



Lifelines

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Preface: Penguin



A new baby stares gravely up at her mother and her entire face curls into an unmistakable smile.



Spring, and the sticky yellow and green horse-chestnut buds slowly unfurl.



Courting birds
flit between
the trees.



Summer and clouds of small black midges surround us as we walk the moors.



Autumn, and amid the fallen leaves of the beech wood a miniature forest of mushrooms sprouts.



An African plain: termite mounds rise skywards,



inherited by hundreds of scurrying thousands.



A coral reef: myriads of brightly striped and patterned fish dart in and out of crevices; shoals weave and turn, each individual effortlessly part of the choreographed unity of the greater whole.



A drop of pondwater: single-celled, almost transparent creatures ooze; occasionally one meets and engulfs another.



All alive. All making their individual and collective ways in the world, cooperating, competing, avoiding, living with, living off, interdependent. All the present-day products of some four billion years of evolution, of the continued working-out of the great natural experiments that the physical and chemical conditions of planet earth have made possible, perhaps inevitable.



For every organism a lifeline – its own unique trajectory in time and space, from birth to death.



The smallest independently living organisms are no more than 0.2 micrometres – one fifth of a millionth of a metre – in diameter; the largest living animal, the blue whale, can grow to more than 30 metres and may weigh 2,000 tonnes – heavier than any known extinct dinosaur.



It is possible that there are as many as 10,000 species of bacterium in a single gram of soil, so far only 3,000 have been named” and there are Californian redwoods which far outstrip the whales by reaching nearly 100 metres in height and at least 2,500 years of age. What a world to be living in, to marvel at, to enjoy in all its multifarious variety.



What a world to strike the eye of the painter. What a world to awaken the sentiments of the poets, the writers and the musicians. But to understand it, to study it, to explain it and to know it better, this is the task of scientists who, as they work will create new vistas of knowledge to embellish the visions of the artists. What they discover will be revelations of a hidden beauty that exists beneath the surface of things.