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Introduction

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This collection of articles is concerned primarily with the nature of resilience in past societies when confronted with significant environmental stressors, including both climate change and sudden cataclysmic events, in the period ca. 300 to ca. 1800 CE. The contributions highlight methodological issues with respect to scale, data analysis, and interpretation as well as the compatibility of different types of data (social scientific and natural scientific), and discuss the predictive value of modeling these relationships for understanding past societal and cultural change. The different contributions also reflect an agenda deriving from three years of discussions among an international team of scholars from both social and natural sciences aimed at establishing a shared vocabulary that will facilitate cross-disciplinary appreciation of the methodological issues faced by both groups and contribute to a holistic understanding and explanation of a range of societal responses to environmental and other stressors. An introductory essay sets out key issues associated with the concept and theorization of 'resilience,' describes some historical contexts in which theories of societal resilience are relevant, and asserts the value of Resilience Theory (Theory of Adaptive Change). Subsequent essays examine the forms through which complex historical societies demonstrate resilience (or not) in the face of environmental pressures, and show how states can play both positive and negative roles in creating the conditions for resilient responses at different social levels. They also argue that since societal resilience can be costly to achieve and may frequently be won at the expense of less privileged groups, it must be analysed in the context of broader societal transformations. Three contributions present a series of case-studies addressing the human processes of adaptation in a variety of historical contexts, with a focus on Byzantine/medieval Anatolia and the issue of the extent to which a connection can be established between the major changes in settlement patterns that can be observed in the seventh- and eighth-century archaeological data and the larger questions of systemic collapse and resilience in the face of climate change. The consequences of the socioeconomic and material cultural changes in different regions of Anatolia across the period from the 6th – 10th centuries are discussed in light of both written documentation and archaeological and palaeo-environmental data with the aim of assessing the impact of climate changes on the agrarian system. A further study presents an analysis and taxonomy of natural hazards (droughts, earthquakes, volcanoes, epidemics, locusts, etc.) as short-term cataclysmic events (SCEs), discussing societal resilience to their cascading effects rather than adopting a 'catastrophist' perspective. These points are exemplified in a discussion of earthquakes and their impacts. The focus here is on the integration of historical records, archaeological findings, and paleoclimate proxies in order to evaluate the various responses of different social groups such as central government or local elites. One important conclusion is that earthquakes often have a regenerative aspect, and that the societal impacts of earthquakes were usually transient. Flooding as an SCE is the focus of another contribution, with a historical emphasis on two case studies from ancient Egypt and Mesopotamia. Flooding is distinctive because its regularity and long-term predictability generally facilitated societal adaptation. While floods could cause short-term disruption, it is shown that they might also stimulate a reorganization and regeneration of economic resources. A concluding essay shows how the integrated analysis of palaeoclimate proxies, climate reconstructions, and model simulations can shed light on our understanding of past climate change and its societal impact. By combining the analysis of high-quality hydroclimate proxy records and spatial reconstructions from the Central and Eastern Mediterranean with Earth System Models for three periods between the 12th and 17th centuries CE, during which societies were stressed by climatic and environmental pressures, it can be shown that multidecadal precipitation and drought variations in the Central and Eastern Mediterranean cannot be explained by external forcings (solar variations, tropical volcanism) but were rather driven by internal climate dynamics.

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The overall aim of this set of contributions is to underline the importance of an integrated approach to studying the societal aspects of historical environmental and climate change, to demonstrate the many different ways through which resilience was articulated in past complex societies, and to illustrate the high degree of resilience that inhered in many historically-attested social formations. These represent three key elements that are necessary to a holistic understanding of the complex role that climate has played in human history.