

Microkarren

K. Grimes

Regolith Mapping

Microkarren (Rillensteine) are the smallest class of visible karren. They are finely-sculptured solutional forms on bare limestone surfaces, recognisable within a one centimetre grid. They form various patterns, the commonest being linear microrills 1mm wide and several decimetres long.

Laudermilk & Woodford (1932, Amer. J. Sci., 23: 135-154.) described four types, but their descriptions are confusing and don't cover the full range. A broader terminology is suggested (Grimes, 2007: Helictite 40(1): 21-23.):

Microrills: narrow, parallel grooves; straight, sinuous or tightly meandering. With increasing branching density, they grade to...

Micro-networks: branched rills form a network. With increasing branching they grade to...

Micro-teeth: a dense network of grooves separating isolated sharp, conical or faceted teeth.

Micro-pits: hemispherical to conical pits occur in a wide range of sizes (1 - 20 mm wide, approaching normal "rain-pits"). Possibly polygenetic, and not all microkarren.

Micro-pans: Shallow pits, 5-10 mm wide. Flat to curved floors contain fine pits or teeth. Scattered clusters are superimposed on prior microkarren. An unconfirmed origin might be solution beneath faecal pellets.

Micro-notches: irregular V-section notches following cracks in the rock (a micro-splitkarren) – a broad range of sizes.

Micro-tessellations: networks of U-section notches disrupt prior microkarren, apparently etching a superficial crazing pattern.

Micro-decantation rills: run down vertical sides of cobbles, becoming smaller as they descend.

The genesis of microkarren is uncertain, but may involve solution by thin films of water (dew, sea-spray or light rain) with surface-tension effects. Some forms, e.g. micro-pits, may be polygenetic.

In Australia their best development seems to be in tropical monsoon (seasonally dry) and arid areas. Elsewhere, they have been recorded from the arctic (Greenland) to the tropics (Philippines) and from dry to humid (2500 mm) rainfalls. However, these cryptic forms are poorly recorded and it is too early to make definite statements about their distribution.