RANDOM HOUSE eBOOKS

Coast: Our Island Story

Nick Crane

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About the Author

Best known for his work as a presenter on *Coast* and for his BBC series' *Map Man*, *Great British Journeys*, *Britannia* and *Town*, Nicholas Crane is a writer and geographer with a passion for maps and exploration. In 1992–3 he walked alone for eighteen months along the 10,000-kilometre mountain watershed of Europe, describing this epic adventure in his award-winning book *Clear Waters Rising*. Then came *Mercator*, a biography of the Renaissance mapmaker, published in 2002 and described by *The Sunday Times* as standing 'at the peak of Crane's achievement'. Nicholas' most recent books are *Great British Journeys* (2007), which follows the exploratory footsteps of eight intrepid writers, and *Coast: Our Island Story*.

Also by Nick Crane

Mercator: The Man Who Mapped the Planet
Clear Waters Rising: A Mountain Walk Across Europe
Two Degrees West: An English Journey
Great British Journeys

NICK CRANE

COAST

OUR ISLAND STORY

A JOURNEY OF DISCOVERY
AROUND BRITAIN AND IRELAND

BBC
BOOKS

To Imogen, Kit and Connie

Preface

Dear Reader,

Thank you for opening this book. I find myself writing these introductory words last. The manuscript is complete, and I’m on the coast. Before me is a scene of beauty. It’s an estuary in Wales at dusk. The tide is flooding and all the boats have turned to face the sea, as if they are soon to slip their moorings and sail away on a voyage of discovery. Only a few hours ago, the same estuary was a sandy plain, parted by a meandering blue thread. Off the beach at the estuary mouth, a kite surfer was twisting balletically from breaking crests, and mountains floated on the salt haze. Beside the lifeboat station, families were playing football and Frisbee and two boys had built a turreted castle that rose like Harlech from the smoothed foreshore. A steam train passed, and a Hercules transport plane, and a timber sailing boat, rigged medieval-style with a dipping lugsail. A pair of gulls opened mussels by dropping them from 30 feet onto a tabletop of small, flat stones. Now the sea is pouring in and the estuary is restless. The tide slaps and gurgles against the old stone bulwarks of cottages whose attentive windows have seen square-riggers and tramp steamers, barques loaded with slate, and herring boats in from gales.

Our coast has more stories than can ever be written. These enviable islands have an ideal climate for life to flourish, and they’re located in one of the busiest parts of the globe. They also have a very long history: the rocks that form our oldest shores date back three billion years, more than half the age of the planet. Visually, it’s a diverse

spectacle. There are cliffs in the north of blackest basalt, and cliffs in the south of purest white; cliffs in the west as red as blood and sands in the east the colour of honey. There are sea stacks taller than Nelson's Column, and sea arches you can thread by boat. There are beaches framed by turquoise shallows and bays where dolphins play. Way back when the ice sheets melted, these seas were full of fish and you could feed a family from the foreshore. Is it any wonder that humans flocked to these coasts? The stories they brought lie layer upon layer around the edge of the islands. In this book, I've chosen to tell just eight of those stories.

The stories are thematic, so the places I've chosen to include are those that best illustrate the narratives; this isn't a gazetteer, and many coastal celebrities make no appearance at all, while plenty of lesser-known players are promoted to centre stage. The journey I take is not literal, but an odyssey through time and space. Having said that, most of the first-hand material I relate was accumulated on journeys of some sort. Each of the themed stories is chronological, so you can follow, say, fishermen from the early days of hunting with barbed harpoons through to beam-trawling, or the evolution of seaside resorts from the dipping of toes by wary Hanoverians to roller coasters and kayaking. I agonized and experimented before settling on the themed approach. My purpose was to explore the sources of our coast's extraordinary diversity, and by doing so, to gather insights into its value to us now, and in the future. I hope you find the eight journeys as fascinating as I did.

In the first story, I travel into the deep past to see how rocks and drifting continents and climate have created such a wonderful pattern of islands. The second story follows the fishers and foragers who discovered the natural bounty of these temperate, productive coasts. The third and fourth stories track the evolution of trading ports and the

various means we've devised to defend our shores against our enemies. The fifth and sixth stories are tales of opportunism and selflessness (or sin and redemption) as we move from wrecking and smuggling to the heroes and heroines who made these shores safe by building lighthouses and manning lifeboats and coastguard stations. The seventh story looks at our recognition of the coast as a source of good health and at the ways in which we converted it into the biggest, most popular playground in the archipelago. In the final story, I follow the enduring role of the coast as a 'sacred place'.

This book sprang from the success of the BBC series *Coast*. All who worked on its first series were startled (in the best possible way) by its unexpected popularity. Millions switched on, and have stayed loyal as BBC Birmingham produced series after series. There's a sense that Britons are discovering how much fun the coast can be, and what a huge role it has played in forging our identity. This has less to do with nationality than with being islanders. Everybody who grew up on these islands has a relationship with the sea, imaginary or actual. None of us live more than a couple of hours from the high-tide line. The history of these islands was built upon an understanding of the sea, and as we look for more enlightened ways to amuse ourselves, the coast is being revalued.

It's the right moment for a rethink. Our coast describes the body of our land, and yet it faces a spectrum of intense human demands. We need it to feed ourselves, and we need it to provide the havens for the ships that fill our shops and fuel tanks. We need it for the power generators that send electricity to our fridges, factories and vehicles. We need the coast for our holidays, and for living beside, and we need it because it is a sanctuary, both for wildlife and for the human spirit. In these eight stories, I hope I've shown why the coast is an unparalleled natural wonder, why it's

our defining resource, and why we should take every care to preserve it for future generations.

Nick Crane
August, 2010

Particular Thanks

We did a photo-shoot once, on a beach in Wales, and we were all there: historian Mark Horton, zoologist Miranda Krestovnikoff, archaeologist Neil Oliver and biologist Dr Alice Roberts. And Alice's lime-green micro-bus. Other presenters have subsequently joined the team: Hermione Cockburn, Renee Godfrey, Kate Rew, Dick Strawbridge and, most recently, Tessa Dunlop and Adam Henson. I feel very fortunate to have shared the boat with you all.

Steve Evanson and Gill Tierney at BBC Birmingham not only built the boat, but managed to launch it on the epic circumnavigation that became the first series of *Coast*. Roly Keating, then the Controller of BBC2, gave *Coast* an enviable slot on the best TV channel in the world, and Janice Hadlow has kept it there. As BBC 'execs', Gary Hunter and now Bill Lyons have been invaluable champions of *Coast*, and so has the BBC's Emma De'ath, who was instrumental in forging such a successful partnership with the programme's co-producer, the Open University. Composer Alan Parker – guitarist to the greats – wrote the music that carries each film onto the next headland and Mike Bloore created *Coast*'s unique editorial style. Every director, cameraman, sound recordist, assistant producer, researcher, production manager, editor, sound engineer and production coordinator who worked on *Coast* was part of its success; part of the reason it picked up a BAFTA and various other awards, and became in its first year the highest-rating factual programme on BBC2. Among those who played a pioneering role on the first series, were

director Oliver Clarke, cameraman Julian Clinkard and production manager Alison Jenkin. By the time this book is published, BBC Birmingham will have made eight series of *Coast* and several ‘specials’; a total of over 60 films. Books too can become epic endeavours, and this one is no exception. I wanted to go beyond the TV films, and for those of you who have followed the screen version of *Coast*, there will be much here that is new.

At BBC Books, I’d like to thank Caroline McArthur for finding such a splendid set of illustrations, Stephanie Evans for her copy-editing skills and my editor Muna Reyal, for the patience, encouragement and expertise she directed to the pages which follow. The updating and editing of this paperback edition has been masterminded at BBC Books by Nicholas Payne.

Once again, my pilots on the high seas have been Derek Johns, my literary agent, and Rob Kraitt, my TV agent, both at AP Watt, while Yasmin McDonald, Juliet Pickering and Bea Corlett at the same, august agency, have handled countless issues on my behalf while I’ve been *Coast*ing.

For keeping the harbour lights glowing during long nights at sea, there is one above all to whom I am grateful beyond measure: Annabel.

1.
Precious Stones, Set in the Silver Sea: The Creation of Our Coast

IT'S MIDSUMMER AND silvery squalls are ghosting across the Irish Sea. Twenty-four hours of gale-force winds have massaged the waves into slow-moving ranges that collide with deep shudders against Anglesey's western bastion. South Stack is in formidable form. I'm on the edge of the cliff with Libby Peter and Graham Desroy. Bandoliers of clinking metal swing from their hips as they step over snakes of rope, tightening helmets, adjusting straps and buckles. They move with the slinky grace of stalking cats, smiles in their eyes. The brink of an abyss is their natural habitat: it's where they excel. They are rock climbers.

Libby goes first, stepping backwards into the void. Peering over the edge, I can see clouds of spray erupting against black rock. The yellow dot of Libby's helmet disappears beneath an overhang. The sea is a couple of hundred feet down.

'How will we know,' I ask Graham, 'when Libby's at the bottom?'

'The rope will go slack.'

I run my hands over my harness for the tenth time. We're going to abseil down the cliff to a ledge just above the waves, then traverse around the headland to the foot of a climb called *Illya Kuryakin*. It's my first cliff climb, graded VS, Very Severe; just a light scramble for the likes of Libby and Graham.

‘You ready?’ asks Graham.

I thread the abseil device, clip onto the rope and lean backwards (always a tricky moment, that initial, gravitational tilt).

‘Just be careful on the first bit,’ calls Graham from above my head. ‘It’s loose, and we don’t want to drop rocks on Libby’s head.’

I let the rope slide through my hand. I’m tip-toeing backwards. The feeling of ‘time standing still’ is more than a cliché. It really happens. The brain’s response to mortality is to shut down every thought circuit except the one required to overcome immediate danger. The tick-tock of everyday concerns is replaced by a silent, temporal vacuum; an infinite cerebral space bisected by a single, narrative thread to the future. It’s a pure space, reserved for survival and pleasure.

I watch my rock shoes touch the fissured rock. A piece of quartz the size of a dice trembles in its socket. I’ve forgotten how to abseil an overhang, and for a moment I’m dangling, with my helmet scraping the rock and feet cycling for contact. The sea, blue and hard, is heaving like the flank of an enormous beast. I ease the abseil device, and feel my toes touch the cliff.

Leaning back, I’ve got a clear view across Gogarth Bay to North Stack, one mile away. And there, oblique from this angle, is one of the greatest climbs in Britain, *Dream of White Horses*, 430 feet of airy, arching HVS [Hard Very Severe]; first ascended in 1968 by the poet–climber Ed Drummond. He once referred to rock as ‘petrified patience’.

At the foot of the abseil, Libby organizes ropes while Graham slides down to join us. We traverse around the headland. Waves explode at our feet. I can taste the salt on my lips. ‘That’s it!’ shouts Libby. ‘Over there. The crack, then the arête.’ I can’t see what she is pointing at. The cliff doesn’t appear to possess any features large enough to

catch the eye. We traverse a bit further, then Libby turns again: ‘We start from here. You step across this gap, then go up.’

Most of the rock climbs I’ve done (and it’s not many) have started on serene lawns of rough grass, or banks of scree. The start of *Illya Kuryakin* is precarious, and tempestuous. The ocean booms and smokes, and I’m teetering on a chipped blade of rock, anchored to the cliff by my left hand. And yet this is one of the easiest climbs on these cliffs: just two pitches to the top.

Libby goes first, effortlessly crossing the chasm at the foot of the cliff, then pausing for a moment, looking upward. She floats up the first pitch as if gravity has been reversed. She arranges a belay. Then it’s my turn.

The chasm is an immediate problem. I can’t see how to reach the foot of the climb without falling into the sea. Graham advises a bridging movement. The fact that I’m not swimming is a preliminary triumph. But I’m committed now. I’ve crossed the chasm, and the only way out, is up. And *lllya Kuryakin* is ridiculously vertical.

Belayed from above, I cannot fall, but that is not the point. Rock climbing is an exercise in grace. Ascent is measured by the manner of the moves. I’m poking and scrabbling, clinging to the cliff. There is a kind of fissure, sparkling with quartz, and I’m trying to wedge sufficient bits of my extremities into this crack to prevent a fall. I’m about 20 feet above the waves when I hear Graham calling:

‘Nick … try spreading your legs, like a starfish. Use more of the cliff. You’re trying to pedal up a line!’

I withdraw my left foot from the sanctuary of the crack, and explore the face of the cliff. A sharp nodule catches the edge of my climbing shoe. (He could be right.) I do the same with my right foot, then reach sideways for a hand-hold. Spreadeagled, I realize that I’ve doubled, trebled, the number of available holds. To move upward, I have to reach for the cliff, not hide from it.

I’m moving upward. The cliff feels warm. This is complex rock, quite unlike the uniform cliffs of Dover or Orkney, where uninterrupted walls of chalk or sandstone rise for hundreds of feet. Here at South Stack, I’m looking at a dog’s breakfast of geology: rock of many textures and hues with no obvious arrangement. Geologists are still trying to understand what happened on Anglesey. It was, unquestionably, violent. This was once the collision zone between two of the earth’s plates and the rock here has been baked by pressure and heat; folded, twisted and sheared.

I’m back on quartz again; a white, glassy vein in the cliff. The view is wonderful. The coast is an edge, and here, where Anglesey’s ancient rocks meet the sea, the edge is emphatic. There are no sandbars or lagoons, or gentle peterings of land and sea. The land is cleaved as if by an axe. In the horizontal plane, there is an immediate transition from green to blue; I am suspended on that edge, in the other plane.

The crux comes too soon. It’s an awkward move; a test of faith. The arête is like the corner of a shattered building. At the top, there is a huge, protruding block. There are no holds for my feet, and I cannot reach the top of the block. The only means I have of pushing upward is to smear my right shoe against the smooth, tilted side of the block. It is nearly vertical, and I look down at my foot, wondering whether the friction between rubber and rock will be sufficient. If the shoe skates off, I’ll fall. Well, not exactly fall, because I’m roped from above, so there will just be a sharp jolt. But humans are wired to fear falling, and besides, dropping off a rock climb breaks the spell. Climbing is feat of imagination, rather than a test of braided polyamide.

The sea is so far down that it is silent now. The fingers of my left hand are wedged in a crack. I’ve forgotten to remove my wedding ring, and realize that if I slip and the

ring jams in the crack, my finger will be torn off. I rearrange the hand, so that the finger-at-risk is outside the crack, then push, tentatively, with my right foot, transferring my weight onto the face of the slab. I return my weight to the lower, left foot, take a breath, look upward, and move.

The rest is easy. I climb, absorbed in the pleasure of balancing each move. Then there is an abrupt change of plane, from vertical to horizontal, and I can walk. It's over, and I'm throwing my arms around Libby. Graham climbs up to join us and there is chatter and footling with coils of rope and racks of gear while the sun slips towards the sea. Off South Stack, the sea is boiling; the tide has turned.

In the big, spherical picture, the coasts of these islands are young; a tick of the clock in the planet's six-billion-year chronology. A mere 20,000 years ago, Scotland was covered with a mile-thick ice sheet that reached as far south as the Humber and the Severn. The North Sea and English Channel were arid, frozen wastes of wind-blown glacial dust. But the planet's climate is capricious, and when temperatures suddenly rose around 16,000 years ago summers became as warm as those of today. Sea levels rose, filling shallow basins. Thawing sands and gravels grew green with juniper and birch, and herds of wild horses grazed across herb-rich grasslands. Bears prowled the banks of wide, braided rivers and humans reappeared for a while. But around 12,700 years ago, the climate flipped again. Mean annual temperatures in Britain appear to have plummeted by about 15 degrees Celsius in ten years. For the best part of a thousand years, the northern reaches of the continent reverted to a cold, dry tundra. Snow lay on the hills all the year round, and in the north, glaciers cascaded from the high corries. On the coast, average temperatures dipped to minus 20 degrees in

winter, and struggled to reach 10 degrees in summer. Reindeer replaced the horse and deer, and the humans trekked for weeks at a time following the herds, as Lapps do today.

The Big Freeze was followed about 11,500 years ago by a virtually instantaneous Big Heat: extreme global warming that saw mean annual temperatures jump by 20 degrees. The greater part of this thermal aberration may have occurred in as little as 50 years. For around 4,000 years (from 9,000 to 5,000 years ago), the earth's climate was warmer and moister than it is today. Habitats went through a step change. Dense forests spread over much of western Europe. On better-drained vales and slopes, stands of oak, elder and elm took root, spreading into patchy forest which became the home of red and roe deer, wild boar, hares, and predators like brown bears, wolves and foxes. Among the wild foods were hazelnuts, which became a staple of the early human colonists.

At this kind of temporal range, it all looks like the Garden of Eden, but the warming climate had triggered a tipping point. Sea levels started to rise rapidly. The effect on our coast was transformative. In the far north, estuarine lands flooded to form a wide, salt-water gulf between the iced peaks of Scotland and those of Norway. To the west, seawater flooded river valleys and glacial trenches, detaching the Orkneys, Hebrides and Ireland from the northern European landmass. Change was most marked in the south. With the northern mountains relieved of their enormous burden of ice, the earth's crust sprung upward, but a 'see-saw' effect caused the land surface in the south of Britain to sink. Coupled with rising sea levels caused by melting ice, southern coasts were remodelled. Sea gradually flooded in from the west, turning green downland into white cliffs.

Human settlements were drowned as low-lying coasts were submerged, but the greatest loss was in the east,

where a wide land bridge still linked eastern Britain to the continent. Archaeologists have dubbed the land bridge ‘Doggerland’, after the largest sandbank in the North Sea: the Dogger Bank. Doggerland was one of the richest territories in post-glacial Europe, a vast, rolling plain threaded with rivers, marshes and lakes. Seabed surveys have revealed one thousand miles of river channels and 24 lakes or marshes, one of which covered nearly 200 square miles – an area twice the size of the Broads National Park. Ranges of low hills provided drained footings for woodland and dry passage for inland travel. Doggerland was also very ‘coastal’. As the only land bridge to the continent, it was rimmed to north and south by salt water, while its central geographical feature was a huge estuary 60 miles long and 20 miles wide. The sea was always going to be Doggerland’s destiny.

By northern European standards, Doggerland’s climate was kind. The westerly weather systems beating in from the Atlantic had dropped most of their rain and velocity by the time they reached Doggerland, while its low altitude reduced the pinch of winter frosts. To this day, the plains of East Anglia are among the driest and sunniest parts of Britain. For its inhabitants, Doggerland was the dream landscape, for it offered four adjacent habitats: coast, freshwater wetland, forest and grassy plain. All human needs were covered. It seems probable that Doggerland’s dwellers were fairly mobile, and that their seasonal migrations were anchored to their long coastline. From autumn through to spring they would have based themselves near the sea, or on the shores of their great estuary. Here they could fish and collect shellfish, and pick off migratory birds. On nearby systems of rivers and lakes, there were plenty of cormorant, grebe, crane and duck, and the wetland was rich in reeds which could be used for basketry and roofing material. In calm meres, they would have found edible plants like the water lily. In scrubland

and woods they could forage for hazelnuts, raspberries, blackberries and fungi. Herbs like sorrel and meadowsweet were there for the picking, and there were any number of tubers, seeds and leaves that we've forgotten how to use. In the woods were deer and wild pig. Nodules of flint for tools and weapons could be collected on many of the beaches, and the woods provided timber for shelters, firewood and boat-building. Early in the summer, these early settlers probably left the coasts and headed inland to hunt for game.

As Doggerland was nibbled by the sea, the land bridge narrowed, and its use as a thoroughfare – a through route between the continent and the huge, bulbous promontory that would become Britain – must have intensified. From a land, it became a highway, and a cultural conduit. The folk living on the Doggerland bottleneck must have been party to information; to knowledge.

Doggerland was probably lost in a series of inundations, swamped by storms and surges; abandoned mile by mile. At around this time, there was also a freak tsunami. One autumn about 8,000 years ago, a slab of seafloor the size of Scotland slid into a trench off Norway and pushed up a surging wall of water. It was rather as if the Ice Age was sending a reminder that it wasn't yet done, for the cause of the tsunami was 3,000 cubic kilometres of glacial sediment and debris which had been destabilized by the shifting ocean. When the tsunami hit the Shetland Islands, the waves were over 20 metres high. As far south as the Firth of Forth, they were between 3 and 6 metres high. Anybody standing on the shoreline of eastern Scotland would have been bowled over and drowned. To this day, buried beneath a top cover of peat, you can see the thick layer of stones and gravel that were swept across Shetland. Looking at it, you wonder what effect the tsunami had on the remaining vestiges of Doggerland, or its coastal families.

The connecting thread that was Doggerland finally went under about 7,500 years ago, and the severed promontory became Europe's largest island. The water kept rising, chewing at the softer edges of the new archipelago. A new sea expanded in the east and on the southern shores of Britain and Ireland river valleys filled with seawater, creating sinuous inlets. Where a promontory was cut off, or an isthmus flooded, islands formed. The shores of southern Britain are dotted with relics from these lost lands. St Michael's Mount in Cornwall used to be a sharp hill surrounded by forest which now lies beneath the waters of the bay. Fragments of that forest still appear when gales strip away the sands. At low tide on the beach at Borth in North Wales, you can find the root systems of a forest that once occupied the shallow basin now filled with Cardigan Bay. And at Amroth in South Wales, another forest emerges from the sand below the Pembrokeshire coast path. Gerald of Wales, writing in 1188, described how the beach at Newgale had been scoured clean of sand by a great storm, which revealed tree trunks 'standing in the sea, with their tops lopped off … as if they had been felled only yesterday'. The ancient Welsh legend of a sunken land called Cantre'r Gwaelod beneath Cardigan Bay appears to be rooted in fact. On the other side of Britain, Doggerland's forests are still out there, too. If you take a low-tide walk along the beach at Titchwell Marsh RSPB reserve, you may come across banks of peat poking from the wet sand. Last time I was there, the foreshore was strewn with branches, roots and the stubs of trunks, black and salt-saturated. Those trees used to reach the Netherlands. On a fishing boat out of Yarmouth, Simon Fitch, a landscape archaeologist and one of the authors of the definitive book on Doggerland, showed me core samples extracted from the seabed. We looked at the cores on the deck of the boat while the turbines of Scroby Sands wind farm revolved in the background. Each core contained a thick horizon of black

peat; all that remained of the trees and shrubs that sustained the island's post-glacial explorers.

More poignant still was an afternoon spent on the tidal mud of the Severn Estuary. This time our filming guide was an archaeologist called Dr Martin BelI, who led us through canyons of slime to a tilted bank just above the water. As the mud was being eroded by the waters of the Severn, it was breaking into layers, each layer representing a deposit of silt laid down by a particular tide, more than 8,000 years ago. One of the layers was covered with footprints; tiny, human footprints. They were so clear that they might have been made ten minutes earlier. In the perfect, sculpted impressions of toes and heels, it was possible to see how the children had been jumping, turning; leaping perhaps. What were they doing? Hunting? Playing? Fighting? Their prints have now been washed away. These tree roots and footprints read like cryptic texts from our ancestors.

Around 6,000 years ago, the rate of sea-level rise slowed. In a geological blink of just 12,000 years, a frigid, icy desert had been transformed into a temperate archipelago. Sea levels had risen by 120 metres, slightly more than the height of St Paul's Cathedral. The shore of mainland Europe had shifted southward by 800 miles, from somewhere north of the Shetlands, to the cliffs of Calais. An area of land greater than the size of the United Kingdom had disappeared beneath the sea. What remained was the higher ground, the mountains, the plateaux and 6,000 islands. Shakespeare referred to one of those islands as a 'precious stone set in the silver sea', but he might have been writing for all of them.

It is an extraordinary archipelago. Eight hundred miles from north to south, and 500 miles wide, it rises from the sea midway between the Arctic Circle and Africa. Its western shores are washed by the deep Atlantic Ocean; its

eastern shores by the shallow North Sea. We are warmed by an ocean current that has come all the way from the Gulf of Mexico, and our weather – borne on winds that can blow from the Arctic, Africa or Atlantic – is, well, variable. We are also a geological freak.

The rocks that give our coast its character are unusually old and varied. They span around three billion years of the earth's history and have survived an incredible journey; a slo-mo marathon measured in thousands of miles and hundreds of millions of years. The oldest bits of Britain and Ireland are the travel-mangled remains of crustal plates that have slithered, collided and parted across the surface of the globe. Six hundred million years ago, the parts of the Earth's crust that were to form Scotland and northwest Ireland were somewhere in the region of today's Antarctic coast. At the time, England, Wales and southeast Ireland were a geographically separate part of the Earth's crust, located in warmer latitudes roughly level with present-day South Africa. Drifting north, these two main crustal parts of Britain and Ireland merged, crossed the equator and were subject to every force in the geological toolkit. Layers of silt washed from mountain and plain emerged on our shores millions of years later as rock that looks like folded sandwiches. We have cliffs of cooled volcanic lava, and others that were metamorphosed deep underground by extremes of heat and pressure. Some of our shorelines were formed from desert sands; others were created on seabeds from the shells of dead creatures. This is the ancient land that found itself poking from the Atlantic rim 6,000 years ago when the seas became more settled.

For the first time since the ice had melted, sea and land had found some kind of equilibrium, and the forces of the ocean became focused on a relatively stable shoreline. This was the moment that the sea really went to work as a sculptor; the moment when the form of our modern coast became defined. Water is an immensely powerful tool, and

the sea is famously restless. Cliffs were undercut and rinsed by storms to form caves and crevices. Great arches and towers were hewn from headlands. Waves, tides and currents worked around the clock, shifting millions of tons of rock, sand and earth from one part of the coast to another to form beaches and spits. Coastal winds built ranges of dunes. Search the planet, and it's hard to find a coastline of equivalent length with such an incredible variety of coastal landforms.

Our wildest coast is also our oldest. A few summers ago, I climbed a hill called Heaval on the Hebridean island of Barra. It's only just over a thousand feet, but it's the highest point on the island. The air was blue with sky and sea, and so clear that the southern Hebrides were as sharp as a map: Vatersay and Sandray, Lingeigh, Pabbay and Mingulay tapering into the immense Atlantic. Across the summit of this ancient hill, lichen-speckled rock protruded from the wiry grass like the greyed remains of a gigantic fossil. Over the next three weeks, as we made our way north along the Hebridean chain to the Isle of Lewis, we'd see a lot more of this rock. We found it as the encircling arms of blue lagoons, as flotillas of islets, and as defiant cliffs being battered by a westerly gale. It's called Lewisian gneiss, and it's the oldest rock in Britain, formed at a time when simple, bacterial organisms were striving to evolve on earth. Baked, frozen, rent, folded and scoured on its three billion-year-journey, Lewisian gneiss is a relic, and it gives the Hebridean shores their ancient countenance. You can find it on the mainland, too, where it defines sections of shoreline between Cape Wrath and Skye – including the wild fringe of Assynt. This is one of my favourite coasts in Britain; a ragged edge of rock and beach fronted by islands and backed by isolated, monumental mountains. At places like Clachtoll and Achmelvich, the space between sea and peak is filled with low, hummocky hills dotted with old grey rock which has been around for more than half the age of

the planet. There are few places in the world where you can stand on a piece of stone and feel such a passing of time through the soles of your feet.

It’s up here, in northern Scotland, that we find some of our most astonishing natural architecture. The fjord-like scenery that clogs the memory card on your camera as you take the long and winding roads north from Skye has been given its beauty by billion-year-old sandstone that has been eroded into 3,000-foot mountains and deep sea-inlets. Geologists call the sandstone ‘Torridonian’, after the sea loch which squirms for 12 miles into the depths of this primeval stonework. I first climbed these mountains as a teenager, and have been coming back ever since – a couple of times by bicycle. Inner Loch Torridon can be tempestuous or moody, or bewitch you with sunlight. The peaks tilt to 3,500 feet from the water’s edge. One January night when the sky was stuffed with stars, I stood on a rock above the loch watching the Northern Lights play in luminescent curtains beyond the horns of Beinn Alligin – the Jewelled Mountain – the only time I’ve seen the Aurora Borealis from Britain.

It’s in this remote precinct of Scotland, too, that you find one of the largest and most dramatic coastline caves in Britain. It’s also one of the oldest. Smoo’s limestone was laid down 500 million years ago on the bed of a tropical sea when Scotland lay south of the equator. More recently, as sea levels stabilized, freshwater and seawater made a two-pronged attack on a geological fault in the limestone, widening it into three caverns, the largest of which is 60 metres long and 40 metres wide. The second chamber contains a 25-metre waterfall, and the third can only be reached by small boat. Smoo is described at the end of the 16th century by the great mapmaker Timothy Pont, who wrote of ‘a great hollow cave’ containing ‘a freshe pond of great deep’ and a spring tumbling through a hole in the roof. When the Scottish novelist, Walter Scott, came

visiting in August 1814, he found himself lost for words: ‘Impossible,’ he noted in his diary, ‘for description to explain the impression made by so strange a place.’

The most spectacular coasts of Wales are built on old rock, too. The jagged cliffs and reefs that form Anglesey’s north-western defences against the precocious Irish Sea began to be formed shortly after Smoo’s sediments fell to the floor of a shallow sea. Wales has several very old islands. Islands, like caves, have tended to be favoured through the ages as ‘sacred places’, and it’s often been the case that the older islands are the most sacred. Off the coast of North Wales, Holy Island and Bardsey Island (which would become one of the holiest places in Wales) are nearly 500 million years old. Further south, off Pembrokeshire, Skomer and Skokholm sound too Scandinavian to be found off the tip of Pembrokeshire, but that’s because ‘Cloven island’ and ‘Island in a channel’ were named by seafaring folk from the far side of the North Sea. Separated from the mainland by tide races, they have become sanctuaries for wildlife. The last time I visited Skomer, I was guided by Anna Sutcliffe, a marine biologist who had lived on the two-mile long island for seven years. On cliff paths, puffins pottered about our ankles building nests and looking unamused by the tearing wind and rain. ‘In good weather,’ explained Anna, ‘you won’t see them. They’ll all be off having a good time fishing.’ At the Wick, a sea-sluiced chasm on the island’s west coast, we watched thousands of seabirds adhering to the cliff, guillemots on a long, luxury ledge at the bottom, black-booted kittiwakes further up, then razor bills in cushioned nooks where the cliff relented, and at the top, fulmars gazing down imperiously from sheltered grassy belvederes. Skokholm is even smaller than Skomer, but has the world’s third-largest population of Manx shearwaters and perhaps one-fifth of Europe’s storm petrels. Harbour porpoise play in the currents, and sometimes dolphins, too.

Skokholm’s jagged reefs and red cliffs have much in common with the Orkneys, where a rock called Old Red Sandstone has been eroded into some of our most iconic coastal architecture. Old Red Sandstone is younger than the gneiss of Lewis, the limestone of Durness and the Torridonian sandstones, but it’s still old enough to have been formed before the constituent parts of Britain and Ireland crossed the equator. Massive ranges of mountains were ruckled up by a collision between two of the earth’s plates, and then worn down and dumped as sediment in basins. Fossils in Old Red Sandstone suggest that, around 350 million years ago, life on Britain’s crustal plates was taking a turn for the better: fish had developed jaws and lungs, and were on the threshold of becoming amphibian; plants had evolved from 2-foot swamp ferns to large tree ferns. One of those basins became the Orkney Islands: the sea-stack capital of Britain.

The king of Stacks is the Old Man of Hoy, whose 450 feet of improbable sandstone makes it the tallest in the UK. Described as a ‘crumbling colossus’ by Tom ‘Doctor Stack’ Patey – one of the three climbers who made the first ascent in 1966 – the Old Man became the subject of the BBC’s first, genuine reality TV show the following year, when 15 million viewers watched a live transmission of the stack being reascended by six climbers. On the rare occasions when I volunteer to carry a camera tripod (a hideous contraption designed to impress troughs into your shoulder), I remind myself that in 1967, when the BBC chartered an army landing craft to reach Hoy, they had to hump 16 tons of TV equipment to the cliff edge. In 2008, three climbers parachuted from the top of the Old Man.

The height of a stack is related to the height of its adjacent cliffs, so Hoy also has the second-highest stack in the Orkneys – a remote column called the Needle, which was first climbed in 1990 by the legendary Revenue and Customs officer, Mick Fowler. On the west coast of the

island known as Mainland are three more stacks: two-legged Yesnaby Castle is a tiddler at 115 feet, but looks ready to topple at any minute, and a couple of miles to the south, on a very lonely section of Orcadian coast, towers North Gaulton Castle, which is almost twice as high as Yesnaby. Quite unlike the other stacks because it is short and so undercut by waves that it appears to overhang on all sides, is Stack o' Roo. At the northern tip of Mainland, is a chunky, twin-peaked stack called Standard. The island of South Ronaldsay has stacks called the Kist, the Clett of Crura and Stackabank, which looks like a pile of gigantic nibbled biscuits. Stronsay has a huge flat-topped stack called the Brough, and Westray has its Castle of Burrian, a broken pencil of stone which was far taller until it was lopped by storms.

The wonders worked by the sea on Orkney's old sandstone go way beyond sea stacks. Most sea stacks are the surviving pillar of a collapsed natural arch which has been cut from the face of the cliff by waves as they exploit vertical cracks in the rock. Arches are rarer than stacks, but there is a precarious example on the east coast of the island of Stronsay, where the Vat of Kirbister forms a gigantic hoop of sandstone over the sea. This is also the land of the 'geo' and the 'gloup'; the geo being a narrow, sea-filled cleft which is left after the roof of a sea cave has collapsed, and the gloup being a blowhole linking a sea cave with the clifftop. It goes without saying that gloups can be as spectacular as they are dangerous.

If the Orkneys are a firth too far, you can sample the extravagance of Scotland's Old Red Sandstone without taking a ferry. Few cliff walks deliver as much drama as the one-mile hike south from Duncansby Head, the most north-easterly point on mainland Britain. I've done it in all weathers, but there's no question that a windless day of sunshine is safest and most pleasurable. The Stacks of Duncansby are – for me, anyway – up there in the Top Ten

of coastal spectacles. Half a dozen stacks rear from the sea in front of Duncansby's vertiginous cliffs, but the best are the two shark's teeth that rise from rings of chalky surf. There are other stacks on this coast, too. Just to the west of Thurso, at Holborn Head, slab-sided Clett Rock rises in wafers of Old Red Sandstone to a grassy tabletop. There's a gloup on this headland, too.

Arches and stacks are among the more temporary of our coastal wonders; they're just too fragile to last for long. A very long way from Orkney, on the north coast of Cornwall, is a set of stacks that is disappearing fast. On a wild day, wreathed in salt spray and attacked by breakers, Bedruthan Steps look like the ruins of a lost city. The 'steps' are a series of slatey stacks which have crumbled into form-teasing shapes: Queen Bess Rock took its name from its crown, ruff and farthingale, but it lost its head back in the 1980s. At low tide, you can descend a steep flight of steps to the beach and then wander through the stacks on the wet sand. They're even older than the Orkney pillars, and take their name from a legendary giant called Bedruthan, who took a short cut across the bay by bounding from stack to stack.

The cosmic antiquity of our shores, and the flair of their natural architecture, are sketched in scoured headlands and tottering stacks from Orkney to Cornwall. But it's just a preview. The rocks that were slowly accreting into the beginnings of Britain and Ireland got swamped by a clear, warm ocean lined with coral reefs. That was around 350 million years ago, as Britain and Ireland were crossing the equator. Those coral reefs became Carboniferous Limestone and gave us some of our most spectacular shores. It's a wonderful, theatrical rock. There's nothing reticent about Carboniferous Limestone: it's showy and makes great cliffs, islands, caves and arches.

A couple of years ago, I was lucky enough to find myself with a bicycle on the Aran Islands, the chain of pale grey reefs anchored off the west coast of Ireland. Under the hot sky, the stone shone with a silvery glare, the rectangles of walls and cottages contrasting with the crazy, fretworked coast. I kept thinking I was pedalling an islet in the Aegean. The highest cliffs of our archipelago are constructed from this stone; in sight of the Aran Islands, the Cliffs of Moher run for 8 miles or so along the edge of County Clare, reaching a height of 700 feet. Plonked in the sea beside the cliffs, the Great Pyramid of Giza would be dwarfed. It's a characteristic of Carboniferous Limestone to dissolve into roomy cave systems which became five-star sanctuaries for early explorers and hunters. Cresswell Crags in Derbyshire and Goat's Hole Cave on the Gower coast are classic examples.

In Wales, the munificence of that 350-million-year-old coral helped to create the bays and buttresses of Gower and it also underpins the southern shores of the Pembrokeshire National Park, where the coast path teeters along the edge of the cliffs from St Govan's Head to the 80-foot high 'Green Bridge of Wales' – arguably the most dramatic natural arch in the UK (this part of the coast is part of an MOD firing range, so check their website before visiting). The same limestone also lines the Menai Strait and it's the backbone of Great Ormes Head, the giddy windbreak that shelters Llandudno's sweep of sand. In England, those sunny reefs form the bedrock of the Northumberland coast between the Tweed and Tyne. This is a silent coast, with space by day and stars by night. When the Campaign for the Protection of Rural England published a series of maps identifying areas of the country that were least disturbed by human noise and light, Northumberland, it turned out, contained the largest contiguous 'tranquillity zone' in England. Its shore is suited to reflection.