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Nota di contenuto	Section I: History, Concepts, Evolution and Basic Features of Biological Clock -- Chapter 1: Biological Timekeeping: Complexity and Diversity in the Natural World -- Chapter 2: What is a Measured Rhythm -- Chapter 3: Basic Principles Underlying Biological Oscillations and their Entrainment -- Chapter 4: Significance of Waveform in Biological Oscillations -- Chapter 5: Evolution and Adaptive Significance of Biological Clocks -- Section II: Animal Clocks: Complexity and Diversity -- Chapter 6: The Drosophila Clock System -- Chapter 7: The Fish Clock System -- Chapter 8: The Reptilian Clock System: Circadian Clock, Extraretinal Photoreception and Clock-Depending Celestial Compass Mechanisms in Reptiles -- Chapter 9: The Avian Clock System -- Chapter 10: The Mammalian Neural Circadian System: From Molecules to Behavior -- Section III: Human Clocks: Implications in Regulation of Sleep and Cognition; Shift Work -- Chapter 11: Circadian Rhythms Versus Daily Patterns in Human Physiology -- Chapter 12: Effects of Light on Circadian Rhythms in Humans -- Chapter 13: Clock,

Sleep and Cognition -- Chapter 14: Delayed Sleep Phase Disorder - Mechanisms and Treatment Approaches -- Chapter 15: Shift Work and Human Health -- Section IV: Clock Interactions Within and Between Individual and the Natural World -- Chapter 16: Interaction Between Central and Peripheral Clocks -- Chapter 17: Cells and Circuits for Circadian Photoentrainment in Mammals -- Chapter 18: Mechanisms of Non-Photic Entrainment -- Section V: Circadian Clocks, Metabolism and Immune Functions -- Chapter 19: Circadian Clocks and Metabolism.-Chapter 20: Clock, Hourglass and Physiology -- Chapter 21: Circadian Clocks and Immune Functions -- Section VI: Pineal, Melatonin and Biological Timekeeping -- Chapter 22: Melatonin: The Vertebrate Clock Hormone -- Chapter 23: Pineal, Melatonin and Biological Timekeeping -- Chapter 24: Melatonin and Seasonal Plasticity -- Section VII: Circannual Rhythms, Photoperiodism and Seasonal Behaviours -- Chapter 25: Circannual Rhythms -- Chapter 26: Seasonal Changes in Brain and Behavior -- Chapter 27: Photoperiodic Regulation of Initiation and Termination of Breeding in Subtropical Birds -- Chapter 28: Molecular Mechanism Regulating Seasonality -- Chapter 29: Epigenetic Regulation of Seasonality -- Chapter 30: Insights into the Regulation of Spring Migration in Songbirds.

Sommario/riassunto

This book is a concise, comprehensive and up-to-date account of fundamental concepts and potential applications of biological timekeeping mechanisms in animals and humans. It also discusses significant aspects of the organization and importance of timekeeping mechanisms in both groups. Divided into seven sections, it addresses important aspects including fundamental concepts; animal and human clocks; clock interactions; clocks and metabolism and immune functions; pineal, melatonin and timekeeping; and clocks, photoperiodism and seasonal behaviours. The book also focuses on biological clock applications in a 24x7 human society, particularly in connection with life-style associated disorders like obesity and diabetes. It is a valuable resource for advanced undergraduates, researchers and professionals engaged in the study of the science of biological timekeeping.