Discoidal microbial colonies

A perfect circular feature (*just above* the coin) and an incomplete circular feature (marked by the *blue arrow*), showing delicate internal wrinkle structures on partly dried-up microbial mat covered sands, which otherwise exhibit irregular wrinkle features oriented randomly. Bright white patches are salt precipitates. Also note a few desiccation-related shrinkage cracks (relatively *darker patches*), mostly occurring near the *upper left* portion of the photograph, exposing underlying sands (coin diameter ~ 2.3 cm). The circular features are essentially the impressions of ‘discoidal microbial colonies’. It appears that the wrinkles develop when a gelatinous microbial mat starts shrinking on the upper intertidal zone during the neap tide. The concentration of microbial mass creates the conspicuous creasing effect within the circular patches because of shrinking in response to gradual

dehydration. Wrinkle structure and ‘discoidal microbial colony’ are well developed on microbial mat-covered modern hypersaline, intertidal sand flats of Gulf of Cambay, around 50 km north of Mumbai, India. Prolific microbial growth has been possible because of hypersaline seawater

‘Discoidal microbial colonies’ are problematic features, as essentially microbially-originated features may be mistaken as circular Ediacaran fossils, known as ‘medusoids’. Grazhdankin and Gerdes (2007) and Banerjee et al. (2010) presented many examples of ‘discoidal microbial colonies’ on siliciclastic sediments from Middle to Late Precambrian rocks of Australia, Russia and India resembling Ediacaran fossils. The feature does not have any biostratigraphic significance, and therefore similar features should be avoided for the correlation of end-Precambrian stratigraphic successions. Understanding of modern ‘discoidal microbial colonies’ is useful for interpretation of many problematic features found in considerably older rocks.

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Received: 8 July 2011 / Accepted: 12 November 2011 / Published online: 21 December 2011
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