Humankind has pervasively influenced the Earth’s atmosphere, biosphere, geosphere, hydrosphere and cryosphere, arguably to the point of fashioning a new geological epoch, the Anthropocene. To constrain the Anthropocene as a potential formal unit within the Geological Time Scale, a spectrum of indicators of anthropogenically-induced environmental change is considered, and shown as stratigraphical signals that may be used to characterize an Anthropocene unit, and to recognize its base. This volume describes a range of evidence that may help to define this potential new time unit and details key signatures that could be used in its definition. These signatures include lithostratigraphical (novel deposits, minerals and mineral magnetism), biostratigraphical (macro- and micro-palaeontological successions and human-induced trace fossils) and chemostratigraphical (organic, inorganic and radiogenic signatures in deposits, speleothems and ice and volcanic eruptions). We include, finally, the suggestion that humans have created a further sphere, the technosphere, that drives global change.