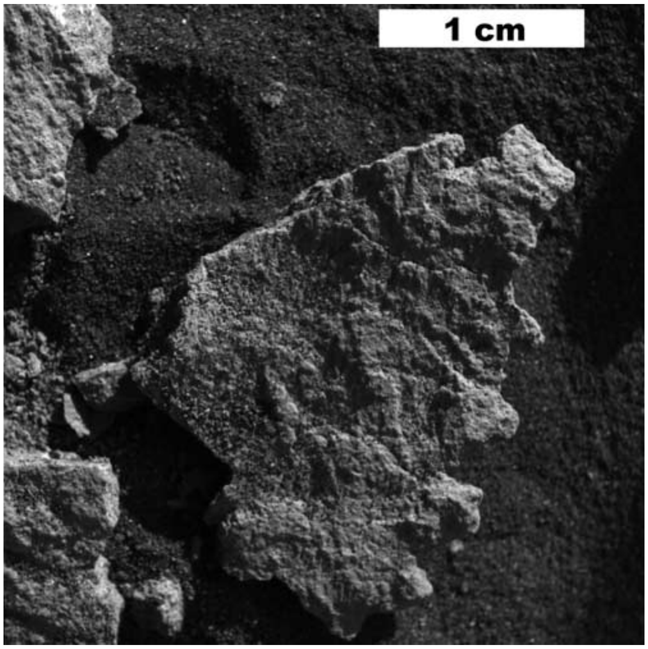

Figure 19. Radiometrically calibrated MI image 1M145775434 of target Sermilik, taken on sol 198 with illumination from upper right. Microtopography is easily discerned in this low Sun image.

character, being formed mainly from differentially cemented sand grains. In this same area, similar-appearing nodules occur that are not overgrowths on spherules [*McLennan et al.*, 2005].

4.1.2.3. Sedimentary Structure

[38] No obvious lamination structures are visible on nodular rock surfaces, either in preRAT or postRAT images. This indicates that, though the brighter bumps protruding from the dark mantling material may be genetically related to the laminar class rocks (that is, associated with a cementing agent), the nodular rocks have been subjected to more extensive secondary mineralization that obscures lamination [*McLennan et al.*, 2005]. It is also possible that these rock exposures are oriented closer to the bedding plane, further obscuring evidence for lamination.

4.1.3. Angular Rocks

[39] Rocks classed as angular are bright, discrete fragments, crisscrossed with fractures. Fragment edges range from very angular to subrounded, and are in this way somewhat similar to the target “Pot of Gold” imaged in Gusev Crater by the rover Spirit [*Herkenhoff et al.*, 2006]. Small cavities run nearly the length of the target “Arnold Ziffel,” subperpendicular to the majority of fractures, and are evident on the target “Sermilik” as well (Figure 19). On the basis of the association of rocks such as Razor Cluster with targets that look similar to laminar and nodular class rocks, angular rocks potentially represent a less weathered or freshly broken version of the material seen in these other two classes. Synthesis with Pancam images shows that the clast Sermelik is a fragment of a thin sheet of cement, of likely diagenetic origin, found in the same outcrops that contain nodular textures. The association of these two features may indicate diagenetic events specific to this stratigraphic horizon, to the best of our knowledge exposed only deep within Endurance Crater.

4.1.3.1. Lithology

[40] The angular rocks have a granular appearance with relatively flat surfaces overall, as can be seen in Figure 19. Ridges and raised flat areas, in places perhaps only a single grain thick, are evident. Individual clastic grains or grain aggregates can also be seen, though the predominance of a cementing agent makes it difficult to determine the shape or crystalline structure of any of these grains. Particle edges are irregular and angular, consistent with an interpretation that these rocks are freshly broken clasts from a larger cemented sheet or outcrop. The fine grains may have occupied fractures before they were filled by secondary minerals, or may have been incorporated from the rocks forming the walls of the fractures.

4.1.3.2. Texture

[41] As noted above, grains are commonly too small (or too heavily coated with secondary cementing materials) to resolve shape, roundness, pitting, frosting, fracture patterns or other such diagnostic textural features. A few individual clastic grains or grain aggregates can be seen in the target Sermilik, where the sun angle is lower and microtopography is more easily discerned (Figure 19). If these structures represent individual grains, rather than aggregates, then the average grain size represented by this class is 300–350 μm in diameter. No preferred orientation of grains is evident.

4.1.3.3. Sedimentary Structure

[42] Faint lamination is occasionally visible in angular rocks, especially in the lower portion of the Arnold Ziffel target. There the laminae are about 1.2 mm thick, similar in

Figure 20. Focal section merge of five MI images of Nala, taken on sol 105 with illumination from upper left. The massive nature of the rock target can be seen, along with rounded, weathered edges and numerous pits. Area shown is 3 cm across.