

14312

Sample 14312 is a breccia collected from the top of Turtle Rock during EVA 2 at Station H. Its lunar orientation and location were well documented. Turtle Rock is the largest of several boulders at Station H, and the two rocks on it were nicknamed "turtle eggs", and collected as samples 14312 and 14319.

PHYSICAL CHARACTERISTICS

Mass

299 g

Dimensions

9 x 6 x 4 cm

This rock is a medium gray, coherent breccia which is partly covered with glass.

SURFACE FEATURES

Zap pits are present on all sides of 14312 suggesting that it was turned over after spalling off Turtle Rock or that it fell onto Turtle Rock from elsewhere (Swann et al., 1977). The zap pits are glass-lined and range from 0.1 - 4 mm in diameter. Many of the pits have white halos around them. Pit density is estimated to be 45 pits per square centimeter. The rock has both penetrative and non-penetrative fractures. Three sets of fractures are filled with veinlets of dark brown, vesicular glass, similar to that on the surfaces of 14312. The glass coating covers half of two faces.

PETROGRAPHIC DESCRIPTION

This rock is a polymict breccia, with at least 80% of the fragments lithic in nature, and less than 15 - 20% mineral fragments. Most lithic fragments are fine-grained and in some cases it is hard to distinguish the clasts from the matrix. Angular lithic fragments are 60% medium gray material and 40% leucocratic material which occasionally contain white feldspar. The matrix is white to light gray with a brownish tinge. Thin section 14312,13 shows that the predominant lithic type is a fine-grained breccia with some included larger mineral fragments. The second most abundant type is a poorly organized mixture of pyroxene and plagioclase. Many of the plagioclase crystals in these fragments are distorted and bent. The section also reveals that the predominate type mineral fragment present is fresh to mildly shocked plagioclase shards. There is also a nearly equal amount of pyroxene fragments, some of which are quite large.

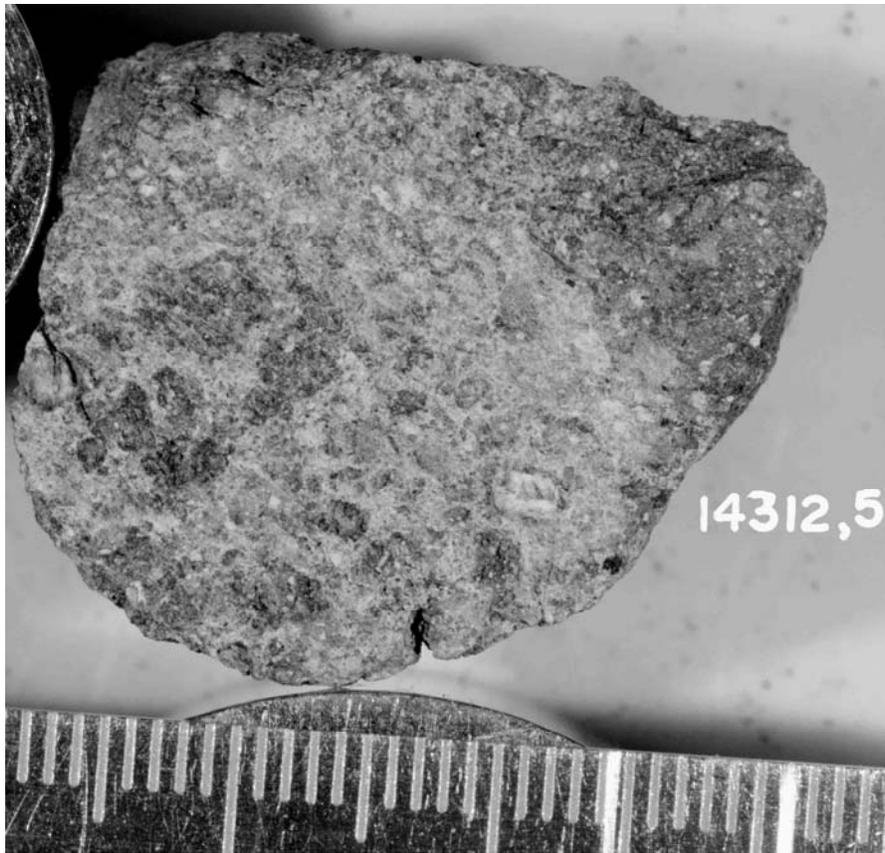
In thin section approximately 30% of the area is composed of a dark, fine-grained material which contains abundant opaque grains. Some large to small areas of devitrified glass are also present.

Mineral fragments are mostly plagioclase 0.5 - 2.5 mm in diameter, one large clast of which is shattered. Some light yellow and cinnamon brown material is also present with fragments ranging in size from 0.2 - 1 mm in diameter. A trace of dark gray, angular, glass fragments is present with rounded to equant particles. The rock has been mapped by members of the Imbrium Consortium (1976) and by our catalog team (Twedell et al., 1978).

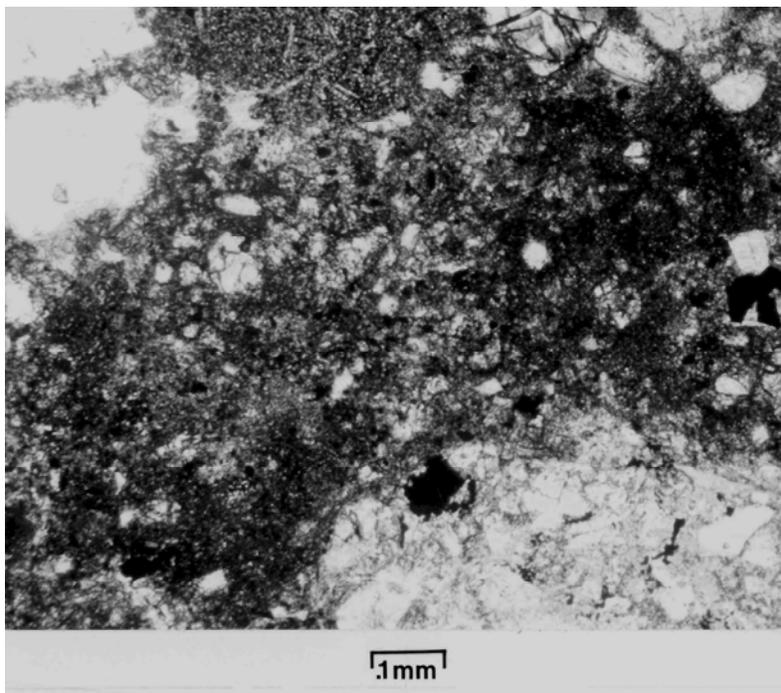
DISCUSSION

Sample 14312 was listed as Warner's (1972) grade 7, and as an F₄ by Wilshire and Jackson (1972). Chao et al. (1972) list it as a shocked, strongly annealed, Fra Mauro breccia (2c), and Simonds et al. (1977) describe it as a crystalline matrix breccia (CMB).

Ryder and Bower (Imbrium Consortium, 1976) investigated the petrology of sample 14312 and mapped thin section 14312,14. They concluded that 14312 was assembled from other polymict breccias at a high temperature. Injected melt phases, maskelynite, and shock mineral phases indicate that the assembly took place in the ejecta blanket produced by a major meteorite impact.



S-77-26213



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