

EXPLORATION

Volume 1, Number 3 *Quarterly*



◊ *We shall not cease* ◊







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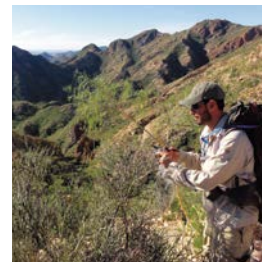
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EXPLORATION

Volume 1, Number 3 *Quarterly*

**“WE SHALL NOT CEASE FROM
EXPLORATION**

*And the end of all our exploring
Will be to arrive where we started
And know the place for the first time.” – T.S. Eliot*

*Welcome to **Exploration Quarterly**, the publication for those
who do not cease to BE CURIOUS . . . to LEARN . . .*

to EXPLORE . . .

We define exploration in the broadest sense:

Exploration can be geographical.

Exploration can be fractal.

Exploration can be introspective.

Exploration can be expansive.

Exploration can be structured.

Exploration can be unplanned.

Exploration can happen every day.

Exploration is continuously seeking new places,
new ideas, new knowledge.

Exploration is the essence of being human, what
brought us from the forests into the savannahs, and
beyond the horizons of Earth to the edges of the
known universe.

We shall not cease from exploration.

Thank you for joining us.

Jonathan Hanson Roseann Hanson
Founders, Curators, Editors, Designers



*Printed twice a year by Modern Litho in the USA
with vegetable inks. Forest Stewardship
Council® COC Certified.*



*Annual subscriptions are available as hybrid (two printed
issues, two digital-content issues) or all-digital, delivered
July, October, January, and April. For print subscriptions
we offer pricing for USA delivery and international delivery.
Our parent company is Exploring Overland LLC, based in
Arizona, USA.*

*ExploringOverland.com/explorationquarterly
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*ABOVE: Exit Only at Candeleros on the way out of the Gulf
of California (25°43'45"N, 111°14'15"W); Dito Abbott
photo. OVERLEAF: A pause while exploring Israel's Negev
Desert by bicycle (29°40'34"N, 34°53'19"E); Jonathan
Hanson photo. COVER: "Arctic Expedition Disaster
Scene," oil on board, artist unknown; from the Smithsonian
American Art Museum, gift of Herbert Waide Hemphill, Jr.*

DR. BENJAMIN T. WILDER



Born and raised in the Sonoran Desert, Ben is an avid explorer of his desert home. Ben is a biogeographer, botanist, and desert ecologist whose research looks at the origin and future of the Sonoran Desert. He received his Ph.D. in botany from the University of California, Riverside for his doctoral research into the historical biogeography of islands of the Gulf of California. He served as the director of the Desert Laboratory on Tumamoc Hill from 2016–2022, and is co-founder and director of the Next Generation Sonoran Desert Researchers (N-Gen). His scientific and conservation efforts strive to combine multiple disciplines and perspectives to better understand and care for the desert that drives his passion.

Raised in a foodie family, Ben was on a trajectory to become a chef. However, after working in restaurants throughout high school, he shifted his focus to studying and exploring the environment, especially his desert homeland. A first visit to the coast of the Gulf of California in the vicinity of Isla Tiburón set Ben on a path of discovery and adventure that continues today.

His achievements include the publication of *Plant Life of a Desert Archipelago: Flora of the Sonoran Islands in the Gulf of California* (2012, University of Arizona Press), author and editor of more than 65 scientific articles and reports on diverse topics, director of a network of over 1,000 researchers and conservationists of the Sonoran Desert, and a Fellow of the Explorers Club. His work has been featured on multiple platforms including *National Geographic*, *PBS News Hour*, *New York Times*, and the BBC's *Green Planet* with Sir David Attenborough.

He lives with his wife Dr. Erin Riordan and their son Eli in the Tucson Mountains.

Benjamintwilder.com

Nextgensd.com

DITO ABBOTT



Salt water runs through David Abbott's veins and bulldust cakes his soul.

Puerto Rico is where he was born and also where he gained his nickname, Dito ("gordito," because he was a "chubby little hombre"). He was already sailing at age one month.

Dito grew up in Saudi Arabia, and he learned to drive by crossing the Rub' al Khali in a Land Rover. In 1994, the Abbott family of Dave, Donna, Wendy (15) and Dito (14) set sail from the USA for a 2-year circumnavigation aboard their Privilege 39 catamaran, *SV Exit Only*.

The Abbotts cruised through the Caribbean and South Pacific, discovering all the pleasures the cruising lifestyle had to offer. They finally made their way to New Zealand. Unfortunately, the dream of completing their circumnavigation was cut short by a serious car accident. Although they were able to periodically come back to *SV Exit Only*, the family put their circumnavigation dreams on hold for another 10 years. In 2004, the family set sail from New Zealand, this time minus Wendy but adding Dito's wife, Sarah. Over the next two years, the adventurers survived the deadly tsunami of 2004 in Thailand, eluded Yemini pirates in the Gulf of Aden, and made lifelong friends and memories along the way. Now the parents of two girls, the family wanted the next generation to experience the joy of exploring the world by sail.

When he's not scanning the horizon for pirates, Dito is writing the next novel in his young adult adventure series, *The Terravenum Chronicles*. The first book, *Debunked*, was written whilst sailing from Florida to the Gulf of California, and published during COVID.

MaxingOut.com (sailing blog) DitoAbbott.com (books)

 @ditoabbott

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ROSEANN HANSON

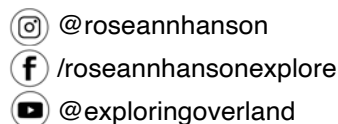


A native of southern Arizona, Roseann studied journalism and ecology and evolutionary biology at the University of Arizona, and has worked around the globe as a conservationist, naturalist guide, artist, and writer for nearly 40 years. She is one of the organizers of the Wild Wonder Nature Journaling Conference, and the author of *Nature Journaling for a Wild Life*, an 8-week “workshop in a book,” and *Master of Field Arts*, a deep-dive into becoming a master naturalist and field artist.

With her husband, Jonathan, she has authored over a dozen natural history and outdoor books. In 2009 Roseann founded the hugely successful adventure travel event Overland Expo, with a mission that strongly emphasizes the connection between exploration and conservation of the world’s natural and cultural resources. She sold Overland Expo in 2019.

She is an elected National Fellow of the Explorers Club and the Royal Geographical Society in recognition of her conservation and science communications work. She helped establish the trans-disciplinary Art & Science Program at the 117-year-old Desert Laboratory on Tumamoc Hill, part of the University of Arizona, and currently teaches sketching, nature journaling, writing, and field arts through her own Field Arts Institute. In 2024, Roseann and Jonathan founded *Exploration Quarterly* to share their passion for exploration.

ExploringOverland.com



JONATHAN HANSON

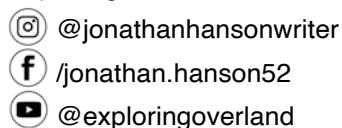


Jonathan Hanson segued from a misspent youth almost directly into a misspent adulthood, cleverly sidestepping any chance of a normal career track or a secure retirement by becoming a freelance writer, working for *Outside*, *National Geographic Adventure*, *Nature Conservancy*, *The Double Gun Journal*, *Wheels Afield*, and nearly two dozen other publications. He co-founded *Overland Journal* in 2007 and was its executive editor until 2011. His travels—since his first solo backpacking trip at age nine—encompass explorations on land and sea on six continents, by foot, bicycle, sea kayak, motorcycle, and four-wheel-drive vehicle. For several years Jonathan operated a sea kayak guide service, leading tours in Mexico’s Gulf of California. He has taught a wide variety of subjects—from wildlife tracking, nature writing, and photography to expedition driving and recovery—for many government and conservation organizations.

Jonathan has published a dozen books on natural history and outdoor sports (several with his wife, Roseann Hanson), gaining several obscure non-cash awards along the way. He is the co-author of the fourth edition of Tom Sheppard’s overlanding bible, the *Vehicle-dependent Expedition Guide* and contributed several chapters to *Four-by-Four Driving*. More recently he ventured into fiction with a novel, *Trail of the Jaguar*, and a children’s natural-history title, *Victor the Reluctant Vulture*, published by the Arizona-Sonora Desert Museum.

Jonathan is a fellow of the Explorers Club and the Royal Geographical Society, and a founding member of Backcountry Hunters and Anglers, a group devoted to fair-chase wilderness hunting and fishing.

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Enigma in Stone

Images and story by Jonathan Hanson

It was dusk, and clearly too late for what we'd been hoping to do, when Roseann and I drove into the market town of Wareham, nestled on the southwest coast of England where the rivers Frome and Piddle meet. A center of trade ancient even for England, Wareham was settled by the Romans, and listed in the Anglo-Saxon Chronicle in 784 CE. Among other historical curiosities, the town is noted for its perimeter of defensive earthen ramparts, built by Alfred the Great in the 9th century to repel Danish Vikings. (The strategy failed—the Danes occupied the town in 876 and left only after pocketing a substantial ransom in Danegeld. Then they did it again. And again.)

Even though we knew time had run out on this last quest—we had obligations in London the next morning—we couldn't complain. We had spent an emotional two days shadowing a man named Thomas Edward Lawrence.

T.E. Lawrence—the scholar/warrior of illegitimate birth who alternately “backed into the limelight” and fled from it; who was venerated and hated by both Arabs and Jews, whose monumental *Seven Pillars of Wisdom* was heralded as a literary masterpiece by many and derided as overwrought narcissism by others—including its author.

Lawrence of Arabia—who, with zero formal combat training, led a guerrilla insurrection still studied for its strategic brilliance. Lawrence, for whom the word “enigma” might have been coined, who lived out the end of his life under a transparent pseudonym and yet found a measure of peace and fulfillment as an inspired designer of rescue boats later deployed to retrieve downed Spitfire and Hurricane pilots.

T. E. Shaw (ironically, Lawrence's sole legal name among his several), whose last home was a secluded

whitewashed cottage named Clouds Hill, which he described as an “earthly paradise.” T.E. Shaw, who lingered for six days after his Brough Superior motorcycle cartwheeled off the road on the way from Bovington to Clouds Hill when he swerved to avoid two boys on bicycles—an otherwise anonymous spot on a tree-lined road marked by a small stone obelisk.

And, finally—T. E. Lawrence again, incised on a modest gravestone in a modest graveyard in Moreton, the suffixes C.B. and D.S.O. modestly left off (not to mention the K.C.B.E. he had refused). Just, “Fellow of All Souls College, Oxford,” followed by a bit of scripture the man would likely have also refused.

We had spent most of the previous day at the Bovington Tank Museum, adjacent to Bovington Camp, where Lawrence had been stationed during his brief, first, failed attempt at leaving behind his notoriety. We'd done some journalistic wangling and had been granted a behind-the-scenes tour, which included inspection of one of the armoured Rolls-Royce Ghost motorcars of the type Lawrence had used to devastating tactical effect in the Middle East, valuing them “above rubies in the desert.”

Early this morning we had visited Clouds Hill, where virtually all of Lawrence's original furnishings remain, along with dozens of framed photos hung by the National Trust. Within the dim interior one can feel the sense of refuge Lawrence felt here. In the ground floor room—once lined with the 1,200 books he owned, tragically sold off by his brother to pay post-mortem expenses—is his amusingly enormous bed, and the leather-covered reading chair he designed, with flat arms to hold a reading tray flanked by two candles (the cottage had no electricity). On the upper floor, where he installed a large window to provide better light, Lawrence's Royal typewriter resides in a perspex

case. Nearby is the wind-up gramophone on which he would play music for friends such as George Bernard and Charlotte Shaw, Thomas and Florence Hardy, or E. M. Forster—as well as fellow airmen—while serving them nuts and tinned Heinz beans. Lawrence of Arabia was no cook. (He was, however, quite the audiophile—he protected his substantial collection of records by painstakingly carving bamboo needles for the gramophone rather than subjecting them to a harsh steel needle. This had to be repeated every two or three sessions.)

Leaving Clouds Hill, and following directions from one of the docents, we'd driven down the road toward Bovington Camp, parked in a layby, and found the stone marking the accident site, all but invisible in the underbrush. The road now is far different than the narrow gravel lane Lawrence knew, but one can still picture those final few seconds depicted not altogether unconvincingly in David Lean's epic film.

Only a few miles away we found the Moreton Cemetery, indistinguishable among a thousand other English cemeteries, and the carved gravestone, no larger than any other in the tree-shaded field. Aside from the legendary name incised in the stone, it radiated the anonymity Lawrence sought in his last decade.

The grave should have been our last stop. We had accomplished a lot. But we had heard of . . . something else, something improbably tucked away in an obscure 11th-century church named St. Martin's. So as the November sun angled west over Dorset we drove the few miles to the spot indicated by our GPS—only to discover that there are two St. Martin's churches in the area. We'd arrived at the wrong one, in Sandford. Belatedly we headed south to St. Martin's on the Walls, in Wareham.

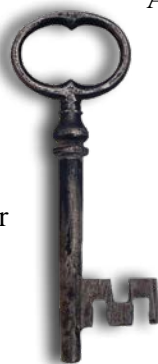
It was not to be. In gathering dusk we parked along Wareham's main street and walked up to the tall stone church, its Norman lancet windows dark. A vertical banner on the door made us both catch our breath:

"This is a house of God where prayer has been offered for 1,000 years."

The door was, of course, locked. But on one side was a beguiling note: "For access please stop at AF Joy Gentlemen's Outfitters."

Grasping at hope, we walked down the street to a shop whose front windows displayed Barbour jackets and tattersall shirts. The sign read *Closed*—but the lady proprietor was outside sweeping the stoop. I was, shyly, reluctant to broach the reason for our visit, but Roseann struck up a conversation.

"Oh! Would you like to go inside, then?" She walked back into the shop, returned, and gave us a key that looked exactly like what you'd expect the key to an Anglo-Saxon church to look like. "If I'm gone when you come back just drop it in the mail slot. Enjoy!"



A bit stunned simply to be handed private access to an 11th-century building, we carried the key like a talisman back up the street, inserted it in the lock, and pushed the door open to the black interior. At this point the definition of the word "irony" struck us both, as, 1) the local parish has properly decided not to sully or endanger St. Martin's with electricity, and, 2) our flashlights were safely ensconced at our bed and breakfast, 20 miles away. Thus we were reduced to exploring a Medieval church with the light on Roseann's iPhone.

And, strangely, the soft glow proved perfect, revealing one part of the interior at a time—the rows of simple, mismatched wood chairs (St. Martin's is still used daily), the tall, peaked ceiling beamed with rough-hewn logs, the pillars separating the single side aisle. On the wall above the chancel arch was a mix of scripture in archaic English, some faded, some remarkably crisp, including the Ten Commandments, and the Arms of Queen Anne, added in the 17th century. Another wall displayed a 12th-century painting of St. Martin himself, in Roman garb astride a horse.

The stone walls and three-inch-thick oak door had shut out all external sound. We conversed in whispers that echoed from the darkened corners.

Roseann stepped into the northern aisle and turned her light to illuminate what lay within . . .

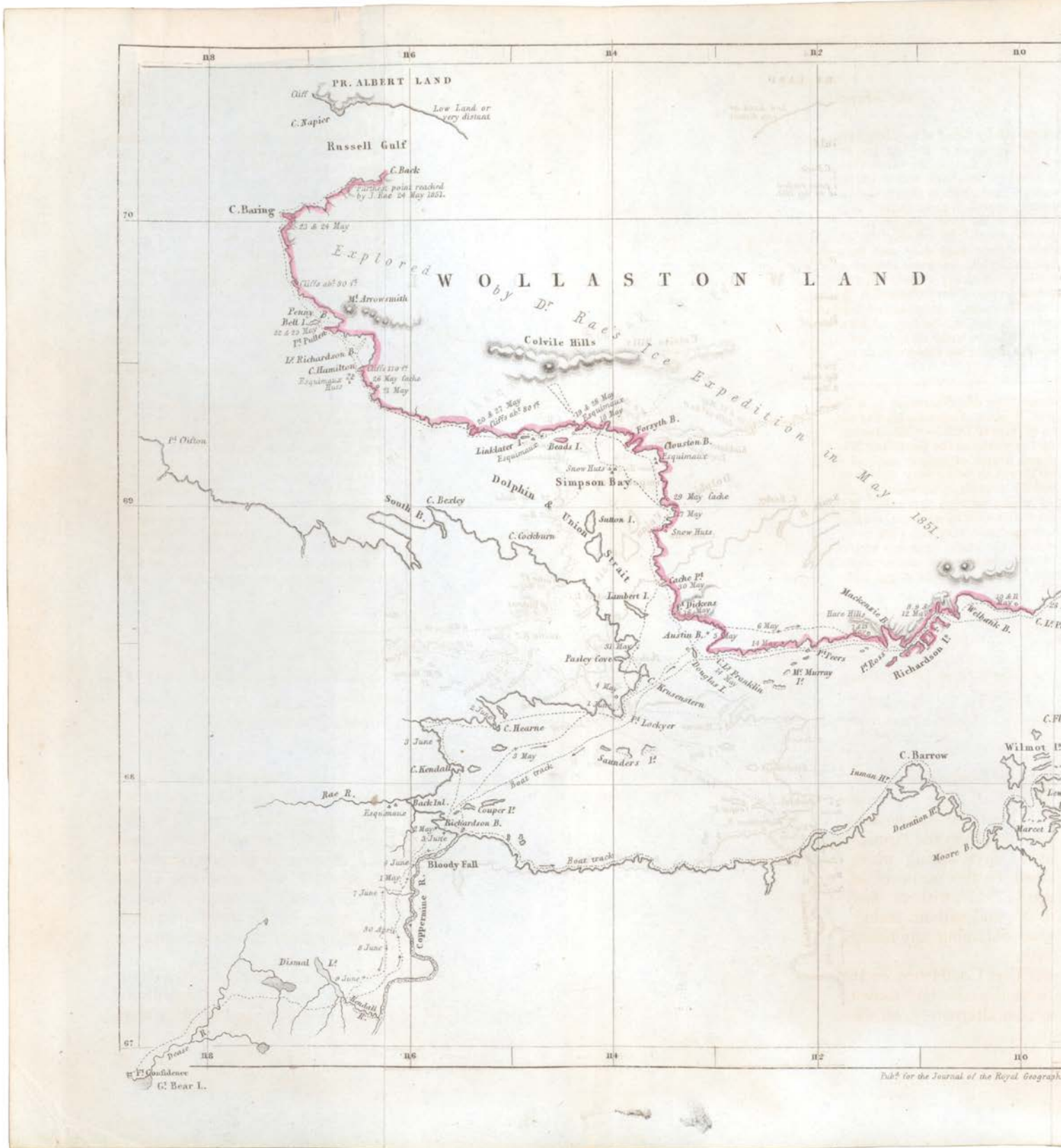
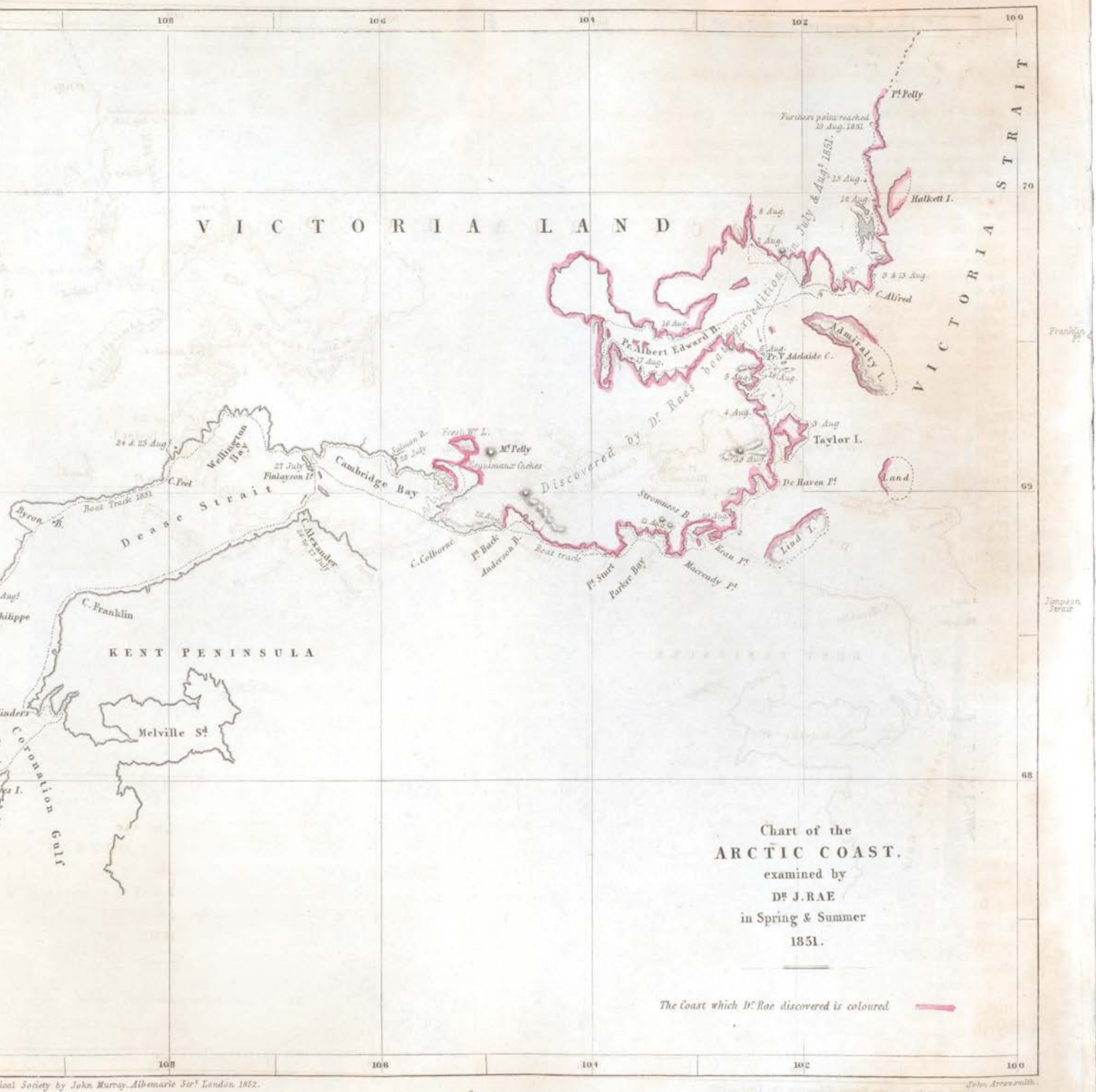


Chart of the Arctic Coast examined by Dr. J. Rae in Spring & Summer 1851 (1852, John Murray III, cartographer)

In 1768 a 31-year-old Scottish entrepreneur named John McMurray bought out the bookselling business of William Sandby at 32 Fleet Street in London. There being a fair amount of prejudice against “wild Highlanders” in England at the time, he changed



his name and the name of the business to John Murray. Despite zero experience in the publishing business, Murray took to it enthusiastically and successfully, first re-issuing a suite of existing works before venturing into new titles. Eventually he would publish more than

1,000, a third of them exclusive. His son, John Murray II (1778-1843) took over the business, and the list of authors grew to include Jane Austen, Washington Irving, Sir Walter Scott, and Lord Byron. The younger Murray was in fact Byron's executor, and purchased

Dr. John Rae

The greatest Arctic explorer you've never heard of

Story by Jonathan Hanson

Images by Jonathan and Roseann Hanson

When Sir John Franklin and 132 men sailed out of the Thames estuary in May, 1845, aboard the converted bomb vessels *HMS Erebus* and *HMS Terror*, ships and crew comprised the most expensive, the most technologically advanced, and the most luxuriously equipped naval expedition ever commissioned by the British Admiralty.

Both ships had originally been overbuilt to withstand the tremendous recoil of the 3-ton mortars with which they were equipped in battle (the *Terror* had in fact bombarded Fort McHenry in Baltimore during the War of 1812, leading an American observer named Francis Scott Key to rhapsodize about “the rockets’ red glare; the bombs bursting in air”). Now their hulls had been further reinforced with iron plating to withstand the assault of arctic ice, and each had been retrofitted with a locomotive steam engine that could drive the ship at a brisk walking pace via a retractable screw propeller when winds failed or thin ice blocked passage.

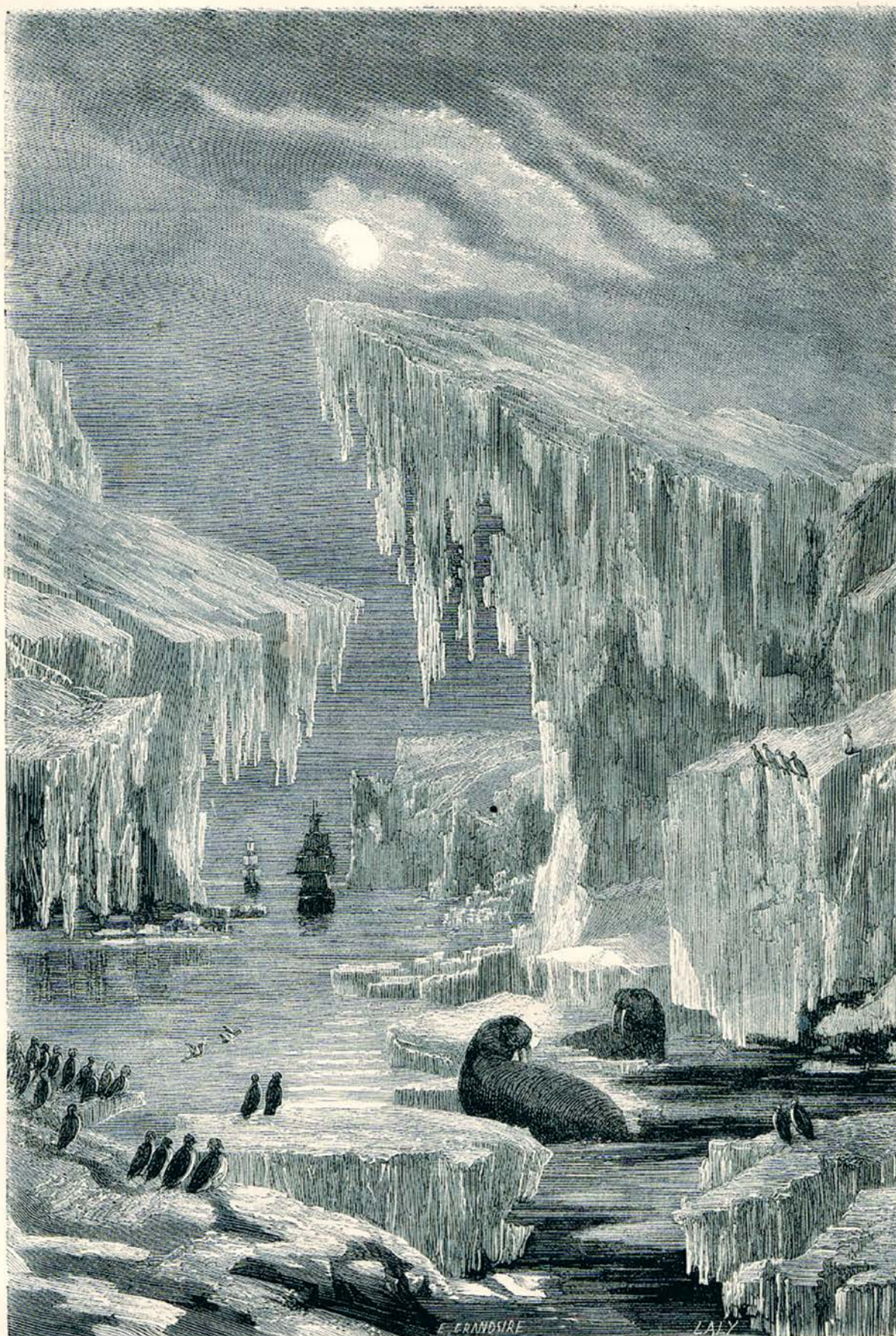
The crews had been provided for in a fashion rarely seen before. Below decks the ships were equipped with an innovative heating system via hot water circulated through pipes. The galley stoves incorporated desalinators to feed the boilers. While space was universally tight except for Franklin’s cabin—even Commander James Fitzjames, captain of *Erebus*, had a cabin just six and a half feet wide and little longer—the ships were stocked with libraries totaling nearly 3,000 books and each had a hand organ capable of playing 50 tunes. Another innovation was a complete Daguerreotype system to record the voyage in photographs.

Enough food for a three-year journey was aboard: almost 8,000 tins of preserved meats (boiled and roast beef and mutton, veal, and ox-cheek), vegetables (carrots, mixed vegetables, potatoes, parsnips), and soup in tins weighing up to eight pounds each. Also there were 1,200 pounds of tinned pemmican and an astounding 9,450 pounds of chocolate and 7,000 pounds of tobacco. In order to fight scurvy, 9,300 pounds of lemon juice was aboard.

Franklin crossed the Atlantic to Greenland and Disco Island, where he invalided four men home on whaling ships. After sailing west across Baffin Bay to the entrance of Lancaster Sound (between Baffin and Devon Islands), he exchanged greetings with two more whaling captains. The 129 men then sailed west, completely assured theirs would be the first expedition to conquer the Northwest Passage and emerge triumphant into the Pacific Ocean.

They were never seen again.

Engraving appeared in *Pictorial Chronicles of the Mighty Deep*, Francis Watt, editor (Frederick Warne & Co., 1885) and *All Round the World* (Collins, Sons & Co.). Scan courtesy Tom Muir, Orkneyology.com.



THE ARCTIC REGIONS—THE "EREBUS" AND "TERROR" IN THE ICE.



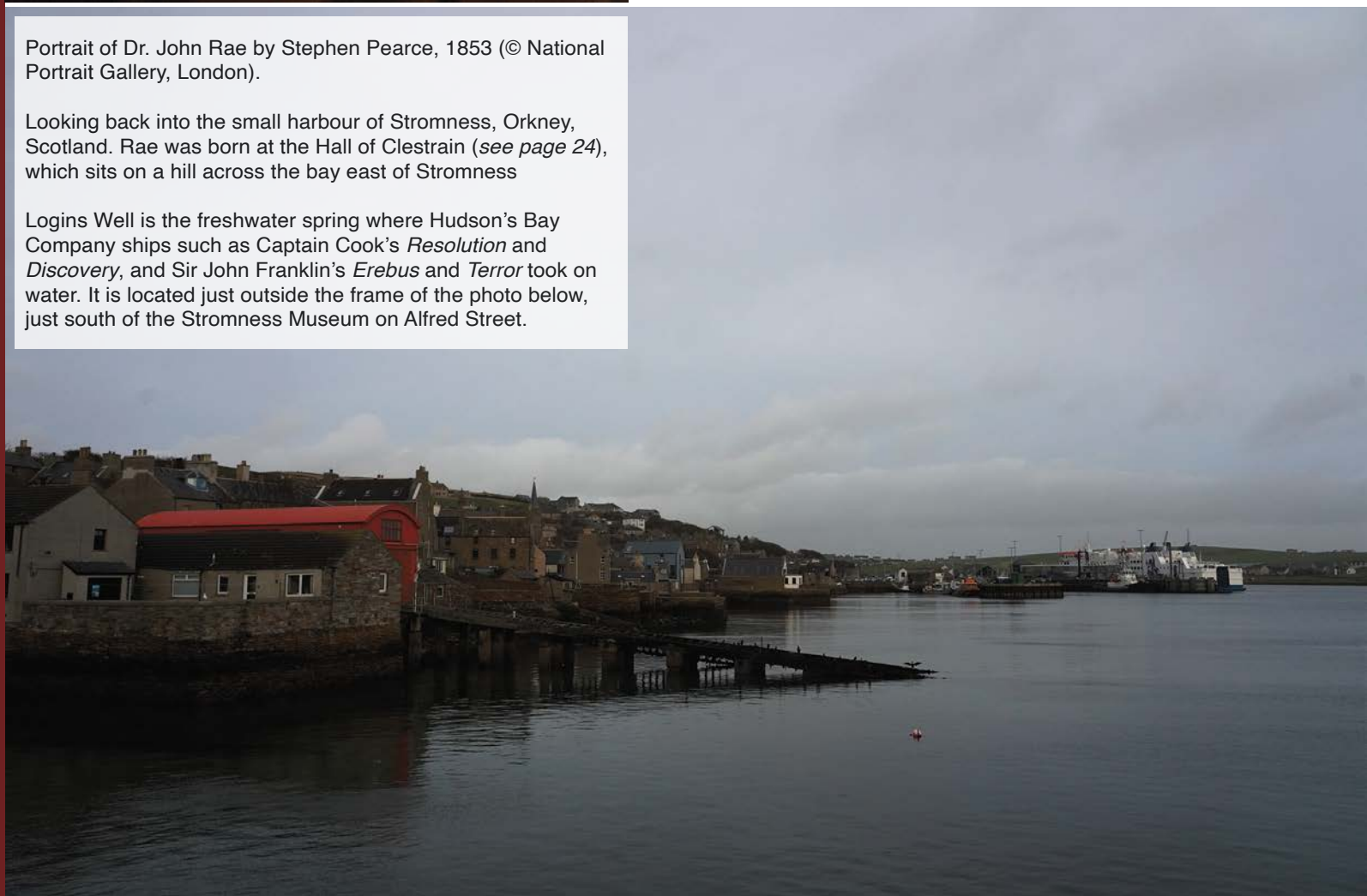
Portrait of Dr. John Rae by Stephen Pearce, 1853 (© National Portrait Gallery, London).

Looking back into the small harbour of Stromness, Orkney, Scotland. Rae was born at the Hall of Clestrain (*see page 24*), which sits on a hill across the bay east of Stromness

Logins Well is the freshwater spring where Hudson's Bay Company ships such as Captain Cook's *Resolution* and *Discovery*, and Sir John Franklin's *Erebus* and *Terror* took on water. It is located just outside the frame of the photo below, just south of the Stromness Museum on Alfred Street.

As John Franklin headed into oblivion, another man, a Scottish doctor and Hudson's Bay Company employee named John Rae, was embarking on one of his several journeys of exploration along the arctic coast of Canada, employing far more modest means and far fewer men.

Before he retired, Rae would lead four major arctic expeditions totaling over 23,000 miles. He would accurately survey 1,538 miles of unknown coastline, trek 6,500 miles solo on snowshoes, discover the vital last link to Roald Amundsen's later successful conquest of the Northwest Passage—and determine conclusively the grim circumstances of the end of Franklin's expedition. Throughout it all he thrived in the harshest conditions, adopting the clothing and snow shelters of the Inuit, hunting nearly all the food required by his parties, and, over the course of 40 years of leadership, losing but a single man, on a dangerous river passage. (On an earlier land expedition John Franklin lost 11 out of 21.)



Franklin's fate and Rae's legacy would be inextricably intertwined—yet while Franklin would be remembered as a hero despite his disastrous end, Rae would be publicly condemned, pilloried in print by no less a figure than Charles Dickens. He would be the only major 19th-century arctic explorer not to be knighted, and would die in relative obscurity.

John Rae was born in Orkney on September 30, 1813, the sixth child and fourth son of John Rae, Sr., the chief representative in Orkney for the Hudson's Bay Company. John Jr. grew up mostly out of doors, shooting, fishing, hiking, climbing, and, especially, sailing in the rough and hazardous waters around Orkney in an 18-foot yawl he and his brothers raced against the much larger local pilot boats. After schooling at home, at the age of 16 he entered Edinburgh University to study medicine, and at 19 passed the strenuous oral examination to become a licentiate of the Royal College of Surgeons.

Given his active upbringing, however, there was little likelihood John Rae would settle into a respectable but somnolent village doctor's practice. Since infancy he had watched supply ships of the Hudson's Bay Company stopping off in Stromness to take on water before sailing across the Atlantic to the forts and factories in Rupert's Land, the company's enormous holdings in northern Canada. Two of his older brothers

had already accepted clerical postings, and John decided to sign on as ship's surgeon for a single season to get a feel for the life. In June 1833 he embarked for the New World in the three-masted *Prince of Wales*, never dreaming it would be 14 years before he saw his homeland again.

Rae was rudely precipitated into his role as a doctor when typhoid broke out among the steerage passengers confined to dank, dark, belowdecks accommodations, and he spent most of the passage tending to the sick—and seasick—men, all of whom thankfully survived. When free, rather than relaxing, he explored the decks and the upper reaches of the rigging, learning the mechanics of sailing a 400-ton barque. The *Prince of Wales* negotiated Hudson Strait, the entrance to Hudson Bay, and as Rae marveled at icebergs they headed almost 900 miles south to James Bay, like the tail of a Q at the bottom of Hudson Bay, where the HBC's Moose Factory trading post had been erected on an island.

Rae was as entranced by the fancy dress of the *voyageurs* as by the deerskin clothing of the native woodland Cree, and he reveled in the exotic bustle of the fur trade. Rather than restrict his efforts to the treatment of the residents, as his status would have allowed, he pitched in daily to help with general labor, so impressing the factor, John MacTavish, that he



Chasing *Canotia*:

Story and images by Benjamin T. Wilder

As we pushed up the final meters to the highest ridge, Isla Tiburón finally revealed itself as an island—the largest in Mexico and homeland of the Indigenous Comcaac (Seri People). Only then could I see the waters of the Gulf of California on all sides. The mountainous spine of the Baja California peninsula loomed far to the west, and the mainland and Sierra Seri rose just to our east, separated from the island by the narrow Canal del Infiernillo (Channel of Little Hell). I had ventured to the highest points of the island to fill in a long-standing gap in the flora of the island—a rigorous treatise of all the plants that occur in a defined area. What plants occurred at nearly 900 meters above the desert coast on this 1,200-square-kilometer island? No one knew, so in collaboration with my mentor Dr. Richard Felger, I ventured forth to find out. Little did I know that what we would find would send me on journey to the far corners of the North American deserts and then back again to the place where it all began at the top of the island, seeing it as if for the very first time.

After taking in the view for a couple minutes with my companions—botanist Brad Boyle and Comcaac bighorn sheep guide José Ramón Torres—we got back to the task at hand. We were there to carefully examine, record, and document the plants we found at the top of the island by collecting specimens, and our time was limited. Generally, the tops of mountains are cooler and moister and, accordingly, more vegetated than the portions down below. At 29°N, just a couple hundred kilometers north of the southern edge of the Sonoran Desert, I expected that the top of Tiburón would hold a large array of more tropical species. As we climbed through the canyons leading to the high ridge, we had come across several, adding nearly a dozen new species to the flora of the island. Yet, the top of the island was surprisingly marked with bare ground and more shrubs than trees, many of these the same desert shrubs and trees as on the desert floor. Soon, a patch of short, green, spine-tipped shrubs drew our attention. They looked remarkably like the crucifixion thorn of northern and central Arizona, *Canotia holacantha*. But



A quest for a landscape's past reveals time embedded in a desert shrub

that wasn't possible, was it? All doubt was erased when José Ramón found the unmistakable woody capsules still attached to the plant. *Canotia*, here at the top of the island, hundreds of kilometers from the closest known population? The intrigue was too much to ignore. As in any good science expedition, one question and discovery leads to the next. The hook for my dissertation had been set.

Four years later found me driving up the endless switch backs of mainland Mexico's Sierra Madre, or God's Middle Finger, as Richard Grant's exploration novel calls this range. I was with my friend Abram Fleishman in a Ford F-150 belonging to the University of California, Riverside, the institution at which I was now at pursuing my PhD. We were on our way to Coyame, Chihuahua, at the far





PAGES 30-31: The rugged interior of Isla Tiburón. The author collecting *Canotia* on Isla Tiburón (image by Servando López Monroy).

ABOVE: Looking toward the Baja peninsula in the west (image by Brad Boyle). *Canotia* at an island high point.

edge of the Chihuahuan Desert and over 700 km east of Isla Tiburón. Since returning from the top of the island I had decided to pull on the thread of the *Canotia* enigma and try to get to the bottom of what was it doing on the top of Isla Tiburón, and to see what that could tell us about the history and origin of the Sonoran Desert. The tool I would employ is known as population genetics, which is based on the idea that genetic signatures—in this case slow-mutating chloroplast DNA sequences—capture the relationships between different populations back in time, revealing past geography. I was now on a quest for widely scattered populations of *Canotia* across its range, and Coyame has one of the rarest of all.

Tucked into the rolling limestone hills of the Chihuahuan Desert are the only locations of the other species in the *Canotia* genus, *Canotia wendtii*, first identified in 1975. Our journey took us up the moist tropical slopes of the Pacific side of the Sierra Madre, through the pine forests of Yécora in the highlands of the Sierra, into the deep barrancas outside Madera, Chihuahua, then down the gentler grade of the eastern side of the Sierra and into the Chihuahuan Desert. This is the land of sotol, or desert spoon—an agave relative used to produce a delicious distilled beverage of the same name, which we met on our journey and with which we quickly became well-acquainted.

Unlike the Sonoran Desert, in its northern stretches the Chihuahuan lacks columnar cacti; it is a landscape of low stature with vast landscapes of creosote bush, shindagger, agave, sotol, and other shrubs. This high-elevation desert is too cold in the winter for columnar cacti, and in general shares relatively few species with the Sonoran Desert on the other side of the great Sierra Madre—except, that is, for *Canotia*.

After several days' travel and multiple side trips that familiarized us with this new desert land, we reached the coordinates noted on herbarium sheets of *Canotia wendtii* at the University of Arizona herbarium by those who first collected and named this species. Not sure what to expect, we walked a short way from the truck—and immediately found a dwarf *Canotia*, nearly identical to what I had seen on Isla Tiburón, but shorter, around knee-height. Remarkably, an area of less than one square

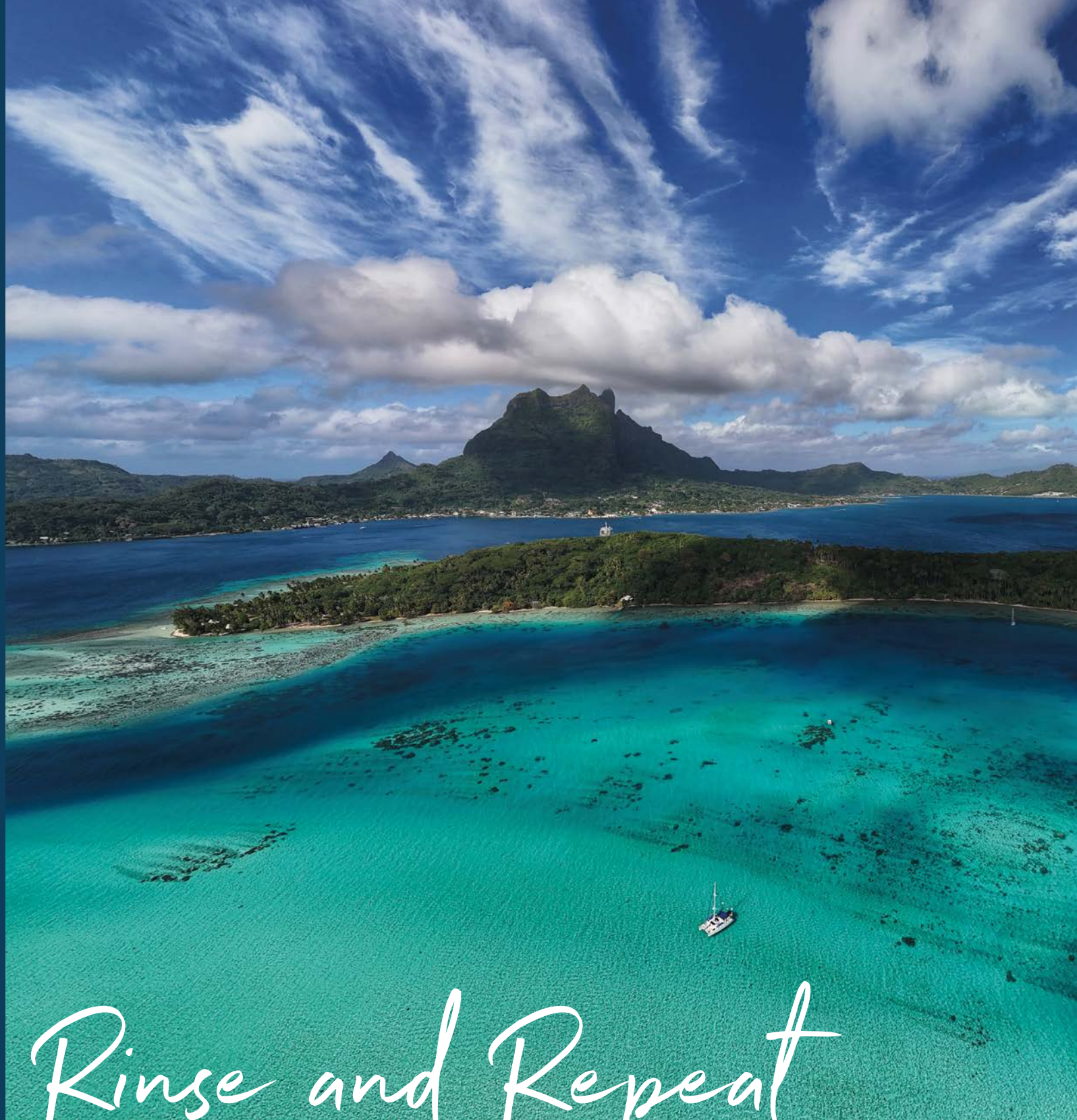


LEGEND

- Collection points for *Canotia* mentioned in this article
- In pursuit of *Canotia*
- ⋯ Continuous range of *Canotia*



Canotia holacantha drawing by Lucretia Brezeale Hamilton.



Rinse and Repeat

Thirty years after their first circumnavigation, a family sets sail on the same boat—with the next generation



*Images and story by
David 'Dito' Abbott*

BOOM!

A crash echoed through the Mexican boatyard. We stared at the hydraulic skateboard, horrified. Its mission had been simple: transport *Exit Only*, my parents' 39-foot catamaran, from our dusty work site to the launch slip.

Unfortunately, the yard's uneven ground had other plans. With a creak and a fatal wobble, the skateboard dropped 20,000 pounds of hopes and dreams onto hard-packed gravel. *Exit Only*'s rudders took the worst of the fall, digging twin trenches into the desert soil.

It was April, and the South Pacific cruising season was in full-swing. To avoid cyclones, we needed to be in New Zealand by November. Seven months is a brief window to sail a third of the way around the planet. We were running late, and major fiberglass repairs were a nail in our season's coffin.

Then miracles happened.

Within hours of the fall, a marine surveyor who lives in the boatyard assessed the damage. Considering *Exit Only* landed on her rudders, we got off easy. Both rudder tubes suffered minor fiberglass delamination, four auxiliary bulkheads broke loose, and she had slight buckling in her hulls. *Exit Only* remained structurally sound—not bad for a 30-year-old catamaran that had already carried our family around the world once.

As we processed this news, another hero appeared. Jerrad was new to the yard, but when he heard about our predicament, he came over to inspect the damage. We were delighted to learn he used to run a fiberglass shop in the Caribbean, repairing charter boats. He volunteered to tackle the repairs if we contributed elbow grease and the yard provided supplies. Within an hour, we had a plan. Within twelve, my forearms were itching from fiberglass dust.

A week passed in a blur of sanding, glassing, and manly high-fives. Jerrad proved himself to be a fiberglass wizard. He re-tabbed loose bulkheads, reinforced rudder posts, and provided much-needed reassurance that our damage wasn't nearly as bad as the hurricane wounds he typically repairs.



our crew a much-needed morale boost. As excited as we were to see land, 24 days at sea had drained us. Hosting a guest helped us appreciate cruising with fresh eyes.

We toured Hiva Oa, then moved to a neighboring island named Tahuata for a week of beach combing. Our high point came when I jumped in the water to retrieve a fallen towel and discovered a huge black creature was circling me. My first thought (“Uh-oh”) was replaced by joy when I realized it was a manta ray. We grabbed our snorkel gear and spent one of the best hours of my life swimming around *Exit Only* with three curious mantas.

The Marquesas Islands delighted us at every turn. In Ua Pou, we swam in a picture-perfect waterfall and bought sweets from a quirky chocolatier named Manfred. In Nuku Hiva, we hiked to Vaipo Falls, eager to repeat one of our favorite adventures of yesteryear—and wow, was it epic. Torrential rain drenched us for the duration of

the six-mile rainforest hike. We forded multiple rivers and made our way up a narrowing canyon, wobbling across ankle-breaking boulders. In the end, Vaipo Falls rewarded us with a swim I’ll never forget.

We celebrated the hike with a Polynesian feast. A local couple named Te’iki and Kua offer hikers authentic Marquesan cuisine and a chance to ask questions about what it’s like to live in Nuku Hiva. Following the meal, we bought enough pamplemousse (grapefruit) and fresh produce from Kua’s garden to sink an ocean liner.

I’m grateful when my daughters interact with locals. Travel’s greatest blessing is the gift of perspective. I grew up in Saudi Arabia in a melting pot of ethnicities and cultures. I want my children to recognize how beautifully diverse, yet fundamentally alike, humanity is. There are an infinite number of ways to go through life, but we all want love, happiness, and hope for a brighter future.



Far faster than we liked, our time in the Marquesas drew to a close. Cyclone season was months away, but we had barely cracked the door to the South Pacific. Wendy flew back to the U.S. and *Exit Only* continued southwest to the Tuamotu archipelago. With scores of islands to choose from, we relied on recommendations from fellow cruisers. In the end, we visited three: Fakarava, Anse Anyot, and Rangiroa.

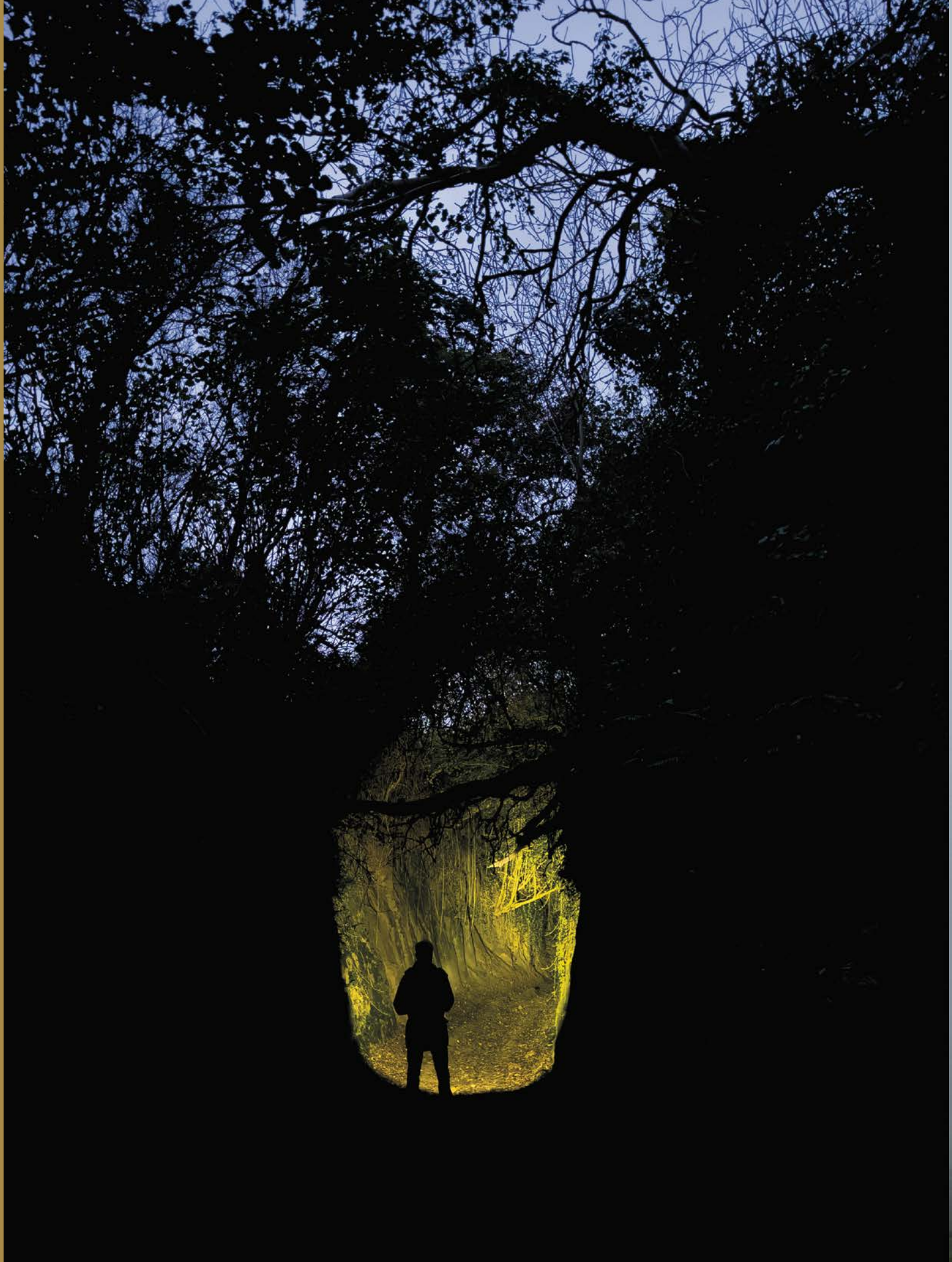
Most Tuamotus are classic atolls, a circular coral ring surrounding a lagoon. As picturesque as they look from the air, they can be tricky to enter. Atolls typically feature at least one pass wide enough for sailboats to transit, but geography and tidal currents make each pass a unique challenge. Lagoon size, number of passes, and phase of the moon dramatically alter water flow in and out of an atoll. Ideally, you want to arrive at a pass just before slack tide, when the current will be slowest. Tide calculators allegedly help, but in our experience, timing the tide comes down to luck. Fortunately, if

you're willing to circle outside a pass for a few hours, conditions will eventually work out.

Our arrival in Fakarava coincided with a robust outgoing tide. The ocean's power was on full display as we inched forward against the five-knot current. A wrong twist of the helm or an engine failure would result in getting swept backwards through standing waves and a destructive roller coaster ride.

Fakarava is a SCUBA diving mecca, thanks to its famous Wall of Sharks—well, I say “famous,” but until we visited the south pass, we hadn't heard of it. Shortly after we dropped anchor, a cruiser invited us to a drive-in screening of a documentary about the pass. Sundown found us rafted to their boat with ten other dinghies, watching a video about the shiver of sharks teeming beneath us.

Not my best parenting decision.



SUNKEN TREASURES

Exploring the ancient holloways of Dorset

by Roseann Hanson

Images by Jonathan and Roseann Hanson

We step from the door of our cottage into Middle Earth.

Sloshing through an ankle-deep stream, we part tendrils of prickly bramble shoots that reach hopefully toward the water from the bushes arching 15 feet overhead. A robin sings from a hidden perch in the blackberry bramble, and we can hear rooks calling from distant fields. Wood-pigeons rustle and coo overhead. The farther in we go, the darker the way and deeper the earth walls, which are covered in ferns—hart's tongue, polypody, hard, bracken—many lichens, fungi, mosses, and shrub-forms of hawthorn, ivy, ash, and beech. Trees that were carefully coppiced into hedgerows at least 100 years ago are now gone wild, bolstering the arched-foliage ceiling. The banks are spaced just wide enough for an Ent to reach across and shake hands with a friend. One of these is a very old English oak of considerable girth who stands guard on the north bank 20 yards or so into the tunnel, witness for many hundred years to the passage of humans and animals. For this is an ancient road, a holloway—*hola-weg* in Old English, meaning lower or deep road—that runs through the southern Dorset sandstone, at one time connecting two market towns and probably to the nearby coast.

We have traveled southwest from London to the village of Chideock for this mini-expedition to hike the Hell Lane and Shute's Lane Holloways, recording species, learning geology, and searching for an elusive moss called goblin's gold, which grows in dark places such as caves, animal warrens, and holloways and has unique light-reflective cells that make it appear to glow in the dark. Hell Lane was named not for the fires of the underworld but was a misspelling of Hall Lane centuries ago, which stuck, and Shute's Lane is named for the Dorset word for holloway. It is thought they are around 300 years old but could be much older; no one knows for sure.

We are joined by friend and colleague Alex Boon, a Devon artist and fellow member of the Royal Geographical Society's Art of Exploration Collective. Alex was in London with us for a series of events at RGS during their seminal Explore Week, a nearly 50-year-old symposium that inspires and prepares geographers, biologists, archaeologists, and other explorers for field work.

Little is known about the purpose and origin of holloways, and what has been written about them has promulgated a lot of non-verified mis-information. For example, many sources say they were cattle-roads, dug



Portable Color: The best field arts



Paint Palette

by Roseann Hanson

After more than 20 years keeping field notes with only the barest hint of pencil sketches or quick ink renderings of plants to ID, I began to have longings to create beautiful field notes pages like those of Edith Holden (*The Country Diary of an Edwardian Lady*), Hannah Hinchman (*A Life In Hand*), and Clare Walker Leslie (*The Art of Field Sketching* and *Keeping a Nature Journal*).

But when I first started to incorporate watercolor into my field journals, I floundered.

Almost no one comes right out and says it, but watercolor is one of the most difficult paint media to master. Unlike oil and acrylic or even gouache (an opaque version of watercolor)—which can be layered over and over and altered without major repercussion—watercolor works best when mixed carefully and laid down with minimal fuss. Translation: you can't really fix it when things run amok. Which, of course, is common for beginner watercolorists. And the result is that beginner watercolorists often hate their work and rarely continue to persevere into mastery because it is, undeniably, hard.

This is why I spent several years arriving at my minimalist approach to watercolor. Initially, based on recommendations in books and online, I bought a 24-well palette and all the paints suggested. However, none of the resources or classes I consulted helped me with the critical question: why these colors? and . . . how to use them together?

The results were, for me, a disaster: I didn't know anything about how different pigments mix with each other, that there was a difference between transparent

and opaque properties, and that there were “cool” vs. “warm” tones. Amazingly, none of the classes or books taught me what these were. I spent too much time trying to guess which colors would work best, and the result was “mud,” the dreaded term applied to watercolor mixing of the wrong type resulting in dull, ugly colors.

In addition to all that—and really more critically—I just got tired of carrying such a large selection with me in the field. A 24-color palette is pretty big (10 x 4 inches and 14 ounces). There was, I discovered, an easier (and lighter!) way.

Thanks to Australian watercolorist and blogger Jane Blundell, I discovered the miracle of primary triads—that is, that with three primary colors one could mix almost any color one needed. And this is the clincher: I learned that most of us in early schooling (and even today) were taught the wrong primary colors. Cyan, magenta, and yellow are the true primaries, not “blue, red, and yellow.” If you have had any experience with color process-printing, you know the term CMYK, which is used to create any color needed. C=cyan; M=magenta; Y=yellow; K=black. Eureka, I was on to something!

Using Jane's excellent advice, I filled a little paint palette with a triad of colors that best approximated cyan, magenta, and yellow—Manganese Blue Hue, Quinacridone Rose, and Cobalt Yellow—and added in two bonus colors, Burnt Sienna and Indanthrone Blue. With these five colors I could mix anything I needed for field journaling—including deep blacks and a wide variation of grays—and not have to fuss around with a bunch of colors or carry a heavy palette. In a year I



Water Containers

Story and images by Jonathan Hanson

Water is the bane of self-sufficient travel. It is by far the most critical thing we have to carry, and by far the heaviest per cubic unit. No one has yet invented freeze-dried water and I'm not anticipating it any time soon. And no one has ever been able to train the human body to need less water than it needs—military forces have tried for millennia. When I was exploring the desert islands of the Gulf of California by sea kayak, on journeys that might last two weeks, the first thing I had to load into my 60-pound boat was 150 pounds or so of water, *then* I could pack food, the tent and bedding, cameras, and so on. Backpacking, bicycle or motorcycle touring—much the same. Water outweighs every other single component of the kit.

The situation is much relieved when you've got internal combustion (or electrons) moving you, and a 5,000-pound carrying device. Nevertheless water can account for a significant addition to your total cargo allowance. And there are additional factors to consider: the weight should be carried as low and as close to the center of gravity as possible; it must be well-secured in the event of an accident.

A built-in bulk tank with a pressurized delivery system is one approach to carrying sufficient water for a journey. The 24-gallon stainless-steel tank on our 70-series Troop Carrier is mounted below the floor between the chassis rails just in front of the rear axle—the ideal spot in terms of weight distribution as it actually increases side-slope and rollover stability in that position. A pair of 12V pumps provides water to both the interior sink and an exterior tap mounted at the rear bumper. In many ways it is the best and most convenient way to store and dispense water.

But there are issues with this approach. First is the cost, by some distance the most expensive. Also, a permanently mounted tank is obviously permanent; you can't swap it to a different vehicle for a different kind of trip, or loan it to a friend. That permanence also means that to fill it, you must bring the water to your container rather than the other way around if you can't park next to the source. We carry a jerry can to ferry water if needed, and also as a backup standalone container. This is because with a permanent tank, all your eggs are in one basket, as the saying goes: if you take aboard a few gallons of contaminated water, it





A ship's biscuit at the 19th century *HMS Trincomalee*, Hartlepool, England.

The Ship's Biscuit **Fuel of Exploration**

by Roseann Hanson

Today when one conjures a biscuit, depending on your geographic location, it is a fluffy warm cloud of wheaty goodness on which to slather butter and jam (southern United States), or it is a crisp bite of either a sweet cookie, often double-blessed with icing, or a cracker, on which to savor a hunk of creamy double Gloucester (United Kingdom).

But the original “biscuit” was, like your cranky old grand-uncle, dry, humorless, and hard as nails. The word as well as the rock-hard unleavened bread itself probably originated or at least popularized in Rome, where *biscotum* meant “twice-baked.” Legionnaires were sent abroad to conquer the world fortified by hard little breads called *buccellatum*.

Having no fat and being twice-cooked and thoroughly dried, they did not spoil. Much later the receipts (as early recipes were called) moved with the legions through Europe and by the 14th century, according to food historian Dr. Annie Gray of English Heritage, the word biscuit entered the English language, most likely by way of Old French (“bescuit”).

Oxford English Dictionary: *Unleavened bread baked in flat cakes (common in seamen's diet).*

Forms—*bisquit(e)* n. Also *besquite*, *biscute*, *biscocte*.
Etymology—*bescuit* (Old French), *biscuit* (Medieval Latin, *biscoctum*).

Some of the earliest recorded texts referencing biscuits point toward preparations for long journeys, by sea or land (Oxford English Dictionary):

c1450 (c1400) *Book of Vices and Virtues* (San Marino, Huntington Library HM 147) 110/20 : *Pis be bisquit wher-wip he vitaille his schip.*

Author's note: I'm pretty sure that's a version of "Tis with the biscuit wherewith he victualled his ship."

c1470(?1458) *A Prevision of Preparations for Travel to Jerusalem* (Oxford, Bodleian Library, Bodl. 565): *The wyne that ye schal drynke be goyd ... and also byscocte.*

According to the British National Maritime Museum, there are references to Richard I (Lionheart) setting out in 1190 with his ships victualled with "biskit of muslin" (mixed meal made of barley, rye, and bean flour—which sounds very nutritious). By the time of the Spanish Armada in 1588, the Queen's sailors had a daily allowance of 1 pound (0.45 kg) of biscuit. In the mid-1600s Samuel Pepys, working for the Navy Office, compiled the first comprehensive table of rations for seamen, including "one pound daily of good, clean, sweet, sound, well-baked and well-conditioned wheaten biscuit (plus a galleon of beer and other victuals)."

Biscuits were made by contract bakers up until the 18th century when flour mills and bakeries were set up and controlled by the Victualling Commissioners in London and Plymouth, allegedly due to quality control issues with contractors (*reference the article on John Rae, page 16; it's probable the Franklin expedition was seriously impacted by lack of stores due to improperly canned foods*).

Ship's biscuit ingredients were stone ground flour, water, and salt, which were mixed into a stiff dough, beaten, rolled, cut, baked, and then left to harden and dry in purpose-built lofts above the baking ovens. According to an article by the Old Plymouth Society,

the Royal William Yard was capable each week of converting one thousand 270-pound sacks of wheat flour into biscuits. There were two bakeries, each with six large ovens, mechanical rollers, cutters, and other machinery in order to mix the flour and water, and knead the dough. There were similar bakeries at Deptford, Gosport, and Malta. Each bakery had its own unique biscuit stamp with which to mark the biscuit before baking, but all included a broad arrow symbol, which has long denoted government property. In heraldry, the arrowhead generally points downwards, but in most other contexts it points upwards.

The Master Bakers duties in 1844 with regard to making ships biscuits were defined as follows (Old Plymouth Society):

Take particular care that the dough be properly mixed by the mixing machine and subsequently well kneaded by the breaking rollers and that none be left in the evening after the last suite of biscuit is made, in order to avoid any loss to the Public from it becoming sour.

Take care that the biscuits are made thin, properly baked and of such a size as not to be less than 5 to a pound and that the ovens are well filled so that each suite when drawn there from shall weigh at least 100 lbs.



By the end of very long voyages, say of a year or more, the ship's biscuits would invariably be infested with weevils, known by the nickname "bargemen." Biscuits were served

from a "bread-barge"—a box or container—in a ship's mess (reference: Oxford English Dictionary; first known use 1840 in Richard Henry Dana's *Two Years Before the Mast: A personal narrative of life at sea*). Weevils are the larvae of various beetles that feed on flour.

MAKING WAVES



by Jonathan Hanson

The first successful transmission of a wireless signal across the Atlantic Ocean was accomplished by a man who didn't know why it worked.

In the early 1890s, a teenaged Guglielmo (“*ghoul-yelmo*”) Marconi, the son of an Italian father and an Irish socialite mother—a member of the Jameson whisky family—read about the experiments conducted by Heinrich Hertz, who had proved James Clerk Maxwell’s theory that invisible electro-magnetic forces traveled in waves through the air. Hertz had used Leyden jar batteries to make a spark jump across the gap between two metal spheres. He placed a circular wire antenna nearby which terminated in two metal spheres also separated by a small gap. The electromagnetic wave created by the initial spark—a Hertzian wave, as it would come to be called, and later a radio wave—created a weak spark across the spheres of the antenna, proving that energy created by the initial spark was transmitted invisibly through the air.



We turned west off the Darb Al Arbaein—the Forty Days Road—and bumped in the Land Cruisers across dunes and stony ground and finally pulled up in the lee of a Roman fort, one of dozens of such ruins throughout Egypt's Libyan Desert. Thousands of potsherds littered the sand, and nearby were the remains of an aqueduct leading to a still-active spring and oasis, where the Romans got their water. (25°24'52.3512", 030°32'07.7892").

Photo, Jonathan Hanson

