Cape petrel showing blood from feeding. Watercolor and pencil study by Elizabeth Gould.

Spectacled petrel study by Elizabeth Gould.

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Elizabeth Gould

A Natural History

On the morning of May 16, 1838, the hazy London skyline in darkness, Elizabeth Gould went into the bedroom of her daughters, Louisa, six months, and Eliza, a toddler, and kissed them in their sleep. She crept into the adjacent room to farewell her son, Charles, aged four, who in the following week would be sent to boarding school. Downstairs, drinking tea at the kitchen table and waiting to wish Elizabeth well, chatted her mother and a cousin. During the next couple of years, these women would be entrusted with the care of Elizabeth's children while she studied the birdlife of Australia with her husband, John Gould.

The Goulds were motivated to voyage to the colonies by the prospect of making ornithological history. John resigned his position as keeper and stuffer of birds with the Zoological Society to become a corresponding member, the coveted title given to explorers like Alfred Russel Wallace, William Swainson, Johann Natterer, and other far-flung adventurers. Despite more than fifty years of settlement, a comprehensive inventory of Australia's birdlife had not been attempted. For almost a decade Elizabeth and John had worked as a publishing team, producing seven collections of superbly illustrated hand-colored lithographs of birds from India, South America, Europe, and the South Pacific. Elizabeth depicted the famous Galápagos finches Charles Darwin had collected during his voyage on HMS *Beagle* and "curious" novelty species like the toucan and trogon.

Two thousand pounds, the equivalent of forty years of a naturalist's annual salary, and all of the Goulds' savings, were funnelled into the expedition. A cabinetmaker fitted the two cabins they booked with customised shelving and writing desks. Rifles and ammunition were purchased and oiled, taxidermy tools selected, a camp stove bought to make hot chocolate, along with hogs-hair and sable paint brushes; watermarked paper, quills with nibs of lark, goose, and swan; pencils and crayons; expensive glass bottles to store wet specimens; and tins of many sizes to pack the dried skins. Personal effects and luxuries like chocolate and novels were organised. And wages set aside for the three assistants the Goulds' hired, John Gilbert, an experienced naturalist; James Benstead, a manservant; and Mary Watson, a lady's maid with experience working in India. Elizabeth and John also brought along their eldest son, John Henry, aged seven.

Despite Elizabeth's composure in farewelling her children, at the commencement of the carefully prepared venture, her thoughts were troubled. A letter to one of John's correspondents reveals her state:

> It was Mr Gould's intention to have written to you again before leaving England but unhappily he was prevented from so doing by the sudden and severe indisposition of Mrs Gould which inducing the utmost fears for her safety, rendered it very doubtful up to the last moment whether they would be able to go or not and incapacitated him from attending to any but the most urgent matters of business. I accompanied them as far as the Downs by which time Mrs Gould was very much better.[1]

The author was Edwin Prince, the couple's secretary, who stayed behind in England to oversee the Goulds' business affairs. Elizabeth was not being squeamish in her fears, there were endless risks in voyaging: mast-splitting storms; collisions and hull breaches; encounters with buccaneers; mortal fevers caught in foreign ports; and deteriorating health from limited exercise and a diet of fish, pork jerky, and hard biscuit. Once they reached their Australian destination, the party could hardly relax, as countless opportunities for misadventure awaited—bushfire, snakebite, dehydration, fever, losing one's bearings, falling off a mountain, drowning, to name just a few. Elizabeth, who had survived several advanced-term miscarriages and buried her first and third sons, knew there was a very real possibility she might not see her children again.

Their vessel, the *Parsee*, a triple-masted 350-tonne barque, was held up by extreme winds for eleven days in the Bay of Biscay, forty miles out of British waters, forcing the party to find their sea legs. And, noted John in a letter,

> Our Doctor's lady added a fine young Neptune to the ship's company during some heavy weather while in the bay.

1 And a little later, "Mrs Gould's health is so much improved that he believes the Voyage will be the means of completely re-establishing it."

The *Parsee* dropped anchor on the island of Tenerife for a night. John and his men disembarked to explore the hot interior of Santa Cruz, leaving Elizabeth and Mary to the cooler conditions of their berth. Sails unfurled, the barque skirted France and Spain, tacking the east coast of Africa where hundreds of medusas, or Portuguese man-of-wars, were seen floating in the waves, incandescent in the ship's evening lights. The adventurers marvelled at flying fish, which moved across the ocean's surface in a series of long leaps, like locusts. John wrote home that they were entertained by schools of porpoise and a pod of whales, mostly the black species, but a single sperm whale was discovered among the group, scars on its side from battling a giant squid. They observed the crew fish, hauling up nets full of shark and turtles and enormous, exquisitely patterned molluscs and bivalves. The sharks were hung upside down on the foredeck and drained of their fat, which was used as lamp fuel. After doubling the Horn of Africa the trade winds died back and the party lounged on deck, slapping at mosquitoes and making fans of their novels, while above the sailors crawled about the rigging like crabs taking their afternoon exercise.

Near the islands of Amsterdam and Saint-Paul John convinced Captain McKellar to allow him to lower a rowboat into the becalmed sea. Gilbert and Benstead climbed aboard, raising their firearms to the flocks of frigatebirds, fulmars, albatross, storm petrels, petrels, and shearwaters that drew near the ship, attracted by a tasty berley of offal and fat. On the foredeck, John utilised a system of knotted hooks and fishing line to capture the more inquisitive species. At that first musket crack Elizabeth lowered her book of verse and gathered up her drawing materials. She tied on her painting apron and selected pencils and brushes, venturing above deck for the opportunity to draw from life.

A series of watercolor paintings held in the Ralph Ellis Collection at the University of Kansas document preparatory studies Elizabeth undertook during the Goulds' voyages to and from Australia. Onboard the *Parsee* and *Kinnear*, Elizabeth drew and painted scores of pelagic species, many of which were new to ornithology. The drawings have been ripped and repaired; they're grimed with use and authenticated by a cursive "Mrs Gould" scrawled in pencil in the bottom right corner of the page. Most of the paintings include pencilled details of the ship's precise latitude and longitude, important information for ornithologists who, as far back as the 1830s, were concerned with questions of range and distribution.

Picture Elizabeth, her bonnet tied on, paper clamped to her easel. Her skirt reaches to her ankles, the sleeves of her blouse cover her wrists. With one hand she mops at her sweating brow, with the other she sketches the outline of a pair of Cape petrels, floating near the rowboat. Blood drips from the foregrounded bird's partially open bill. Pelagic species, such as petrels, spend most of their lives on the wing, excreting salt from a tube above their bills. They can smell blood from great distances. The Cape petrels were a gregarious tribe, venturing within several yards of the ship's deck to take pork fat, their cries like the bleating of new lambs as they fought for morsels to eat. As a defense mechanism, their young squirted "foul-smelling oil" from their beaks. For the first time in her artistic career, Elizabeth had the chance to make studies of living birds in their natural environments. According to an American naturalist, Charles Pickering, who visited Elizabeth while she stayed at her brother's farm, Yarrundi, near Scone, she worked quickly at her sketches:

> Mr. Coxen received us very politely and introduced us to his sister Mrs. G., to whose talent and industry the world is indebted for the celebrated Ornithological Illustrations. I had the pleasure of seeing the lady at her pencil, and was surprised at the rapidity of her execution.

Elizabeth illustrated the spectacled petrel with blood pouring from the lower mandible of the foregrounded subject, its mantle and wings positioned to highlight the shape of its feathers, which are drawn in fine detail. Studies survive of Elizabeth's sketches of the dove-like prion, the silver-grey petrel, the diving petrel, the short-tailed petrel, the blue petrel, and others. Viewing the paintings, it's apparent that certain features have been colored, for instance, the specimens' bills, eyes, facial markings, and webbed feet. The correct shades of these "soft parts" needed to be recorded immediately, because the colors of a bird's eyes, feet, neck wattles, and eye skin quickly fade after death. Hence, Elizabeth's drawing of the dove-like prion indicates its sooty black bill and royal blue feet.

On the other hand, the bird's plumage, morphologically detailed on the sketches to show their outline and feather groupings, is uncolored. It's possible to add color detail later; the plumage on a taxidermied specimen does not fade as dramatically as the "soft parts," as long as it's protected from sunlight.

John wrote to the zoological society that Elizabeth enjoyed drawing and sketching on the *Parsee*.

> One of the finest examples I possess [of the silver-grey petrel] was captured with a hook and line and thus afforded Mrs Gould an opportunity of making a beautiful drawing from life.

He told of his discovery, using what can only be described as an early tagging method of winding a band around certain species' feet and releasing them back to sea, stunned when, day after day, the tagged birds flew alongside the ship, travelling many hundreds of miles. He described an albino giant petrel that followed the *Parsee* for three weeks. Sadly, many of the pelagics John captured were not released back to the skies—particularly "novel" or "curious" species that hadn't been encountered by science. Rather, they were bagged or netted by John and his team to be transformed into study specimens. Due to the mosquitoes and flies brought by the humidity of the tropics, the bodies had to be converted into skins as quickly as possible.

Benstead and Gilbert transferred the bagged specimens to the makeshift stuffing room belowdecks. The specimen, say a sooty shearwater, was placed on its back on a cloth, its wings tucked back. The downy belly feathers were parted to reveal the skin so than an incision could be made, from the middle of the breast all the way down to the cloaca, located at the beginning of the tail. Before removing the bones and "meat," as John referred to the tissue in his letters, measurements were made of the specimen's bill, wing, and tail length, as well as its girth, so that when the body cavity was filled with flax and hemp and sewn shut, the proportions were correct. Otherwise the study skin might seem overly plump, or conversely, emaciated. The skin of seabirds is thick, making the process of removing the tissue easier than with other orders. Incisions were made between the shoulder and tibia joints and the top of the tail so the bone and flesh from the shoulder and pelvis

area could be removed. In the field, nineteenth-century ornithologists usually ate the muscle they scraped from the skins, though I have not found records of John's team eating the flesh of seabirds, which were said to have an unpleasant fishy taste. After most of the body had been lifted out, one of the wings was opened and an incision made along the humerus and radius and ulna. The tissue surrounding these bones was cut away, the inside of the skin and bones scraped clean. An arsenical powder was then sprinkled on the skin to protect it from infestations of lice and moths. Flax, called "tow," was wrapped around the bones and the incision sewn up. Until the early nineteenth century, collections of skins in museums were unstable, moths and lice frequently destroying the feathers. A French apothecary discovered that using arsenic deterred insect infestation, although if the taxidermist had a cut or wound, the poison could enter his body, causing great discomfort. One of the trickiest steps in making a study skin is excising the tissue from the skull. The skin was turned inside out and the flesh around the base of the skull scraped away. Although most of the skeleton was removed from a study skin, the skull was kept, as were the bones of the legs, tail, and wings. With great care the eyes were pulled from their sockets, so as not to damage the delicate eye rings, and a tool like a tiny ice cream scoop inserted into the hole to scrape out the brain. The eyes were replaced with glass eyes or wads of cotton wool. The tongue, important for classification, was cut out and steeped in alcohol for later study. When the entire skin was freed of flesh and cleaned, it was again sprinkled with arsenic powder, filled with hemp and flax, and stitched up. The wings were folded behind the body, the legs crossed and tied with string, and a tag that included field information and the species' binominal name was added. The taxidermied skin was then set by a fire to dry and harden.

Having made a study from life, Elizabeth was provided with a taxidermied specimen to aid her in accurately representing the species' diagnostic features. With the skin at hand, she could examine in detail the feather groupings and any special markings, adding these to her sketch. The preparatory drawings in the Ralph Ellis Collection show that several studies of each specimen were needed to create enough information to make a hand-colored lithograph. Along with the composition of the foregrounded subject and background, the lithographic plate required detailed tonal shading of the species' plumage. The finalized composition was then traced onto the lithographic stone, a limestone block dug from the Austrian quarry where the archaeopteryx was discovered. The slab was so porous that a fingerprint or droplet of water could mar the printed pull. However, this absorbent, organic quality rendered it the perfect medium to represent the delicate detail of feathers and skin. Once the design had been transferred onto the stone, it was washed in a weak acid mix and then coated with a greasy ink. Thick paper, driven through a press, absorbed the impression. The studies that Elizabeth made on the *Parsee* show this initial step in the preparatory process of producing a hand-colored plate. Since the plumage did not fade, separate studies were undertaken to detail the colors of the specimens' feathers. Which is why in the drawing of the Cape petrel, the chocolate and spotted cream of its coat is not indicated, nor the rich coffee plumage of the spectacled petrel in its drawing. The final stage in the preparation of a hand-colored lithographic plate was to make up a colored "pattern," where watercolor paints were added to the lithographic print. The patterns were sent to the coloring firm the Goulds outsourced, the hand-colored features added to the black-and-white print.

The Goulds arrived in Hobart in September, 1838. They spent eighteen months in Australia, living with Sir John and Lady Franklin at Government House in Tasmania and with Elizabeth's brothers, Stephen and Charles Coxen, in the Upper Hunter region in New South Wales. John made expeditions to procure specimens in Tasmania, New South Wales, and South Australia while Gilbert headed to the settlement at Swan River in Western Australia. At the conclusion of the venture, the collecting party had amassed thousands of specimens of Australian birds, their eggs, and nests and an impressive hoard of marsupial skins. Indeed, the Goulds attempted to import live birds and mammals to England, but with ill luck. Holed up in the *Kinnear*, the kangaroos, wallabies, wombats, and koalas succumbed to the rough conditions of Cape Horn and the stultifying equatorial tropics. The buck kangaroo caught cold, the cockatoos fought through the bars of their cages, the koalas and wombats were soaked in seawater until their coats clumped stiff with salt. Elizabeth's brother had gifted her six budgerigars, of which a pair survived, and, as history has it, the budgie was introduced to the English as a suitable bird to cage.

Elizabeth had farewelled her brothers, Charles and Stephen, and collected John Henry from boarding school. Voyaging on the *Kinnear*, still nursing a newborn son, Franklin Tasman, she continued to make sketches of pelagic species. The anticipation Elizabeth must have felt at being reunited with her children in London can only be imagined. In August 1840, the Goulds returned to their Broad Street terrace. Home, Elizabeth and John set to work, releasing the first part of *The Birds of Australia*, containing seventeen hand-colored lithographs, just three short months after disembarking the *Kinnear*. Elizabeth's fame as a pioneer ornithological illustrator spread, her artwork discussed in journal articles and newspapers. Ornithologists complimented her skills in their correspondence. Her portrait was taken in oils. Before John and Elizabeth's luxury folios, few had used the technology of lithography to represent birds. Swainson, a pioneer in the technique, failed to exploit its potential, his specimens represented in stiff, unimaginative poses. In *The Birds of Australia* Elizabeth illustrated species that unsettled the classification systems of the day; the newly described malleefowl, the intriguing brush-turkey, the cryptic plains-wanderer, an ancient species related to waders that has a family all of its own. She painted gorgeous parrots and honeyeaters, as well as shyer species, such as the chirruping wedgebill. According to Tim Low's *Where Song Began: Australia's Birds and How They Changed the World*, Elizabeth depicted three species of the unique and ancient treecreeper, the closest living relative of the lyrebird, which she also painted, the first artist to depict a female of this species, the world's largest passerine.

Unfortunately, a year and a day after the Goulds' return to England, nine months into *The Birds of Australia's* eight-year production run, Elizabeth died suddenly of puerperal fever following the birth of her eighth (surviving) child. She was just thirty-seven. Bereaved, but needing to fulfill the promises made to his subscribers, John hired eighteen-year-old H. C. Richter to transform the thousands of drawings, paintings, and sketches Elizabeth had made in Australia into lithographic plates, completing the work of *The Birds of Australia* in 1848.

The pelagic sketches Elizabeth created aboard the *Parsee* and the *Kinnear* were not released as lithographic plates until 1846, five years after their designer's death. If it was not for the survival of the preparatory drawings in the Ralph Ellis Collection, the contributions Elizabeth made to this series would be forever lost. Of the eighty-four hand-colored lithographic plates that are authenticated as designed by Elizabeth for *The Birds of Australia*[2]—her signature appears in the bottom left-hand corner of the lithographs—none are seabirds. It would be excusable if the sketches Elizabeth made were merely studies, reinterpreted into the final design of a lithograph, but instead these paintings and drawings have been copied directly onto the completed plate. John and Richter elaborated the plumage colors at a later date, but, rather than acknowledge Elizabeth as the designer of the original compositions, the signatures at the bottom of the entire series acknowledge John Gould and H. C. Richter as the artists.

Mention John Gould and most people recognize his connection to Australian zoology; in birding quarters he's regarded as the father of Australian ornithology. The contributions to the discipline of his wife, Elizabeth Gould, who worked as principal artist during the family firm's first eleven years of operation, are less well-known. Had Elizabeth survived the birth of her daughter Sarah, her illustrations for the first comprehensive taxonomy of Australian birds to be published might have wider contemporary recognition. In the last several years, four books have been published that discuss John's contributions to Australia's zoology,[3] but not one of these titles attempts to overturn Elizabeth's neglected reputation. Rather, the myth of John Gould, the "savant" birdman, endures.

This persona can be traced to John's tendency to draw attention to his activities and abilities at the expense of his highly skilled collaborators. With respect to Elizabeth,

2 *The Birds of Australia* (1840–1848) volumes 1 through 7 featured six hundred hand-colored lithographs of Australian bird species.

3 Roslyn Russell, *The Business of Nature: John Gould and the Birds of Australia* (2011); Sean Dawes, *John Gould: An Australian Perspective* (2011); Sue Taylor, *John Gould's Extinct and Endangered Birds of Australia* (2012); Fred Ford, *John Gould's Extinct and Endangered Mammals of Australia* (2014).

there are numerous examples of John's self-promoting behavior. Throughout their partnership, John signed his name to the artwork his wife produced, even though his roles—as taxonomist, taxidermist, publisher, and writer—had little to do with the composition and design of lithographic plates. It is well documented that John's artistic abilities were limited. His difficulty in drawing the basic outline of a bird is one of the reasons Elizabeth came to his attention. Perhaps John thought he was protecting Elizabeth's social status as a Victorian matron by signing his name to her works. Maybe he reasoned that his signature added prestige to his wife's illustrations. Whatever John's motives, it's clear that in collaborating with her husband in his publishing venture, Elizabeth accessed a world of science and adventure denied the vast majority of the women of her class and time.

—The Lifted Brow, *first publication. Reprinted with permission.*

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Satin bowerbird. Hand-colored lithography by John and Elizabeth Gould.

The great bowerbird. Hand-colored lithography by John and Elizabeth Gould.