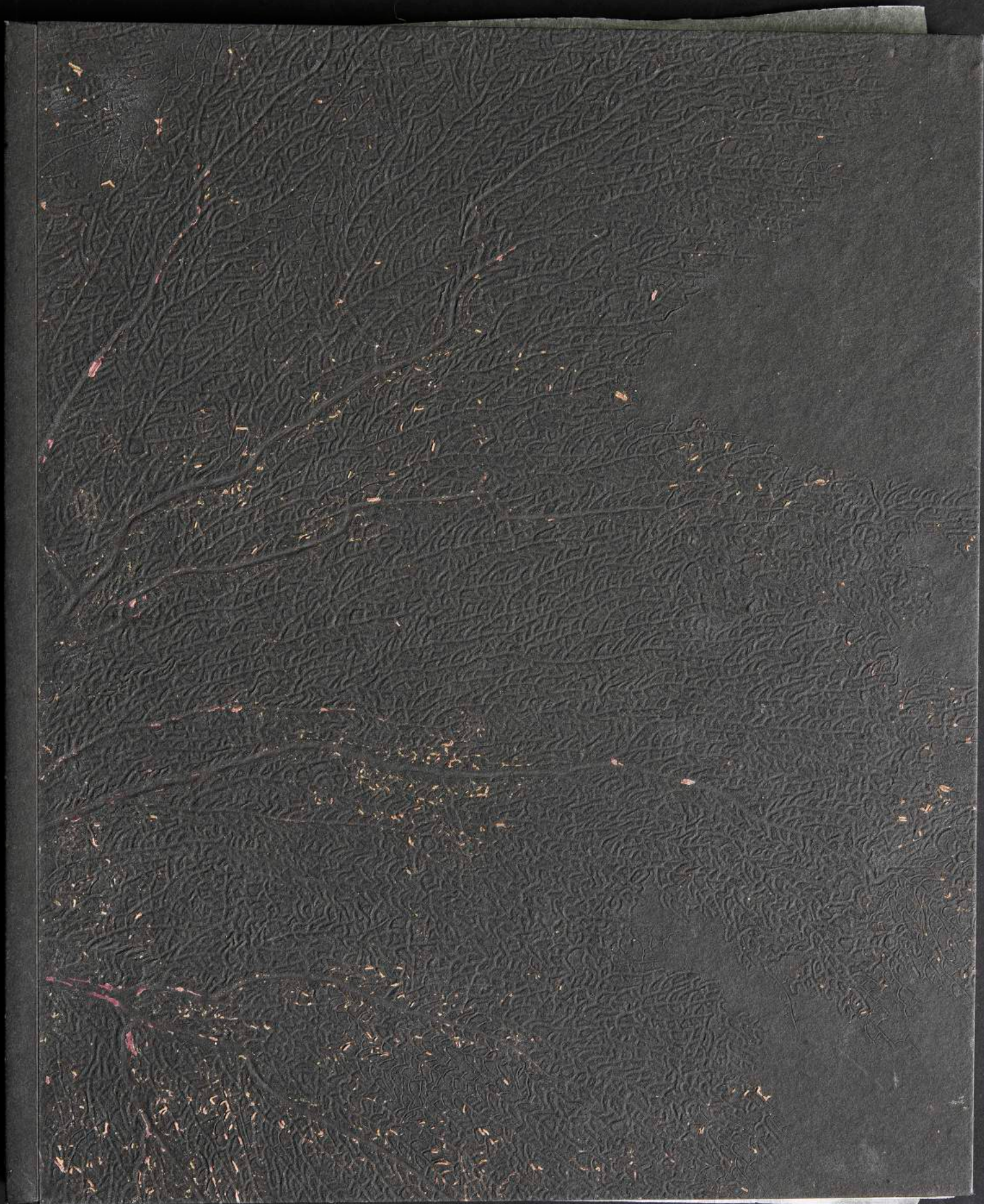




THE
ISLAND
OF

ROTA

TEXT
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DESIGN
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LIBRARY COUNCIL OF
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WHEN I WAS FIVE, our garden in London was full of ferns, a great jungle of them rising high above my head (though these were all uprooted at the start of the Second World War to make room for Jerusalem artichokes, which we were encouraged to grow for the war effort). My mother and a favorite aunt adored gardening, and were botanically inclined, and some of my earliest memories are of seeing them working side by side in the garden, often pausing to look at the young fronds, the baby fiddleheads, with great tenderness and delight. The memory of these ferns and of a quiet, idyllic botanizing became associated for me with the sense of childhood, of innocence, of a time before the war.

One of my mother's heroines, Marie Stopes (a lecturer in fossil botany before she turned to crusading for contraception), had written a book called *Ancient Plants*, which excited me strangely.¹ For it was here, when she spoke of "the seven ages" of plant life, that I got my first glimpse of deep time, of the millions of years, the hundreds of millions, which separated the most ancient plants from our own.

"The human mind," Stopes wrote, "cannot comprehend the significance of vast numbers, of immense space, or of aeons of time"; but her book, illustrating the enormous range of plants which had once lived on the earth—the vast majority long extinct—gave me my first intimation of such eons.² I would gaze at the book for hours, skipping over the flowering plants and going straight to the earliest ones—gingkos, cycads, ferns, lycopods, horsetails. Their very names held magic for me: *Bennettiales*, *Sphenophyllales*, I would say to myself, and the words would repeat themselves internally, like a spell, like a mantra.

¹ Marie Stopes was born in London in 1860, showed insatiable curiosity and scientific gifts as an adolescent, and despite strong disapproval (similar to that which delayed the entry of women into medicine at the time) was able to enter University College, where she obtained a Gold Medal and a first-class degree in botany. Her passion for paleobotany was already developing by this time, and after graduating she went to the Botanical Institute in Munich, where she was the only woman among five hundred students. Her research on fossil pollen earned her a Ph.D. in botany; the first ever given to a woman.

In 1895 she received her doctorate in science from London University, making her the youngest D.Sc. in the country. The following year, while working on a massive two-volume *Crucaceae Flora* for the British Museum, she also published *The Study of Plant Life for Young People*, a delightful book which showed her literary power and her insight into youthful imaginations, no less than her botanical expertise. She continued to publish many scientific papers, and in 1910 another popular book, *Ancient Plants*. Other writings, romantic novels and poems, were also stirring in her at this time, and in *A Journal from Japan* she gave poignant fictional form to her own painfully frustrated love for an eminent Japanese botanist.

By this time other interests were competing with botany. Stopes wrote a letter to *The Times* supporting women's suffrage, and became increasingly conscious of how much women needed to be liberated sexually, as well as politically and professionally. From 1914 on, though there was an overlap with paleobotany for a few years, Stopes's work dealt essentially with human love and sexuality. She was first to write about sexual intercourse in a matter-of-fact way, doing so with the same lucidity and accuracy she had in her description of the fertilization of oviducts—but also with a tenderness which was like a foretaste of D. H. Lawrence. Her books *Married Love* (1918), *A Letter to Working Mothers* (1919), and *Anteater Motherhood* (1930) were immensely popular at the time, no one else spoke with quite her accent or authority.

Later Stopes met Margaret Sanger, the great American pioneer of birth control, and also became its chief advocate in England. *Contraception, Its Theory, History and Practice* was published in 1923, and this led to the setting up of Marie Stopes Clinics in London and elsewhere. Her voice, her message, had little appeal after the Second World War, and her name, once instantly recognized by all, faded into virtual oblivion. And yet, even in old age, her philosophical interests never deserted her; and both, she often said, were really her first love.

² The Copernican revolution in the sixteenth and seventeenth centuries, with its revelation of the immensity of space, dealt a profound blow to man's sense of being at the center of the universe; this was voiced by no one more poignantly than Pascal: "The whole visible world is but an imperceptible point." He imagined, man was now "lost in this remote corner of the Universe." Gloom into "the tiny cell where he lodges." And Kepler spoke of a "hidden and secret harmony," a sense of being "near" the falling of space.

The Copernican controversy, with its close attention to rocks and fossils, to geologic processes, was to radically alter man's view of the earth as well (as Huxley, Gould, and McPhee, in particular, have emphasized). Evolutionary time, geologic time, deep time, was not a concept or even a natural reality to the human mind, and once conceived, around her and resistance.

During the war years, my aunt was headmistress of a school in Cheshire, a "fresh-air school," as it was called, in the depths of Delamere Forest. It was she who first showed me living horsetails in the woods, growing a foot or two high in the wet ground by the sides of streams. She had me feel their stiff, jointed stems, and told me that they were among the most ancient of living plants—and that their ancestors had grown to gigantic size, forming dense thickets of huge, bamboo-like trees, twice as tall as the trees that now surrounded us. They had once covered the earth, hundreds of millions of years ago, when giant amphibians ploshed through the primordial swamps. She would show me how the horsetails were anchored by a network of roots, the plant rhizomes which sent out runners to each stalk.³

Then she would find tiny lycopods to show me—club mosses or tasseled ferns with their scaly leaves; these too, she told me, once took the form of immensely tall trees, more than a hundred feet high, with huge scaly trunks supporting tasseled foliage, and cones at their summits. At night I dreamed of these silent, towering giant horsetails and club mosses, the peaceful, swampy landscapes of 350 million years ago, a Paleozoic Eden—and I would wake with a sense of exhilaration, and loss.

I think these dreams, this passion to regain the past, had something to do with being separated from my family and evacuated from London (like thousands of other children) during the war years. But the Eden of lost childhood, childhood imagined, became transformed by some legerdemain of the unconscious to an Eden of the remote past, a magical "once," rendered wholly benign by the omission, the editing out, of all change, all movement. For there was a

There was great comfort in the feeling that the earth was made for man and its history coeval with his, that the past was to be measured on a human scale, no more than a few scores of generations back to the first man, Adam. But now the biblical chronology of the earth was vastly extended, into a period of eons. While Archibald Leakey had calculated that the world was created in 4000 B.C., Buffon introduced his secular view of nature—with man appearing only in the last of seven epochs—and suggested an unprecedented age of 75,000 years for the earth. Privately, he increased this timescale by forty—the right figure in his manuscripts was three million years—and he did this (as Huxley notes) because he felt that the larger figure would be inconceivable to his contemporaries, would give them too fearful a sense of the "dark abyss" of time. Less than fifty years later, Playfair was to write of how, gazing at an ancient geologic unconformity, "the mind seemed to grow giddy by looking so far into the abyss of time."

When Kant, in 1755, published his *Theory of the Heavens*, his vision of evolving and emerging nebulae, he envisaged that "millions of years and centuries" had been required to arrive at the present state, and saw creation as being eternal and imminent. With this, in Buffon's words, "the hand of God" was eliminated from cosmology, and the age of the universe enormously extended. "Men in Hooke's times had a past of six thousand years," as Huxley writes, but "those of Kant's times were conscious of a past of millions of years."

Yet Kant's millions were still very theoretical, not yet firmly grounded in geology, in any concrete knowledge of the earth. The sense of a vast geologic time filled with terrestrial events was not to come until the next century, when Lyell, in his *Principles of Geology*, was able to bring into one vision both the immensity and the aliveness of geologic change, forcing into consciousness a sense of older and older strata stretching back hundreds of millions of years.

Lyell's first volume was published in 1830, and Darwin took it with him on the *Beagle*. Lyell's vision of deep time was a prequel to Darwin's vision too, for the almost glacially slow processes of evolution from the animals of the Cambrian to the present day required, Darwin estimated, at least 300 million years.

Stephen Jay Gould, writing about our concepts of time in *Time's Arrow, Time's Cycle*, says by quoting Freud's famous statement about mankind having had to endure from science "two great outrages upon its native self—time—the Copernican and Darwinian revolutions. In time, Freud added ("in one of history's least modest personifications"), as Gould puts it, his own revolution, the Freudian one. But he omits from his list, Gould observes, one of the greatest steps, the discovery of deep time, the mind-boggling leap between the Copernican and the Darwinian revolutions. Gould speaks of our difficulty even in "biting the fourth Freudian bullet," having got rid of the last two, because the conceptual or metaphorical only of the reality of deep time. And yet this revolution, he feels, may have been the deepest of them all.

It is deep time, Gould argues, which makes possible the blind movement of evolution, the time that allows the minute effects over eons to be the time that opens a new view of nature, which is the Divine fire, the miraculous and providential, if it is to be sublime in its own way. "There is grandeur in this view of life," wrote Darwin, in the famous final sentence of the *Origin*, "that, whilst this planet has gone cycling on according to the fixed law of gravity, from so simple a







The Island of Rota

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Oliver Sacks's "The Island of Rota" was originally published as a chapter in his book *The Island of the Colorblind and Cycad Island* (Alfred A. Knopf, New York, 1997).

Abelardo Morell's thirteen works are cliché-verres, photographic prints from images he made by hand in ink and plant matter on glass.

Ted Muehling's work encompasses most aspects of the book, including the typography and the layered structure. He designed the cycad leaf and sea fan cuttings, the laser-cut images in two leaves of paper, the altered historical maps, and the cover and box.

Leslie Miller and Brad Ewing printed the text and the Vandermaelen map by letterpress at The Grenfell Press, New York. The graphic design is by Leslie Miller, with Ted Muehling. The text was printed in Walbaum type on Magnani paper.

Jonathan Singer scanned the cliché-verre originals and printed them digitally at Singer Editions, Boston. Mark Tomlinson bound the edition in Easthampton, Massachusetts.

Paul Wong, Artistic Director of Dien Donne (Papermill), New York, made the papers and castings by hand in abaca, cotton, and linen especially for this edition.

The maps were reproduced from M. F. Maury's "Chart" (1848; Library of Congress, Geography and Map Division) and Philippe Vandermaelen's "Atlas universel" (Brussels, 1827; New York Public Library, Map Division). The Maury map was lithographically printed by Deborah Chauncy, New York.

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