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Autore	Gale J (Joseph), <1931->
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Nota di contenuto	Contents; Introduction; Symbols and abbreviations; 1 What is life? Why water?; What is life?; Why water?; Summary; 2 The universe from the perspective of biology; Some special units of measurement used in astronomy; Time; Biologically significant events occurring in the universe; Stars; Galaxies; Planets of other star systems; Comets and asteroids; A brief survey of some other denizens of the universe; Galactic and Circumstellar Habitable Zones; Summary; 3 The Solar System and life on Earth: I; Main components of the Solar System; Our star, the Sun; The heliosphere and solar wind The Sun's short-wave EM radiationSolar radiation and the temperature balance of the Earth's surface; Solar radiation and photosynthesis; Short-wave solar radiation, signals, and vision; The concept of a Circumstellar Habitable Zone (CHZ); Planets of the Solar System and life on Earth; Some extraterrestrial sites in the Solar System which may support life; Summary; 4 The Solar System and life on Earth: II; Comets and asteroids; Planetary satellites and life; Earth-a unique planet of the Solar System; Cosmic radiation and the solar wind; Summary 5 Early and present Earth and its circumnavigation of the SunEarly

Earth; Motions of Earth in its circumnavigation of the Sun; Significance of the Moon to life on Earth; Jupiter-Earth's guardian angel (perhaps); Summary; 6 Origin of life and photosynthesis; What do we know, what can we know of the origin of life?; Panspermia; The empirical 'bottom-up' approach to understanding the 'rapid' appearance of life. Can we produce life in a test tube?; Some conjectures; Hypotheses concerning the origin of life on Earth; The origin of photosynthesis; The evolution of photosynthesis

Consequences of lack of birth control in plants Summary; 7 Setting the stage for the evolution of life on a tumultuous planet; Earth's 'third atmosphere'; Oxygen, UV radiation, and early ice ages; Some biological effects of the oxygen revolution; Carbon dioxide in Earth's third atmosphere; Composition of Earth's atmosphere in the late Quaternary period; Major stress factors which affected the evolution of life; Mass extinctions in the fossil record: local and planet-wide catastrophes; Conclusions; Summary; 8 Mechanisms of evolution: from first cells and extremophiles to complex life

The dating problem Timing of the main events in evolution; Some early ideas about evolution; Some recent theories of the mechanism of evolution; The continuing coevolution of molecular biology and evolutionary theory; Extremophiles; Summary; 9 The evolution of humans and their interaction with the biosphere; Human origins; Human population; Homo sapiens sapiens (horribilis horribilis?) and the biosphere; Politically correct environmental science; How many people can the world support?; A note on land and energy resources; Summary; 10 In search of extraterrestrial life

A short history of the origins of astrobiology

Sommario/riassunto

An understanding of the conditions that allowed life to emerge and exist on our planet is essential if we are to answer two fundamental questions facing humanity - the continuation of life on earth, and the existence of life outside our planet. This text contributes to our understanding of astrobiology as it applies to planet Earth.
