

Paperback Re-issue

Environmental temperature varies in time and space on time-scales ranging from a few hours to long-term climate change. Organisms are therefore continually challenged to regulate and maintain functional capacities as their thermal environment changes. Species have been found to exhibit considerable plasticity in their responses to changing temperature, depending on its severity and duration. This plasticity is evident both phenotypically for individual organisms and genotypically for populations and species during evolutionary adaptation to diverse thermal environments. The acute temperature dependence of biological rate processes of an individual organism may be modified and sometimes ameliorated by acclimation or acclimatisation over a period of weeks or months at different temperatures. Additionally, the physiological phenotype may be permanently affected by temperature at some critical ontogenic phase. Over longer (evolutionary) time periods, populations may undergo genetic adaptation as their thermal environment changes due to migration or climatic change.

This volume brings together many of the leading workers in thermal biology, with backgrounds spanning the disciplines of molecular biology, cell biology, physiology, zoology, ecology and evolutionary biology, to discuss the responses of a wide range of species to temperature change at all scales of organisation, ranging through the molecular, cellular, organismal, population and ecosystem levels. The volume provides an important and comprehensive contribution to the study of temperature adaptation which, given the concern about global climate change, will provide much to interest a wide range of biologists.

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