

Philippa Gander

Night
Owls

and

Early
Birds



Rhythms of Life on a Rotating Planet

How the rotations of planet Earth shape the lives of humans and other animals.

Horseshoe crabs and hibernating squirrels. Jet-lagged pilots and space station astronauts. Night owls and early birds. All of life is profoundly shaped by the daily, monthly and yearly cycles of planet Earth.

This book takes the reader on a journey across a broad vista of science to make sense of the mysteries of biological time. How do the rotations of our planet shape our biology? What did human sleep cycles look like before artificial light? What happens to a person's waking and sleeping if they spend weeks in a dark cave? How adaptable are we to today's 24/7 living?

Humans are relative latecomers in the story of life on Earth but we often think that technology has freed us from its constraints. Written by a world-leading chronobiologist, *Night Owls and Early Birds* illuminates the fascinating science of biological time and offers a stark warning to anyone giving up on a night's sleep to get more out of their busy waking hours.



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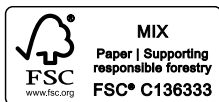
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Contents

Preface	vii
Introduction	ix
Chapter One	
Living in Earth's Geophysical Cycles	1
Chapter Two	
How Our Bodies Keep Time across the Day/Night Cycle	29
Chapter Three	
Sleep – How We Know What We Know	53
Chapter Four	
Sleep – Why We Need It	73
Chapter Five	
Circadian Biology versus 24/7 Living	93
Chapter Six	
Our Home Planet	119
Glossary	133
References	137
Index	145

Preface

I have had the great good fortune to work for more than 40 years in a job that I am still passionate about. When people ask what I do for a living, I say I am a research scientist. Typically, the next question is ‘what do you study?’. If I say chronobiology, the next question is almost invariably some (more or less polite) version of ‘what on Earth is that?’. This book seeks to answer that question and explain my passion for chronobiology, which I see as critical to our understanding of all life on Earth, including our own health, safety, and well-being every day of our lives.

The book is a personal view across a broad vista of science. Many great colleagues have accompanied various parts of my serendipitous journey as a chronobiologist and could write aspects of this narrative with far greater authority than I can. Their collegiality, insight, and hard work continue to fuel my passion for trying to understand the innate rhythmicity of life forms on our rotating planet, with its orbiting moon and its annual orbit around the sun.

I would never have begun this journey if I had not enrolled, as a somewhat distracted second-year science student, in Bob Lewis’s zoology paper ‘Animal Orientation and Timing’. The initial attraction

was that it fitted into my timetable around the courses I had to study to major in molecular biology. Bob turned out to be an inspirational teacher, I switched to majoring in zoology, and he became my post-graduate supervisor and mentor.

I am indebted to many great colleagues from science, industry, and government agencies with whom I have worked over the years and who taught me so much. I have also learned a great deal and had many wonderful times with the colleagues and students who grew with me through the last 20-plus years of research at the Sleep/Wake Research Centre.

I gratefully acknowledge the friends and family who gave valuable feedback on earlier drafts: Anneke Borren, Michael Cuncannon, Curt and Jane Graeber, and Adrian Moonen.

I am indebted to Sam Elworthy at AUP for his vision for the book and for seeing it through in complex times. Katharina Bauer was a pleasure to work with as production editor, as was Matt Turner who provided thoughtful editing that enhanced the text. Many thanks to Louise Belcher and Sophia Broom for proofreading, to Tim Nolan for an outstanding job converting the original colour figures to black and white, and to Greg Simpson for the book design.

This book is dedicated to my children and their partners: Perrine Boy and Simon Bell, Jeremy Boy and Pauline Gourlet, and their children Leon and Max Bell, and Noam Boy. It is also dedicated to our beautiful planet Earth that has cradled life as we know it and has so much more to teach us if, with humility, we can open our hearts as well as our minds.