring that she "not feel offended at this application in behalf of my poor children, they have but little, and it is hard that little (their all) should be lost! It is a delicate matter to know how to act between friends, but in such a matter as this I must act the best for my children by doing everything in my power to recover that which seems lost through the failure of one of the

Trustees. . . . My situation is a most painful one we are harrassed [*sic*] in every way.”¹⁵

Funds were eventually forthcoming, but it took awhile, and even then it was too little, too late to keep the family together. Fanny returned from France, and Alfred was sent to board with twenty or thirty other boys at Old Cruttle’s house on Fore Street for about six months until Fanny returned to her position as governess in Hoddesdon. As home finances got tighter and tighter, Alfred had to help cover his school fees by tutoring the younger boys—to his great embarrassment. By early 1837 the family was forced to move yet again, leaving Hertford for a small abode called Rawdon Cottage in Hoddesdon, close to Fanny. It was too small for both Alfred and Edward to live there, and they could no longer afford Alfred’s school or boarding fees. They reluctantly removed Alfred from school and packed him off to join John in London, a stop-gap measure until William could take him on as an apprentice surveyor back in Wales. It was the best thing that could have happened to fourteen-year-old Alfred Wallace.

At the very time Alfred arrived on Robert Street, off Hampstead Road, sharing both room and bed with John in the home of Mr. Webster, the master builder to whom John was apprenticed, a young man twice his age had just moved into rather nice accommodations exactly one mile due south at 36 Great Marlborough Street. Charles Darwin, just five months back from his voyage around the world, was delighted to move in around the corner from his beloved brother Erasmus. It is an uncanny parallel, the impecunious teenage surveyor’s-apprentice-to-be and the well-to-do young gentleman naturalist living one mile apart, both arriving in March 1837.¹⁶ That was the very month that Darwin had his transmutational epiphany, the dots suddenly and clearly connecting and pointing to the truth that species must change. It was a time when Alfred Russel Wallace’s mind was about to be profoundly opened, too, setting him on his own path to eventual epiphany, one that would inevitably intersect with Darwin’s. But that was not for another twenty-one years, and much was to happen to both of them before then.

INDEX

Page numbers in italics refer to figures.

- Adelboden: geology of, 396; Wallace family holiday at, 396
- Africa: Boer war of southern, 399–400; desertification of, 330; John Muir expedition to, 370; tectonic plate of, 67, 121, 140, 395; variolation in, 353; Wallace's mountain uplift scenario of, 213–14; Wallace's plan to visit, 135
- Agassiz, Alexander, 364
- Agassiz, Louis, 364; ice age theory of, 426n24
- Age of Reason*. See Paine, Thomas
- Agung, Mount (Gunung), Bali, 179
- Albany Street, 18, 126, 165
- Alcobaça, Brazil, geological observations at, 68–69
- Alexandria, Egypt, 138–39, 244, 284
- Alfur, Alfuro peoples, 235, 237, 260, 273
- Ali, 153, 171, 174, 175, 183, 184, 187, 191, 193, 202, 207, 215, 221, 229, 235, 241, 243, 244, 249, 262, 272, 273, 274, 276, 278, 282; discovery of new bird of paradise by, 243–44; late life meeting of Thomas Barbour, 282; portrait, 283; statue, 244, 458n4
- Allen, Charles Martin (Charley), 136, 139, 145, 288; collecting in Malacca with, 147–50; collecting in Misool by, 259, 262, 263, 271; collecting in New Guinea by, 273; collecting in Sarawak by, 161–68; collecting in Singapore by, 146–47; collecting in Sula by, 280; Wallace's perceived failings of, 151, 162, 174; work at Bornean mine by, 259
- Allingham, Helen, 351
- Allingham, William, 351, 352, 353
- allopatric speciation. See speciation
- Alma* (Schooner), 188
- Amazon Basin, 67, 77, 116, 126, 128, 130, 281; “On the Habits of Butterflies of” paper, 128, 130, 131, 281; “On the Monkeys of” paper, 126–27, 131; and Riverine Barrier Hypothesis, 126–27, 131; Wallace's *A Narrative of Travels on the Amazon and Rio Negro*, 132–33; Wallace's early book plan for, 94
- Amazon River, 69, 73, 75, 76, 78, 79; Central Amazon Conservation Complex, 88
- Ambon (Amboyna) Island, 195, 199, 212, 216, 218, 219, 231, 247, 252, 255, 256, 258, 259, 262, 272
- Ambon* (mail steamer), 220, 274, 276
- American tour of 1886–1887, 359–73; botanizing with Alice Eastwood on, 371; Lowell Institute Lectures on, 358–59, 361; meeting with Asa Gray during, 361–62; meeting with John Muir during, 369–70; meeting with William Edwards during, 363; reunion with brother (John Wallace) on, 368–71; visit to Museum of Comparative Zoology during, 364. See also sequoias (*Sequoiadendron giganteum*); Washington, DC
- Ampanam, Lombock Island, 180, 185
- Ampungan, Gunung, Sarawak, 168

- Anavilhanas Archipelago, 88
- Andes Mountains: Humboldt and, 40, 45;
uplift of, 130, 181; Wallace's planned exploration of, 81, 107–8
- animal magnetism. *See* mesmerism
- Anning, Mary, 401
- Anoa (*Bubalus depressicornis*), 255, 460n24
- anthropic principle, 404
- Anthropological Institute of Great Britain and Ireland, 292
- Anthropological Society of London, 196, 292;
schism with Ethnological Society, 192
- Anti-Corn Law League, 38
- Anti-vaccination movement. *See* vaccination
- Antler or horned flies, *Phytalmia (Elaphomyia)*, 234, 235
- Antonij, Henrique, 80, 81, 86, 109, 115;
Henriquezia, 80
- ants: depredations of, 66, 67, 191, 192, 202, 233, 273; fire, 82; leaf-cutter, 105
- aposematism: J. J. Weir's experiments confirming, 297; Wallace's theory of, 297, 384
- Arabian Peninsula, 140
- Arawak, Arawakan peoples, 92, 101
- Areca catechu* (Areca palm), 144
- Arenga saccharifera (A. pinnata)* palm, 190, 215
- Arfaki people, 230–31
- Arfak Mountains, New Guinea, 229
- Argyll, Duke of, 286, 302, 338, 347; eye-spots as evidence of design argument, 441n20
- Aru Islanders, 197, 202–5
- Aru Islands, 158, 193, 194, 195, 197, 198–99, 200, 205, 207, 228; bird-hunters, 200, 203; bird of paradise observations at, 202, 203; collections made on, 200–201, 207, 212; former connection to New Guinea of, 205–6, 213; river-like channels of, 205–6; Wallace's residence at Dobo village, 197, 198; Wallace's residence at Wanumbai village, 202–6; Wallace's thought experiment, 213–15; Wokam Island, 200, 218
- astronomy, Wallace's interest in, 30–31, 33, 45, 88, 195, 399, 403, 404, 405, 427n40
- Aust, 8, 9; Beachley-Aust ferry, 9
- Australia: affinity with eastern island fauna of, 184, 185, 186, 194, 214, 237, 272, 289; dry monsoon winds from, 217; former connection with New Guinea of, 214–15, 250–51; and hypothesized former Pacific continent, 250–51; notes on geological uplift of, 156; tectonic plate of, 181, 189, 217, 229, 254, 272, 278, 280; Wallace's cousins in, 86, 94; Wallace's offer of travel to, 135; Wallace's plans to lecture in, 357, 358, 359, 481n40
- Awaiya, Seram, 257, 258
- Ayer Panas, 148, 149
- Babirusa (*Babyrousa celebensis*), 246, 255, 271
- Bacan (Batchian) Island, 234, 236, 239, 246, 249, 269; collecting successes on, 243–44, 247
- Baderoon (collecting assistant), 191, 200, 201, 202, 207
- Bali (Baly) Island, 176, 185, 195, 209, 288; description, 178–80; faunal discontinuity with Lombok, 185–86, 188, 230, 250, 289, 336; geology, 179. *See also* Wallace Line
- balsam of capivi, flammability of, 118
- Banda Arc, 217, 218, 257, 272
- Banda Neira Island, 216, 217, 218, 272
- Bangka Island, 276, 282
- Baniwa/Walimanai peoples, 92, 93, 94, 96, 98, 101
- Banteng (*Bos javanicus*), 179
- Barbour, Thomas, 282; chance meeting of Ali, 282–83
- Baré peoples, 95, 98
- Barton, Barton-le-Clay, 25, 26
- Baso (collecting assistant), 191, 202
- Batavia. *See* Jakarta
- Batchian. *See* Bacan Island
- Bates, Henry Walter: in Amazonia, 66–70, 78, 79, 80, 103, 116, 124, 133, 208; correspondence with Wallace, 51–52, 53, 56–57, 58, 127, 131, 208, 209, 212, 270–71, 281, 325, 330; death, 376; and death of Herbert Edward Wallace, 103, 435n35; discovery

- of Batesian mimicry, 131, 282, 437n24;
early publications of, 428n4; friendship
with Wallace, 43–44, 46, 51, 52, 56, 57, 58,
80–81, 432n37; marriage, 298; plans to
study “origin of species,” 58–59, 127; plans
to travel to Amazonia, 60–64. *See also*
butterflies, longwing; mimicry
- Batesian mimicry. *See* mimicry
- bats, 253; flying fox (*Pteropus vampyris edulis*),
166; vampire, 71, 107
- Batur, Mount (Gunung), 179
- Bêche de mer, 197
- Bedford Canal. *See* flat-earth wager
- Bedfordshire: apprentice surveying in,
23–28; geology of, 26
- beetles, 49, 52, 53, 68, 77, 78, 145, 146, 167, 188,
199, 218, 234, 254, 273, 285; Act, 45; click,
74; dung, 58; flower (Cetoniinae), 58;
goliath, 58; harlequin, 97, 99; long-horned
(Cerambycidae), 145, 162, 166, 167, 219;
scarab diversity in the British Museum,
58; Wallace’s interest in, 43, 44, 46, 407–8;
weevils (Curculionidae), 163, 219; wood-
boring (Buprestidae), 219
- Belakang tana, 197 (defined), 198
- Belém (Pará), 65–66, 69, 73, 74, 84, 102, 110,
115, 116–17, 128, 143, 144
- Belemnites, 9, 26, 402
- Bellamy, Edward, 386–87, 389, 390; *Looking
Backward: 2000–1887*, 386–88
- Bengal (ship), 140
- Bengoh Basin, 170
- Bernardo (human trafficker), 107
- Besir (Bessir), Gam Island, 266, 268
- Bethnal Green, 318, 319
- Bicheno, James Ebenezer, 33
- bichos do pé (*Tunga penetrans*), 107
- Binaia, Mount (Gunung), 257
- birds of paradise: Aru Islanders hunting of,
200, 203; Great (*Paradisaea apoda*), 202,
212, 452n55; King (*Cicinnurus regia*), 201,
271, 452n55; Lesser (*Paradisaea minor*),
231, 271, 284; Magnificent (*Cicinnurus
magnificus*), 271; mythology of, 198–99;
and plume trade, 451n47; Red (*Paradisaea
rubra*), 229, 266; Wallace notebook entries
on, 461n44; Wallace’s Standardwing
(*Semioptera wallacii*), 243; Wallace’s
transport to England of live, 284–85
- Blake, William, 10, 146, 372
- Blyth, Edward, 211
- “Boatload of Knowledge,” 21, 425n6
- Boer War, Second, 400
- Bonaparte, Charles Lucien, *Conspectus
Generum Avium* of, 154, 175
- Bonpland, Aimé, 95, 96
- Borneo, 134, 135, 151, 161, 214; Dyaks of,
151, 164, 167, 168–69, 170, 171–73, 205;
Rajah Brooke and, 151–52, 200; Sadong
River, 161, 162, 168; Santubong Mountain,
153, 157, 168, 170, 173; Simunjan, 161–62,
165, 166, 168, 218; Wallace’s travels in,
161–73
- Borobudur Temple, Java, 277
- Botanical and Experimental Garden,
Singapore, 144, 440n6
- brancos, defined, 68
- Brandão, Antônio José, 81, 82, 83, 84
- Brandão, Senhorita, 83, 84; Wallace’s
contemplated marriage to, 83–84
- Brecon Beacons, 2, 29, 49; Brecon Beacons
National Park, 7, 53
- Bristol Channel, 2, 47
- British Association for the Advancement
of Science (BAAS), 34, 286, 287, 325, 326,
327, 334
- British Borneo Company, 161
- British Guiana. *See* Guyana
- British Museum, 19, 57, 58, 61, 125, 126, 128,
134, 247, 286, 311, 312, 396; Botanical
Room of, 125
- Broadstone, England, Wallace’s gravesite at,
408, 415
- Brooke, Sir James, 135, 151, 152, 153, 163, 168,
176, 200, 208; cottage on Mt. Serumbu,
171–72, 173, 446n65; discussions with
Wallace on transmutation by, 153, 175–76;
dubbed Rajah of Sarawak, 151

- Bryn-coch farmhouse, Wallace's residence at, 30
- Buffon, Comte de, Georges-Louis Leclerc, 186; Buffon's Law, 186, 187
- Bugis peoples, 142, 143, 189, 197, 260, 262, 269
- Bujon (assistant), 168
- Bukit Timah, Singapore, 145, 146, 152, 161; geological fault, 147
- Buleleng, 178, 179
- Buru Island, 195, 270, 271, 273, 274, 278, 280
- Burung cenderawasih, 197 (defined), 198
- Burung mati, 198 (defined), 207
- Burung raja, 201 (defined)
- butterflies, birdwing (*Ornithoptera*/*Trogonoptera*, *Troides*): Golden birdwing (*O. croesus*), 244; Green birdwing (*O. priamus poseidon*), 199, 212, 259; Rajah Brooke's birdwing (*O. brookeana*), 163; Rippon's birdwing, (*Troides hypolitus*/*O. remus*), 191–92
- butterflies, general: Morphos, 61, 66, 73; Wallace's paper on mimicry in swallowtails, 290–91. *See also* butterflies, birdwing; butterflies, swallowtail
- butterflies, longwing (*Heliconiinae*), 68, 69, 129, 130, 131, 282, 290, 436n20; Bates' discovery of mimicry in, 131, 282, 290–91, 347; Wallace's transmutational theory of, in "Butterflies of the Amazon Valley" paper, 130–31
- butterflies, swallowtail (*Papilionidae*), 154, 192; *Papilio blumei*, 254; *P. coon*, 281; *P. memnon*, 281; *P. odysseus*, 245; *P. peranthus*, 188; *P. telemachus*, 245; *P. ulysses*, 219; Wallace's discovery of mimicry in, 281–82, 291, 466n38
- Byron, Lord, 13, 190
- caapi, 105, 434n27
- Cabanagem, 76, 79, 83, 88
- caboclos, 68, 76 (defined)
- cachoeiras, 108 (defined), 111, 112, 113, 114
- Cairo, 139; Waghorn, Thomas Fletcher and Cairo-Suez road, 140
- California redwoods. *See* sequoias (*Sequoiadendron giganteum*)
- Caloenas nicobarica*, 246
- Calyptomena viridis*, 148
- Capim River, 73
- Carapanas people, attack on, 114
- Carter, Joseph, 183, 185
- Carurú, 111, 112, 114
- Casiquiare Canal, 95–96. *See also* Humboldt, Alexander von
- Catopuma badia*, 163
- caxiri, 102 (defined), 103, 105
- Cedrela odorata*, 67
- Celebes. *See* Sulawesi Island
- Cephalopterus ornatus*. *See* umbrella bird
- Cepora temena tamar*, 180
- Ceram. *See* Seram
- Cerrado grasslands, 67
- Chagas (trader and human trafficker), 114
- Chalicodoma pluto*. *See* Wallace's giant bee
- Chambers, Robert. *See* *Vestiges of the Natural History of Creation*
- Channel, Bristol, 47; English, 123, 284, 325, 402
- Chartist movement, 38, 46
- Church of England, 13, 54
- Cicindela (Thoeputica) gloriosa*, 254
- cipó, 105 (defined), 111
- civet cat (*Viverra zibetha*), 246
- Clarendon, Lord, 136
- Clarke, William, 14, 424n13
- Clerke, Agnes Mary, 404, 492n82
- Cock-of-the-rock (*Rupicola rupicola*), 91, 93
- Cocos/Keeling Islands, 187, 449n27
- Coleridge, Samuel Taylor, 122
- Colombia, 79, 91, 95, 101, 104, 113
- colonialism, in relation to explorer-naturalists, 62–63, 80, 166, 179, 232, 237–38, 431n4, 447n2
- Combe, George, 35, 40
- Cooper, Thomas, 38
- coracle, 5, 6
- Corfe View, Parkstone, Wallace's residence at, 374–75, 385, 400; orchid houses of, 385
- Corn Laws, 37; Anti-Corn Law League, 38. *See also* Reform Acts

- Cotton Mills and Factories Act, 20
- Coulson, Robert, 161
- Coupang. *See* Kupang (Coupang), Timor
- Cramer, Pieter, 192, 449n33
- Croll, James, astronomical theory of ice ages, 393–94
- Crutwell, Clement Henry, 12
- Crystal Palace: Sydenham, 63, 134; museum of man exhibition of, 134, 438n37, 439n38
- Cueretu peoples, 101
- Cymbirhynchus macrorhynchus*, 148
- Darwin (née Wedgwood), Emma, 155, 238
- Darwin, Charles: correspondence between Wallace and, 208–9, 212, 227, 238, 241, 245, 246, 322, 346; critique of Charles Lyell by, 155; critique of continental extensionism by, 251; death of, 347, 348; disagreement with Wallace over human evolution, 305, 308, 310; discovery of natural selection by, 226, 256; early inspiration to Wallace, 31, 32, 57, 116; efforts to secure Wallace's pension by, 334–35, 338; friendship with Wallace of, 304, 322, 361; *Journal of Researches/Voyage of the Beagle*, 31, 32, 57, 116, 182; Lyellian geology of, 182; *On the Origin of Species*, 246, 255, 258, 376; receipt of Wallace's essay by, 455–56n29; residence in London of, 17, 19; study of orangutan by, 164; *The Descent of Man*, 295, 307, 311, 390; theory of sexual selection of, 389–90; transmutationist thinking of, 17, 155, 177; unpublished transmutation manuscript of, 155. Wallace's dedication of *The Malay Archipelago* to, 304–5. *See also* Darwin-Wallace papers
- Darwin, Erasmus, brother of Charles, 17; grandfather of Charles, 414
- Darwin-Wallace papers: reading of, 228, 238–40; death of Darwin's infant son Charles Waring, 228, 238. *See also* Linnean Society of London
- Defoe, Daniel, 8, 13
- deism, 22, 54, 55
- Dell, The, Grays, Essex (Wallace's residence), 320, 321, 322, 473n27
- Derbyshire, 395; Duke of, 63
- Deroptylus accipitrinus*, 109
- Desana/Umukomasā people, maloca of, 101
- Devon, Devonian period, 2, 27, 29, 52
- Dickens, Charles, 4, 13, 39, 306
- Dissenters, 13, 46
- Dobo (Dobbo), 197, 199, 200
- Dodinga, Halmahera, 222, 223, 224, 455n29; discovery of natural selection at, 223–27
- Donati, Comet, 241; Giovanni Battista, 241–42
- Doubleday, Edward, 61, 450n33
- Draper, Louisa, 16; Richard, 16
- Duivenbode, Maarten Dirk van, 221, 229, 233, 234
- Dunstable Chalk, 28; Downs, 26
- durian (*Durio*), 164, 171, 172, 173; Wallace's paeon to, 446n63
- Dyak, 151, 163, 164, 165, 166, 167, 170, 172, 173, 204, 205, 234, 308; bamboo bridges of, 169, 169, 172; Land, 168, 171; Sea, 168, 171
- Earl, George Windsor, 289, 457n58
- earthquake, 53, 182, 220, 221, 222, 229, 234, 245, 248, 252, 253, 268, 280, 286, 463n11; Wallace's experience of, 253
- East India Company, British, 62, 143, 144, 151; Straits settlements of, 143, 151, 178
- East India Company, Dutch (Vereenigde Oostindische Compagnie, VOC), 179, 218, 221, 276, 447n2, 448n12; forts of, 140, 189, 218, 221; history of, 178–79, 447n2
- Eastwood, Alice, 371
- Economic reform, Wallace's advocacy for, 350, 363, 490n55
- Edwards, William, 60–61, 62, 65, 66, 80, 363
- eels, electric (*Electrophorus electricus*), 91; Wallace's paper on, 128
- Egerton, Sir Philip, satirical poem *Monkeyana* by, 287
- Egypt, Wallace's impressions of, 138–40
- Elaphomyia*. *See* Antler flies

- Ellora* (steamer), 284
Emeu (steamer), 282, 284
enclosure: enclosure laws, 23–24, 38, 46, 332, 353, 357
environmentalism, environmental ethic:
inspired by Humboldt, 330–31; Tropical Nature, and Other Essays, 328, 331; and Wallace’s holistic vision of nature, 329–30. *See also* Marsh, George Perkins
Epping Forest, 331–32; Wallace’s candidacy for superintendent position of, 332–34, 335, 370
espías, defined, 111, 114
Essay on Population. *See* Malthus, Thomas Robert
Esther Helena (schooner), 229
Ethnological Society of London, 196, 292, 294; schism with Anthropological Society, 292, 294, 467n44
eugenics, 391–92; Wallace’s opposition to, 393, 490n52
Euxine (steamship), 136, 138
Eyton, Thomas, 258

Falconer, Hugh, 259
farinha, 96 (defined), 102
Fernandezia, 74
ferns: Annie’s love of, 395; Christmas ferns (*Polystichum acrostichoides*) collected in US, 367; *Dipteris horsfieldii*, 149; *Matonia pectinate*, 149; tree, 92, 154, 247
festa, 91 (defined), 93, 98, 100, 104
Fforest Fawr. *See* Geopark
fish, Amazonian, Wallace’s sketches of, 81, 91, 92, 97, 100, 101, 104, 108, 109, 115; acara, 95; drawings of saved from the Helen, 118–19; *Gymnotus* knife fish, 100; *Heros severus*, 92; *Hypostomus plecostomus*, 92; pacu, 111; pirahíba, 87; pirarucu, 71; planned book on, 116; *Pterophyllum altum*, 92; seed dispersal by, 82, 90; tambaqui (*Colossoma macropomum*), 83; tucunaré, 95
flat-earth wager: debacle over, 315–17, 472n20; Hampden, John, 315, 316, 351, 403
Forbes, Edward, 157, 158, 160, 251, 342, 427n39
forts, British: Canning, 144, 441n6; Dutch, 140; Forte de Nossa Senhora da Anunciada, 218; Forte do Presépio, 65; Oranje, 221; Portuguese, 79, 222, 273; Rotterdam, 189; Victoria, 218
Frei Jozé dos Santos Innocentos, 93
friarbirds, 184, 185; speculations on range limits of, 185
Frolic, HMS, 135, 136

Gading, 148
Galeopterus variegatus (Colugo), 282, 464n17
Galton, Francis: and eugenics movement, 391–92; experiments refuting pangensis, 381, 383, 487n23. *See also* eugenics
Gam (Gagie) Island, 266, 268
Gamalama, Mount (Gunung), 220, 221
gambir (*Uncaria gambir*), 144; plantations, 148
gapó, igapó, 81 (defined), 82, 90
Geach, Frederick, 272
geographical distribution, 108, 156, 250, 281; bearing on geological history, 174, 249, 252, 370; bearing on the “species question,” 78, 127; Buffon’s Law and, 186, 187; and east Asian–eastern North American connection, 187; exhorting naturalists to pay attention to, 126–27, 290; *The Geographical Distribution of Animals*, 322–23, 330; and human races, 195–96, 207, 236–37; illustrated in museum exhibit design, 364; insight into transmutation provided by, 256; *Island Life*, 335–37; and Malayan Papilionidae, 466n38; “Monkeys of the Amazon” paper, 126, 157, 281; of palms of the Amazon, 97; in relation to historical geological processes, 130, 153, 270, 325; and the Sarawak Law, 159, 225, 229, 236; Wallace’s interest in collecting data on, 108, 126–28. *See also* riverine barrier hypothesis; Wallace Line
geology: Wallace’s analysis of Lyell’s *Principles of Geology*, 154–55, 157–60, 209–10, 213–15, 225–26; Wallace’s early interest in, 26–27, 29, 35, 52, 53, 57; Wallace’s interest in glaciation and, 325, 393; Wallace’s interest

- in Malay Archipelago, 162, 171, 172, 181–82, 194, 216, 217, 229, 252–54, 260, 289; Wallace's interest in North American, 364, 370; Wallace's interest in relation to species, 69, 129–30, 155; Wallace's interest in South American, 68–69, 77, 90, 94, 106, 111, 127–30; in Wallace's Sarawak Law paper, 157–58. *See also* Aru Islands; glaciation
- Geopark: Fforest Fawr, 53; Rinjani-Lombok, 183
- George, Henry, 344–45, 350, 353, 479n11; *Progress and Poverty*, 344–45. *See also* Land nationalization
- Gilolo. *See* Halmahera (Gilolo) Island
- glaciation, glaciers, ice ages, 11, 27, 42, 45, 53, 279, 325, 336, 337, 364, 370, 374, 395, 426n24; astronomical theory of, 394–95; cycles of, 383, 393; erratic boulders deposited by, 26–27, 28, 29, 52, 426nn23–24; moraine, 331. *See also* Croll, James, astronomical theory of ice ages
- Glamorganshire, 28, 30
- Gondwanaland, 67
- Gould, John, 185, 286
- Goura victoria*, 232
- Gowa, 189
- Graphium wallacei*, 247
- grasslands, 67, 331; Wallace's competition hypothesis, 222–23
- Gray, Asa, 186–87, 228, 238, 361–62; Grays Peak, 371
- Gray, George Robert, 243
- Gray, John Edward, 286
- Grays, 319, 321, 322, 325. *See also* The Dell
- Great argus pheasant (*Argusianus argus*), 150; eyespot evolution of, 441n20
- Great Awakening, 21
- Great Conservatory, Chatsworth, 63, 64, 78; Paxton, Joseph, Chatsworth greenhouse design by, 63
- Great Exhibition, 63
- Great Hippocampus Question, 287
- Great London Exposition, 285
- Great Reform Act of 1832. *See* Reform Acts
- Greenell, Mary Ann. *See* Wallace, Mary Ann
- Greenell, Rebecca (grandmother), 8
- Grobby Reverse Fault, 42
- Gryphaea*, 26
- Guamá River, 65, 72, 73
- Guia, Nossa Senhora da, 87, 91, 93, 99, 100, 102, 108
- Guiana Shield, 77, 88, 90
- Guyana, 32
- Gypaetus barbatus*, 140
- Hale, Richard, 12; School, 13
- Hall of Science, 19–20, 22, 23
- Halmahera (Gilolo) Island, 207, 220–21, 227, 235, 237, 238, 256, 268, 269, 293; boundary of Malay and Papuan discovered at, 237, 293; collections on, 235, 256, 280; discovery of natural selection on, 223, 224, 455n29; tsunami experienced at, 268
- Hampden, John. *See* flat-earth wager
- Hanover Square, 126, 299
- Haughton, Samuel, 296, 348
- headhunting, 151, 167, 168, 170, 228, 230, 248
- Helen* (brig), 117, 122, 131, 373; burning at sea of, 118–21, 122; rescue by the *Jordeson*, 122–23; Wallace's material saved from the, 118–19, 128
- Henslow, John Stevens, 258
- Herschel, John, 35, 78, 302, 303
- Hertford, England, 3, 8, 9–12, 14, 17, 27, 29, 37, 424n12; Hertfordshire, 6, 9; Richard Hale School, 12–13
- Hewitson, William, 153
- Hill, Abraham, 39–40
- Hislop, Captain, 76
- Hoddesdon, 17, 36, 37
- Hooker, Isabella Beecher, 362
- Hooker, Joseph Dalton, 133, 155, 176, 228, 238, 239, 240, 241, 256, 258, 295, 296, 322, 334, 335, 407; dedication of *Island Life* to, 337–38; pallbearer at Darwin's funeral, 348; role in reading of Darwin & Wallace papers, 238–39, 245; and Wallace's Civil List Pension, 334–35, 478n74
- Hooker, William Jackson, 62, 67, 70, 74, 132, 171, 173

- hornbills (*Buceros*), 278; *B. bicornis*, 282
- Humboldt, Alexander von, 35, 45, 46, 57, 60, 65, 66, 71, 81, 90, 94, 95, 106, 113, 116, 117, 127, 224, 237, 278, 329; exploration of Casiquiare Canal by, 95–96; inspiration to Wallace, 45–46, 71, 330–31, 475n48
- Hunt, James, 292, 293, 294, 467n44, 469n56
- Hurstpierpoint, 301, 304
- Huxley, Thomas Henry, 259, 286, 291, 292, 293, 294, 296, 298, 301, 303, 305, 312, 315, 318, 321, 325, 326, 327, 338, 348, 358, 376, 378, 379, 386, 468n52; Hippocampus debate with Owen and, 287–88, 465nn27–28; Wallace Line, 289; X-club, 312, 315, 335, 471n12
- Iauarité (Jauarité), 104, 105, 108, 111, 114
- ice ages, astronomical theory of. *See* glaciation; glaciers
- igarapés, 75, 106
- imperial science, 62, 144, 312
- inclosure, Inclosure Act. *See* enclosure
- Indo-Malayan and Australo-Malayan regions, 276, 289. *See also* Wallace Line
- infidel halls. *See* Hall of Science
- Ipanoré, 103, 105, 107
- Ireland, Great Famine of, 46, 341; Land Leagues of, 342, 343
- Isidoro (assistant), 66
- Islands, oceanic and land-bridge, 251 (defined), 337, 366; *Island Life*, 335–38
- Itacoatiara (Serpa), 79, 93
- Jackson, Philip, 143–44
- jaguar (*Panthera onca*), Wallace's encounter with, 97
- Jakarta (Batavia), 179, 256, 278
- Jardin des Plantes, Wallace's visit to, 58
- Jauarité. *See* Iauarité
- Jáú National Park, 88
- Java, 176, 179, 180, 181, 185, 274, 276; Gamelan performance on, 277; hominid fossils of, 463n4; temples of, 277; Wallace's explorations on, 276–80
- Javita. *See* Yavita
- Jekyll, Gertrude, 359, 367
- Jesuino, Lieutenant (human trafficker), 114
- Jevons, William, 49, 50
- John Street, London, 19; Hall of Science, 19, 20; Institute, 22
- Jones, Matthew, 50
- Jordeson* (ship), rescue by after Wallace's shipwreck, 122–23, 133
- Jukes, Joseph Beete, 156
- Jumaat (collecting assistant), 229; death of, 233
- Juno*, HMS, 135, 136, 439n41
- Juquira, 105, 107
- Kabaema, 195
- Kai-Besar (Ké) Islands, 195–96, 197, 262
- kampung (defined), 148
- Kayan, 168; sandstone, 153, 170
- Kayeli (Cajeli), 272, 273, 274
- Ké Islands. *See* Kai-Besar Islands
- Kembang Djepoon* (barque), 178, 179
- Kensington Cottage, Usk, 1, 3
- Kew, Royal Botanic Gardens at, 62, 74, 112, 124, 128, 321, 334, 339; biogeographical collections at, 476n60; Museum of Economic Botany at, 67, 438n31
- Kilwaru Islet, 260, 262
- Kim Soon Hin* (schooner), 147
- kingfishers, 73, 148, 185, 202, 259; *Caridonax*, 187; *Ceyx cajeli*, 273; *Ceyx rufidorsa*, 185; *Halcyon (Caridonax) fulgidus*, 185; *Tany-siptera galatea acis*, 273
- Kingsley, Charles, 286, 287; “Great Hippopotamus Test,” 287, 465n27; The Water Babies, 287
- Kington, 6, 28, 30; Mechanics' Institute, 34, 428n43
- Klabat, Mount (Gunung), 254
- Koninklijke Paketvaart-Maatschappij, 197
- kora-kora, 221 (defined)
- Kótirya people, 112
- Krakatau (Krakatoa) Island, 181, 182
- Kubeo (Kubéwa) peoples, 113, 114

- Kuching, Sarawak, 151, 152, 168, 171, 172;
Kuching Zone, 153, 442n28
Kupang (Coupang), Timor, 216, 217, 252, 253
- Labuan Island, 143, 151, 170
Labuan Tring. *See* Lembar Bay
Lacaille, Nicolas-Louis de, 55, 430n34
La Coquille (ship), 231
Lahagi (collecting assistant), 229, 241
Lahi (assistant), 241
Lamarck, Jean-Baptiste, 54; Lamarckian inheritance, 381, 390; Lamarckian transmutation, 155, 176, 382
Land Dyaks. *See* Dyak
land nationalization: and the Irish land problem, 339; *Land Nationalisation* (book), 349; Land Nationalisation Society, 339, 344, 358, 384; Sutherland Evictions and, 349; and Wallace's advocacy for, 346, 349–50, 353, 393. *See also* George, Henry
languages, evolution, 196; Indigenous vocabularies collected by Wallace, 98, 100, 105, 113, 132, 134, 260; Wallace's interest in origins of, 345, 346; Wallace's lecture on, 366
Latchi (assistant), 241
Latham, Robert Gordon, 134, 237, 438n37
Lawrence, William, 57
Leavens, Charles, 67
LeConte, Joseph, 362, 369
Ledang, Mount (Gunung), 149
leeches, 37, 149, 232
Lee Kong Chian Natural History Museum, Wallace and Ali statue at, 244
Leicester, England, 39, 43, 44, 47, 51, 63; anti-vaccination demonstration of 1885, 481n34; Bates' residence in, 43, 51; Collegiate School, 39, 41; Literary and Philosophical Society, 44, 45; Mechanics' Institute, 40, 43, 44, 45, 429n6; Wallace meets Bates in, 43, 46; Wallace's residence in, 39–47
Leicester Square, 18, 19
Leighton Buzzard, 25, 28
leks, lekking, 93, 201, 202
Lembar Bay, 185, 186
Leopoldina palms, 97, 438n31
Leslie, Marion, broken engagement with, 298, 302
Lesser Sunda Islands, 181
Lesson, René Primevère, 231
Library of Useful Knowledge, 26
Lima, João Antonio de, (trader and human trafficker), 86, 87, 88, 91, 94, 100, 101, 104, 107, 110
Lindley, John, 31; *Elements of Botany*, 31, 32, 427n33
Linnaeus, Carl, 129, 150, 198, 201, 219
Linnean Society of London, 33, 124, 156, 178, 252, 291; medals awarded to Wallace by, 385, 407; reading of Darwin and Wallace papers at, 228, 240, 245, 258, 407, 408
Literary and Improvement Society of Working Men, 51
Literary and Philosophical Society, 44, 45
Llanbadoc, Wales, 1, 3; Llanbadoc Fault, 1–2
Loisa (assistant), 229
Lombok Island, 176, 183, 184, 185; gardens of, 187; travel to Kopang village on, 187; Wallace's observations on differences in avifauna of, 188
Lonchocarpis utilis, source of timbo, 91
London, 4, 9, 13, 16, 17, 18, 20; Owenite societies of, 22, 23; Wallace's early life in, 17–23, 36, 37
Loudon, John, 31, 34
Lowell, Augustus, 358; Lowell Institute, Boston, 358; Wallace's lectures at, 360, 361, 362, 363
Lowell, J. Russell, pallbearer for Darwin, 347–48
Lowell, Percival, 405–6, 492n87; *Mars and Its Canals*, 406
Lubuk Rahman, 280, 281; Wallace's passangrahan in, 464n12
Luiz (collecting assistant), 72
Lupar Line, Sarawak, Kuching and Sibul Zones of, 153

- Lyell, Sir Charles, 29, 33, 60, 71, 155, 161, 176, 181, 182, 211, 246, 296, 298, 310, 315, 318, 319, 334; anti-transmutationism of, 209–10; role in reading of Darwin and Wallace papers by, 227–28, 238–39, 240, 245, 256, 295
- Lyellian geology, 182, 205, 251, 376; gradualism, 343. See also *Principles of Geology*
- Macassar. See Makassar
- Macassar (steamer), 272, 282
- Macassar oil, 290
- Maclure, William, 21
- Maen Llia, 29–30
- Majapahit Empire, 276
- Makassar (Macassar), 174, 175, 176, 177, 180, 187, 189, 190, 194, 206, 207, 212, 215, 274, 276
- Makian Island, 220, 269; fierce squalls off of, 269
- Malacca, 143, 147, 148, 150; Strait of, 141, 142; Wallace's collecting in, 148, 150–51
- malaria, 99, 144; Wallace's bouts of, 110, 114, 116, 148, 223, 283
- Maleo birds (*Macrocephalon maleo*), 255, 256
- malocas, 101, 102–3, 104, 105, 106, 107, 111, 112, 114; Aracapuri, 113, 114; Desana/Umukomasã, 101; Kótirya, 112; Uarucapuri, 113
- Malta (steamer), 284
- Malthus, Thomas Robert, 23, 46, 256; *Essay on Population* of, 223; Malthusianism, 224
- Maluku Islands, 218, 220, 456n42
- Mamajang, 191, 193, 207
- Manado (Menado), 252, 254, 255, 256, 274, 280, 293
- Manao, Manaós, 80, 90
- Manquiri, 81, 82, 83
- Manaus (Barra), 61, 79, 80, 81, 83, 84, 87, 90, 91, 93, 99, 100, 101, 103, 107, 108, 109, 110, 114, 115
- Manguari, 66, 67
- Manuel (collecting assistant), 183, 184
- Maori (schooner), 215
- maps, mapping, of Rio Negro, 114–15, 133–34; in relation to geographical distribution, 126, 127, 128, 160, 288
- Marajó Island, 71, 75; River, 65
- Maros, Sulawesi, 215; Maros-Pangkep karst, 216
- Mars, *Is Mars Habitable?*, 406; Wallace on question of life on, 405–6, 492n87; Wallace's observations of, 405. See also Lowell, Percival
- Marsh, George Perkins, 330; *Man and Nature: Or, Physical Geography as Modified by Human Action*, 330–31; and Wallace's environmental ethic, 330
- marsupials, 159; Molluccan cuscus (*Phalanger ornatus*), 202, 246; sugar glider (*Petaurus breviceps*), 246; tree kangaroos, 230, 231, 232
- Mataram, 180, 183, 185, 187, 188
- Mauduit, Father Anatole, 145, 152, 175
- Mauritia aculeata, 90, 97; *M. gracilis*, 90
- mechanics' institutes, 19–20, 26, 60, 223, 312, 358, 424nn1–2
- megapodes, *Megapodius*, 185–86; nesting behavior of, 186
- Meja, Mount (Gunung), 229
- Meldola, Raphael, 346, 376, 379; Meldola's blue, 346
- Mesman, Willem, 190, 193, 194, 207, 215
- mesmerism, 40–41, 299, 300, 306, 309, 326; Franz Mesmer, 40; George Combe, *Constitution of Man*, 41
- mias, 163 (defined)
- Mill, John Stuart, 341; and Land Tenure Reform Association, 341–42, 478n7
- Miller, Mr., 103, 109, 434n25
- mimicry, 184, 290, 347; Batesian, 131, 282, 290, 347, 437n24; and language evolution, 345–46, 479n13; Müllerian, 347, 437n24; Wallace's research on, 290–91, 297, 310, 382
- Mischief (barque), 63
- Misool (Mysol) Island, 259; Charles Allen collecting on, 262–63, 271
- Mitchell, Maria, 366
- Mitten, William (Wallace's father-in-law), 301, 367, 393, 395
- Mohnike, Otto Gottlieb, 218, 220, 252

- Molucca Islands, 134, 218, 257, 271, 274
- Moluccan Sea Collision Zone, 220
- Monmouthshire, Wales, 4, 7, 8; as disputed territory, 7–8
- monogenism, 196, 237, 292, 295, 450n42
- montaria, 75 (defined), 76, 86
- Monte Alegre, 75, 76–77, 78, 79
- Muir, John, 369, 370; Wallace's inspiration of, 370
- Muka, 265, 266, 267
- Müller, Fritz, 347
- Müllerian mimicry. *See* mimicry
- Murchison, Sir Roderick Impey, 27, 35, 134, 136, 288, 426n28
- Murray, John, sends Wallace a copy of *On the Origin of Species*, 258
- Museum of Comparative Zoology, Harvard, 364, 483n61
- Museum of Economic Botany, Kew, 67, 438n31
- Museum of Natural History, Oxford: Acland and Ruskin's design of, 286; Huxley-Wilberforce Debate at, 286
- Museums Act, 45
- Natterer, Johann, 72, 92, 109, 116, 434n28; daughter of, 92
- natural selection, 73, 133, 270, 279, 280, 281, 288, 291, 336, 346, 377–78, 390; Darwin's discovery of, 155, 176, 211, 238, 256, 257; Darwin's planned book entitled, 246; hybrid sterility and, 378–80; Wallace's defenses of, 288, 299, 302, 310, 314, 382, 394; Wallace's discovery of, 211, 223–27, 362, 376; Wallace's theory of human evolution by, 293–96; Wallace's theory of limitations of, 305, 306–10; Wallace's theory of sexual dimorphism and, 297, 331
- Nazaré, 66, 72
- Neath, Glamorganshire, 30, 32, 33, 47, 49, 57, 63, 116; Alfon Pyrdain, 52; Disturbance, 53; Ironworks, 72; Mechanics' Institute, 50–51; Vale of, 29, 49, 52–53
- Neblina, Massif, 95; Pico de, 95
- Negro, Rio, 79, 80, 81, 87, 88, 124, 127; fish of, 97, 101; Wallace's admiration of the Indians of, 97–99; Wallace's ascent of, 87–100; Wallace's map of, 115, 133, 134
- New Guinea, 207, 229, 232, 261; headhunters of, 263; Manokwari, 229, 230; Papuan peoples, 194, 207, 230–31, 238; Waigeo, Wallace's attempts to collect at, 265. *See also* slavery
- New Harmony, Indiana. *See* Owen, Robert; Owenite communities
- New Lanark, Scotland. *See* Owen, Robert; Owenite communities
- Newman, Edward, 52, 125, 135, 286
- Newton, Alfred, 286, 298, 322
- ngayau, 168 (defined)
- Nias Island, uplift of, 187, 448n8
- Nolloth, Captain Matthew, 135
- Nossa Senhora da Guia, 91, 93, 99, 100, 102, 108
- Nunes, Senhor, 77
- nutmeg (*Myristica fagrans*), 144
- Nutwood Cottage, Frith Hill, Godalming, Wallace's residence at, 339, 340, 373, 374
- obá, 112 (defined), 114
- Ocoki tree. *See* *Pouteria ucuqui*
- Ocotea cymbarum*, 96
- Old Cross, Hertford, Wallace family residence at, 10, 12, 14, 15, 16
- Old Orchard, Broadstone, Wallace's final home of, 402, 403
- Ophir, Mount. *See* Ledang, Mount (Gunung)
- orang kaya, 170 (defined), 200, 260, 265, 269
- orangutan, 153, 161, 163, 236, 444n51; Jenny the, 164; Wallace's hunting of, 163–65, 173; Wallace's orphaned infant, 164, 165
- orchids, 106; *Caeloglyne*, 166; *Fernandezia*, 74; *Oncidium*, 82; *Vanda (Dimorphorchis) lowii*, 160; Wallace's garden and greenhouse and, 375, 395, 485n3
- Orinoco River. *See* Rivers/Rios; Venezuela

- Oriolus chinensis broderipi*, 184
Ornithoptera. See birdwing butterflies
Owen, Robert, 20, 23, 387, 388; influence on Wallace of, 22–23
Owen, Robert Dale, 22–23
Owen, Sir Richard, 259, 286, 312; scathing review of *On the Origin of Species* by, 259
Owenism, Owenite, 20–23, 33, 34, 35, 56, 99, 167, 224, 296, 311, 315, 340, 386; John Street Institute, 22
Owenite communities, 388; New Harmony, 425n6; New Lanark, 20–21
Oxford: Darwin statue at, 394; 1860 BAAS meeting at, 286; Wallace's honorary doctorate from, 384. See also Museum of Natural History, Oxford
- pacu, 109, 111
Padang (steamer), 216
Paine, Thomas, 22, 23, 56, 94; *Age of Reason* by, 22, 94; Paineite, 56
Palembang, 280, 281, 282
Pandanus, 216, 247
pangenesis, Darwin's theory of, 381, 383, 487n23. See also Galton, Francis
Pará. See Belém
pardos, 68, 76 (defined)
Pareronia tritaea, 191
Parintins (Vila Nova da Rainha), 79
parrots and relatives, 68, 81, 87, 113, 114, 115, 119, 206, 297; black-headed (*Pionites melanocephalus*), 106, 109; blue macaw (*Araruna*), 68; rajah lory (*Chalcopsitta atra*), 220; red-fan (*Deropytus accipitrinus*), 109; red-flanked lorikeet (*Hypocharmosyna placentis*), 235; yellow-throated hanging (*Loriculus pusillus*), 278
Pascoe, Francis Polkinghorne, 250, 288
Penang, 140, 143, 284; Penang Hill, 141
Peninsular & Oriental (P&O) Company, 136, 140, 282, 284
Penrissen, Mount (Gunung), 169–70; Penrissen Basin, 170
petroglyphs, 88, 89, 95, 112, 132
Philanthropist (keelboat), 21, 425n6
Philippines, 134; Mindanao pirates of, 200
phrenology, 40–41, 399. See also mesmerism
piassába palm, 96, 97, 98
Pico de Neblina. See Neblina, Massif
Pictet, François Jules, 157, 443n38
Pionites melanocephalus, 106, 109
pirates, 142, 152, 193, 199, 200, 202, 263; Mindanao, 200
Pittas, *Pitta concinna*, 185; *P. (Erythropitta) rubrinucha*, 274
plate tectonics, 181, 325, 435n3; Wegener, Alfred, 336
polygenism, polygenists, 196, 237, 292, 295, 450n42, 469n56
Pongo. See orangutan
pororoca, tidal bore, 73
Pottinger (steamship), 140
Pouteria ucuquí, 112, 435n37
Powell, Baden, 208
Powell, Wesley, 368
Prambanan Temple, 277
Primula prolifera (imperialis), 279
Principles of Geology, 35, 57, 154, 181, 224, 305; Wallace's critique of, 154, 157–58, 209–11, 213, 214–15, 225–27, 377
Prichard, James Cowles, 57, 60, 237
Pulau Run Island, 144, 440n6
python: Ali's encounter with, 273; Wallace's encounter with, 219
- Raffles, Sir Stamford, 143, 440n3
Raja Ampat archipelago, Wallace's men marooned in, 264–65
rapids (cachoeiras), 90, 108, 112, 113; Baccába, 111; Carurú, 111, 112; Guaribas, 69; Macáco, 111; Múcura, 111, 113, 114; Tapaiunaquára, 69; Tyeassu, 111; Uacorouá, 113; Uacú, 111; Yuruparí, 108
Rappa, George, 148
Rawdon Cottage, Hertford, England, Wallace's early residence at, 17, 37
Rebecca riots, 34, 46
redé, 87 (defined)

- redwoods, California. *See* sequoias
(*Sequoiadendron giganteum*)
- Rees, David, 30, 31
- Reform Acts: of 1867, 341; failure of, 38; Great, of 1832, 14, 38
- Regent's Park, 18, 19, 299, 383
- Rebang people, 280
- Rhacophorus nigropalmatus*. *See* Wallace's flying frog
- Rhododendron*, 150, 279, 375
- rift zone, 140 (defined)
- riverine barrier hypothesis, 126, 155
- Rivers/Rios: Acari, 106; Amazon, 61, 75–76, 79, 127; Arrow, 28; Beane, 10; Branco, 88; Capim, 73; Comoro, 272; Cubate, 92; Guamá, 65, 73; Içana, 91, 92, 106; Jackson, 363; Lea, 10; Llia, 29; Madeira, 127; Marajó, 65; Mellte, 53; Mimram, 10; Neath, 52–53; Negro, 79, 80, 81, 86, 87, 90, 91, 92, 93, 94, 95, 96, 98, 101, 108, 115, 124, 127, 133, 134; Orinoco, 95, 96, 222; Ouse, 26; Paduari, 115; Rib, 10; Sadong, 161, 162, 168; Severn, 8, 47; Simunjan, 161; Soar, 44; Solimões, 81; Tallo, 190; Tapajos, 76, 116, 124; Tocantins, 67; Uaupés, 91, 108, 133, 134; Usk, 1, 2, 5, 30; Vaupés, 91, 113; Wye, 8; Xié, 95. *See also* Casiquiare Canal
- Robert Street, London, Wallace's residence on, 17
- Rolleston, George, 299, 300
- Romanes, George, 378; “physiological selection” theory of, 379, 486n15; Wallace's disagreement with, 379–80, 394
- Rose Hill, Dorking, Wallace's residence at, 325; geology of, 325
- Rosenberg, Hermann von, 232
- Ross, Mr., 187, 449n27
- Rousseau, Jean-Jacques, 99
- Royal Geographical Society, 134, 136, 138; lecture at, 325; medal awarded by, 385; support for Wallace by, 134–36; Wallace papers read at, 172, 206, 288
- Royal Institution of South Wales, 51
- royal palm (*Roystonea regia*), 124
- Royal Society of London: medal awarded to Wallace by, 303–4; Wallace elected Fellow of, 488n36
- Rusa deer (*Rusa timorensis moluccensis*), 246
- Sadong River. *See* Rivers/Rios
- Sahul and Sunda shelves, 250–51, 465n32
- Saint Andrews Street, Hertford, England, Wallace family residence on, 16
- Saint Hilaire, Geoffroy, Wallace's note on species mutability by, 156
- Saint John, Spenser, 153
- Saint Mark's Crescent, London, Wallace's residence on, 299
- sampans, 154 (defined)
- San Joaquin & Sierra Nevada Railroad, 368
- Santarém, 75, 76, 78, 79, 84
- Santubong* (barque), 174
- Santubong, Mount (Gunung), 153, 168, 170, 173, 442n27; and Sarawak Law paper, 157–60
- Sarawak, Borneo: Dyak bamboo bridges of, 169; gold mining districts of, 154; inland explorations in, 167–72; Sadong River, 168; Sarawak River, 154, 168; Simunjan coalworks of, 161–63. *See also* Dyak; Santubong, Mount
- Sarawak Law paper, 158, 161, 175, 209, 212, 223, 225; application to Aru Islands of, 213–15; Bates's praise of, 208; Blyth's praise of, 211; influence on Lyell of, 161, 211; Resonance with Ternate essay, 225–27
- Sasak, 183, 448n12
- Saunders, William Wilson, 215
- Schiaparelli, Giovanni, 405–6
- Sclater, Philip Lutley, 249, 250, 284, 286; biogeographical realms proposed by, 249–50, 289–90, 322, 466n37; journal *Ibis* edited by, 249; Wallace's championing of Sclaterian biogeographical realms, 290, 322–23, 324
- Sea Dyaks. *See* Dyak
- Sedgwick, Adam, 27, 430n38
- seismic cycle, 182

- sequoias (*Sequoiadendron giganteum*), 370;
Calaveras Big Trees, 370; Giant redwoods
(*Sequoia sempervirens*), 369; Wallace's
pilgrimage to with John Muir, 369–70
- Seram (Ceram): explorations of, 195, 207,
218, 255, 257–63, 271, 286; geology of, 257;
Kisalaut village, 260; Telutih village, 260
- Serpa. *See* Itacoatiara
- serras, 77 (defined); Serra da Bela Adorme-
cida (Curicuriari), 90; Serra do Cubate, 92
- Serumbu, Mount (Gunung), 160, 171, 173,
446n65; collecting at Rajah Brooke's
cottage on, 171–72
- sexual selection, 297, 328, 331, 389; Wallace's
disagreement with Darwin over, 328, 331,
441–42n20; Wallace's view of female choice
in humans, 389–90
- Shaw, Henry Norton, 135, 136
- Sibu Zone, 153
- Silk, George, meeting Wallace, 6, 16, 26, 135,
139, 146, 237, 240, 269, 270, 280
- Silurian System, 35, 426n28
- Sims (née Wallace), Frances, 1, 6, 32, 72, 76,
103, 137; death of, 376; as governess, 15, 17; as
headmistress, 47; interest in spiritualism
by, 299, 300; marriage of, 47, 64; photogra-
phy business of, 298, 317; reactions to
slavery by, 47–48; residence in London
of, 126; residence in United States of, 36,
47–48; reunion with Alfred and, 125–26,
136–37; teaching at Montpelier Springs,
Georgia by, 36; travel to Lille, France by,
16; travel to London and Paris by, 57–58, 61
- Sims, Thomas (brother-in-law), 47, 64, 94,
116, 128, 136, 137, 247, 285
- Singapore, 142, 143, 144, 145, 146; Bukit
Timah hill of, 145; experimental garden
of, 144; founding of, 142–43; geology of,
147; tiger attacks in, 146
- Sioux City, Iowa, co-education at, 366
- Slade, Henry, trial of, 326–27
- slavery: in America, 48–49; in Egypt, 139;
enslavement, 66, 71, 72, 76, 101, 139, 196;
of Indigenous Amazonians, 101, 107, 114;
in the Malay Archipelago, 190, 193, 200,
207, 262; of Papuans, 221, 241, 260, 266;
slave raiding, 107, 114; of Timorans, 193;
Wallace's condemnation of, 72, 73, 194.
See also monogenism; polygenism
- Smith, Adam, 342, 345
- Smith, Frederick, 247, 458n13
- Smithsonian Institution, 21, 365
- snake dance of Tariana people, Wallace's
witnessing of, 104–5
- socialism: Robert Owen as founder of,
21–22, 23; relation to Wallace's spiritual-
ism, 20, 386, 389, 393, 398; Wallace's
conversion to, 388, 389, 489n41. *See also*
Owenism, Owenite
- social justice and societal advancement:
Fiat Justitia Ruat Coelum motto, 389;
Wallace's commitment to, 313, 340, 355,
366, 373, 389, 397
- Society for the Diffusion of Useful Knowl-
edge, 26, 31, 358
- Sorby, Henry Clifton, research on coccoliths
by, 321
- Sorong Fault Zone, 229
- Soulbury, England: glacial erratic boulder of,
26, 27, 426n23; Wallace's residence in the
schoolhouse at, 26
- South American Plate, 77
- Southampton, 138, 396
- South China Sea, 142, 153
- South Wales Railway, 46
- speciation: allopatric, 127; sympatric, 384,
486n13
- Species Notebook: "Note for Organic Law
of Change" entry of, 210; Wallace's, 184,
185, 209, 210, 213, 224, 225, 246, 378
- Spencer, Herbert, 301, 340, 376
- Sphacotheres viridis*, 253
- Spice Islands, 174; spice trade, 144, 178, 179,
189, 218, 221, 232, 260, 440n6
- spiritualism, 20, 41, 322, 326, 327, 352, 386, 389;
origins, 299; popularity in Victorian period,
310, 471n4; Slade trial and, 326–27; Wallace's
conversion to, 299–301; Wallace's defense

- of, 300, 302–3, 308, 322, 327–28; Wallace's lectures on, 363, 371
- Spix, Johann, 127
- Spruce, Richard, 74, 75, 79, 80, 93, 99, 100, 114, 133, 313; arrival in Amazonia, 70, 74; Bentham, George, letter to, 99; collection of Yuruparí trumpet by, 112; criticism of Wallace's palm book by, 132; death of, 376; Edward Wallace, letter from, 93; Edward Wallace's illness, 110–11; friendship with Wallace, 78, 109, 110, 111, 116, 123, 124, 298, 327; introduction of Wallace to Mittens by, 301; Kew, collecting for, 70, 74; Manaus, 79, 109; *Notes of a Botanist on the Amazon and Andes*, 407; role in "imperial botany" of, 312, 440n5; Santarém, 78; Wallace, letter from [*Helen and Jorodeson*], 123
- Stanford, Jane Lathrop, 362, 371; Leland, 362, 368, 371
- Stevens, Samuel: agent, 62; consignments to, 67, 70, 78, 81, 86, 109, 146, 160, 173, 188, 193, 194, 215, 216, 234, 244, 256, 277, 280; council, Entomological Society, 125; Foreign Office, letter from, 76; insured collections, 123
- struggle for existence, 72, 224, 245, 377
- Strychnos toxifera* (source of strychnine), 81
- subduction (plate tectonics), 153, 182, 217, 477n69
- suffrage. *See* women's suffrage, Wallace's advocacy for
- Sulawesi Island: Earthquake experienced by Wallace on, 253; geology of, 188–89; Maleo birds of, 255; Minahasa district of, 253; Minahasa-Sangihe Volcanic Arc of, 254; volcanoes of, 254; Wallace's collections on, 256; Wallace's travels in, 253–54. *See also* Makassar
- Sumatra Island: colonial history of, 179; earthquakes of, 463n11; geology of, 181, 280; Great Sumatran/Semangko Fault System of, 280; guest houses (passangrahan) of, 464n12; Nias Island uplift at, 182; orangutans of, 163, 444n51; Palembang, 280, 281; past linkage with Borneo and Malay peninsula of, 173–74; Wallace's travels in, 280–82
- Surabaya, 276, 278
- Swainson, William, 31, 60, 63
- Swansea, 32, 33, 49, 51
- Sydenham. *See* Crystal Palace
- Talbot, William Henry Fox, 33, 427n40
- Tariana people, 104
- Tebb, William, and London Society for the Abolition of Compulsory Vaccination, 355
- Temi, 95, 96
- Tennyson, Alfred Lord, 352, 353, 377
- Ternate Island, Wallace's residence on, 221, 454n18
- Thiselton-Dyer, William, nominating Wallace for Royal Society fellowship, 386
- tidal bore. *See* pororoca, tidal bore
- Tidore, Prince of, 231
- timbo, 91 (defined), 97
- Timor: colonization of, 272; enslaved Timorese, 193; geological setting of, 272; Wallace's collecting on, 252–53, 271–72
- Tithes: commutation of, 23–24, 25; Tithe Act of 1836, 24; Wallace's surveying for, 25, 49–50
- Tomo, 96, 99, 100
- Torrey, John, 371; Torreys Peak, 371
- Tower Hill* (steamer), 359
- Uaupés, Rio: ceremonial cigars of peoples of, 100, 103, 105; festas of, 104; malocas of, 101, 103, 104; snake dance witnessed, 104–5; Tariana people, description of, 104–5; Wallace's artifact sketches from, 100; Wallace's ascent of, 101–8; Wallace's petroglyph sketches from, 89. *See also* Rivers/Rios; Vaupés, Rio
- umbrella bird (*Cephalopterus ornatus*), 80, 81, 90, 108; Wallace's paper on, 124; white, 108, 113
- UNESCO sites, 21, 53, 140, 179, 183, 277, 402, 441n6, 448n13

- Usk, Wales: Castle, 5, 6; Inlier (geology), 5; River, 1, 2, 5; Wallace's early childhood in, 1–8. *See also* Kensington Cottage; Monmouthshire, Wales
- utopian, utopianism, 20, 21, 23, 386–87; communities, 20, 21, 22, 388; of Wallace's "home-colony of congenial persons," 388; in Wallace's thinking, 344, 388, 406; in Wallace's "Varieties of Man" paper, 296. *See also* Owen, Robert; Owenism, Owenite; socialism
- vaccination: Anti-vaccination Congress, 355, 481n36; anti-vaccination movement, 355–56, 481n33–34; history of, 353–54; Vaccination Acts, 354, 480n32; Wallace's anti-vaccination activism, 354, 355–56, 481n33
- Vaupés, Rio: Kubeo/Kubéwa people of, 113; Wallace's ascent of, 113–14; Wallace's abandonment on, 114. *See also* Rivers/Rios; Uaupés, Rio
- Velho Airão, geological observations at, 88
- Venezuela, 79, 81; llano grasslands, 222; Orinoco River, 95, 96; Wallace's ascent to, 93–94, 95, 96, 99. *See also* Casiquiare Canal
- Vestiges of the Natural History of Creation*: anonymous authorship of, 54, 55, 56; vehement reaction to, 54, 56, 430n38; Wallace's reading of, 53–54, 56–57, 236
- Vicente (collecting assistant), 66
- vigilinga, 67 (defined), 75, 86
- VOC. *See* East India Company, Dutch
- volcanic belt, description, 181
- volcanoes, volcanism, 121, 179–80, 181, 182, 183, 195, 220, 241, 254, 277–78, 280; Krakatau/Krakatoa, 1883 eruption of, 181–82, 448n6; origin of in plate subduction, 181, 182
- Waldron Edge, Croydon, Wallace's residence at, 328
- Wallace (née Greenell), Mary Ann (mother): death of, 304; marriage, 3; reunited with, 1, 16, 36, 63, 64, 103, 137, 276
- Wallace (née Mitten), Annie, marriage, 301, 302, 304, 318, 319, 320, 321, 339, 340, 354, 367, 371, 373, 374, 375, 385, 394, 395, 396, 401
- Wallace, Alfred Russel: Ali, farewell to, 282–83; anthropological interests of, 174, 196, 231, 235, 237–38, 293, 297, 302, 365; anti-vaccination activism of, 353–56; Aru Islanders, living among, 200–5; autobiography, *My Life: A Record of Events and Opinions*, 407; Bates, meeting with, 43; birth and childhood memories of, 1–16; books, traveled with, 154; Charles Allen, frustration with, 141, 162; children of (*see* Wallace, Violet Isabel; Wallace, William Greenell "Will"); Civil list pension of, 334–5, 338, 351; collections, private, 156, 173, 188, 194, 215, 248, 250, 256, 280; crew, desertion of, 262; death and burial, 408–9; deforestation and climate, thoughts on, 331; employment as examiner, 320, 385; eugenics, opposition to, 393, 490n52; flat-earth wager, 315–17; Gray, Asa, meeting with, 361; Humboldt, Alexander von, influence of, 45, 329; John (brother), reunion with, 368; land ethic of, 328–29, 367; Land Nationalisation Society, 339, 344, 350, 358, 384; Liberal Party, member, 357; live birds of paradise, travel with, 283–85; Marion, Leslie, engagement to, 298; medals awarded to, 303–4, 318, 385, 407, 492n90; men, stranded, 264–66; Mitten, Annie, marriage to, 301; Muir, John, meeting of, 369–70; North America, trip across, 357–73; orangutan, baby, 164–65; public funding of science museums, opposition to, 312–13; separation from, 70; shipwreck (*Helen*), rescue, 118–23; Simunjan, collecting at, 162–65; Singapore, routine in, 146; slavery, criticism of, 73, 194; speciation by isolation, 127; teenage years, 17–36; Wallace Effect, 378; Women's rights, advocacy for, 350, 389–90, 391, 489n45. *See also* Darwin, Charles; land nationalization; Lyell, Sir Charles; natural selection; Negro,

- Rio; Owen, Robert; socialism; Species Notebook; spiritualism; Spruce, Richard; Stevens, Samuel; Uaupés, Rio; utopianism; Vaupés, Rio
- Wallace, Elizabeth Greenell “Eliza” (sister), 1, 6; death of, 15
- Wallace, Emma (sister), death of, 6
- Wallace, Frances. *See* Sims, Frances
- Wallace, Herbert Edward “Edward” (brother): Belém, arrival in, 74; illness and death, 102–3; injury, 79; poem, 1, 4, 17, 47, 63, 64, 72, 77, 79, 84, 93, 109, 110, 111, 126, 201
- Wallace, Herbert Spencer “Bertie” (son): birth, 301; death, 318, 319, 322
- Wallace, John (brother): apprentice carpenter, 16, 18; California, move to, 64; dairy farming, 63; forty-niner, 48, 86, 368; marriage, 165; reunion, 110, 368
- Wallace, John Herbert (nephew), birth, 194, 484n75
- Wallace, Mary Anne, (sister), death of, 6
- Wallace, Mary Frances “May” (niece), 369; gift, 371
- Wallace, Thomas Vere (father), 1, 9; death of, 36; marriage, 3
- Wallace, town of, Calaveras County, California, 368
- Wallace, Violet Isabel (daughter): birth, 304; letters to, 318, 351, 352, 361, 374, 375, 385, 394, 395, 396, 400, 401, 405, 407, 408, 485n3
- Wallace, William (brother), 1, 6, 16, 17, 18, 23, 25, 26; Alfred laid off by, 36, 37; as apprentice surveyor, 6; commutation surveying by, 25–26; death of, 46, 47, 48, 50; residence in Kingston, 28–29; residence in Neath, 30–32; residence in Soulbury, 26–27
- Wallace, William George (nephew), 369
- Wallace, William Greenell “Will” (son): America, travel in, 397; birth, 319; illness, 328; letter to, 352, 375, 403, 407, 408; study of electrical engineering by, 397
- Wallacea, 189, 465n36
- Wallace Effect (Reinforcement), 378, 486n13, 487n20
- Wallace Line: faunal discontinuity, explained, 250–52, 465n36; initial discovery of, 184–86, 188, 195, 214. *See also* Bali (Baly) Island, Lombock Island
- Wallace’s flying frog (*Rhacophorus nigropalmatus*), 163
- Wallace’s giant bee, Raja ofu (*Megachile / Chalicodoma pluto*), 247, 458n13
- Wallace Trails, 145, 429n12, 441n9, 446n65
- Ward, Lester, 367, 397
- Washington, DC: Wallace’s visit to, 363–68; White House meeting with President Cleveland at, 368; Women’s Anthropological Institute lecture in, 366
- Wawona Tunnel Tree, 369
- Webster, Mr., John Wallace’s mentor and father-in-law, 17, 18, 23, 126, 165
- Weir, John Jenner, experiments on aposematism, 297
- Weismann, August, 346, 488n24; germplasm theory of, 380–81; *Studies in the Theory of Descent*, 381; Wallace’s support for in *Darwinism*, 380, 384
- Whewell, William, Wallace’s reading of, 156
- Whitman, Walt, 274, 415
- Wilberforce, Samuel: debate with T. H. Huxley, 286; review of *On the Origin of Species* by, 472n13
- Wilson, Thomas (brother-in-law of Mary Ann Wallace), 16–17
- women’s rights, and Wallace’s model of female choice, 389–90
- women’s suffrage, Wallace’s advocacy for, 350, 391, 489n45
- X Club, 312, 315, 355, 471n12
- Yavita (Javita), upper Rio Negro, 115–18
- Yuruparí, rapids, 108, 113; music, 112
- Zoological Society of London, 18, 19, 125, 126, 164, 294; library of, 299; menagerie (Zoological Gardens) of, 18, 19, 125, 126, 128, 383; orangutan of, 164; Wallace elected fellow of, 285–86