Discovery of *Lockeia gigantus* trace fossils in India

V. S. Parihar*, Abhimanyu Singh and V. K. Meghwal

Department of Geology, Jai Narain Vyas University, Jodhpur 342 005, India

The present study discovered the well-preserved *Lockeia gigantus* traces from the Fort Member of the Jaisalmer Formation of the Jaisalmer Basin in the Jethwai area of Jaisalmer district, western Rajasthan, India. Here, the *L. gigantus* traces have been recorded in the yellowish medium- to fine-grained silty sandstone in the Jethwai section. The *L. gigantus* trace fossils are large-sized (ranging from 35 to 70 mm), elongated, seeds-shaped to almond-shaped in smooth surface traces, preserved as convex (positive) hyporeliefs with more or less tapered at both ends. These species of the *Lockeia* genus are interpreted as the resting traces probably of *Plicatounio* bivalves, however, these *Plicatounio* bivalves have not been recognized yet from the Fort Member of the Jaisalmer Formation. These new *L. gigantus* resting traces represent the largest ever known *Lockeia* specimens and are the first time reported in India.

Keywords: Fort member, Jaisalmer Basin, Jaisalmer Formation, *Lockeia gigantus*, *Plicatounio* bivalves, resting traces, western Rajasthan.

synonym is *Pelecypodichnus*[21]. Originally, the *Lockeia* trace fossils were interpreted as an alga[19], but now these are considered as the resting traces of burrowing bivalves[20–23]. The specimens assigned here as *L. gigantus* are seed-shaped to almond-shaped forms with tapering at both ends and resemble those of *Lockeia siliquaria* and *Lockeia amygdaloides* except for their gigantic sizes. The large size of *L. gigantus* clearly distinguished it from the other species of *Lockeia* ichnogenus. The present study aims to report the *L. gigantus* traces from the Fort Member of the Jaisalmer Formation, along with their systemic ichnology, palaeoenvironments and possible trace markers. All slabs of yellowish medium- to fine-grained silty sandstone containing *L. gigantus* traces have been collected and housed in our palaeontological laboratory as repositories.

Geology settings and stratigraphy

The Jaisalmer Formation was first referred to as the 'Jaisalmer Limestone'[24] and its first