Turtles (Testudinata) are characterized by one of the most extraordinary anatomies among tetrapods. During their evolution, their body structure was subjected to significant changes, which influenced their locomotion as well. Fossils discovered in several recent years allowed a much better understanding of those changes, but many questions remain unanswered. One of these questions is the significance of fossil footprints called *Chelonipus* discovered since the Early Triassic (about 250 million years ago) in Europe and North America. Those tracks are very similar to traces produced by modern turtles. The oldest turtle bone, however, are known from rocks about 30 million years younger. Were those tracks made by the oldest turtles, the bone material of which we did not yet discovered? Or, if not, what animals are their producers? Our studies are aimed at solving this mystery with the newest available methods of 3D imaging, analysis of movement mechanics, and fossil specimens from all around the world. We will check whether the closest relatives of turtles or some unrelated animals, in which the armor appeared independently, could be the trackmakers. The studies will include analysis of the still not researched walk mechanics of the earliest known turtles and other armored, extinct animals. Their life environment will be specified as well, based on microscopic analyses of their bone structure, chemical analyses, studied of the rocks in which the tracks are found, and field studies. Our project will shed a light onto the evolution of the skeleton and muscular system of turtles, and will answer the questions about their enigmatic origin.