

14301

Sample 14301 is one of two samples (14301 and 14313) collected at station G1, 150 m east of the LM on the north rim crest of North Triplet Crater during the second EVA. According to the astronauts, the rock appeared to be similar to the other rocks in the area; these appear to be ejecta from North Triplet Crater. Except for samples dug from trenches, 14301 was the most deeply buried rock returned during the Apollo 14 mission (Swann et al., 1977). This sample was larger than anticipated, and was placed directly in weigh bag 1031 (?) by the astronauts.

PHYSICAL CHARACTERISTICS

Mass	Dimensions
1361 g	12.5 x 12.0 x 8.0 cm

Sample 14301 is a moderately coherent, light medium gray, polymict breccia. It consists of at least 20% clasts larger than 1 mm.

SURFACE FEATURES

Horz et al. (1972) report that one set of surfaces is marked by micro-meteoroid impact pits, whereas another is not. The face in NASA photograph S-71-32476 displays slickensides, and this face has abundant microcraters, although the slickensided area has a low crater density. Morrison et al. (1972) found the distribution indicative of a single exposure interval because the exposed surface is subangular to subrounded and cratered, while the buried surfaces are angular and uncratered. There is no color change boundary between cratered and uncratered surfaces. Cavities appear as clast molds. Several sets of penetrative fractures are present.

PETROGRAPHIC DESCRIPTION

Sample 14301 is a polymict breccia with 20% clasts larger than 1 mm, most of which are leucocratic. White, angular clasts occasionally are associated with small olivine clusters. Larger, subangular clasts with a whitish gray color, irregular glass clasts with a dark brown color (spatter?), chalky white clasts with black specks, and angular or subhedral, equant, pyroxene clasts which are honey brown in color are also present.

Thin sections 14301,76 and 14301,17 appear to fit the criteria for being classified as VMB's using the classification of Simonds et al. (1977). These sections also appear to have some LMB characteristics. Most clasts are breccia fragments with an abundance of plagioclase. Matrix glass occupies approximately 10% of the sample. Some of this glass is very turbid, brown in color, and is partly devitrified. Approximately 40% of the fragments are mineral fragments and 60% are lithic. Clasts range up to 4 mm in size. Most are mildly shocked, and some have 5 - 10% glass with large crystals of plagioclase and pyroxene. A few crystals have inclusions. Most fragments are very irregular and jagged. A second type of clast is composed of blocky, plagioclase crystals with minor pyroxene and mesostasis between grains. Mineral fragments include pyroxene grains which show large reaction rims, and plagioclase which appears mildly shocked without zoning.

DISCUSSION

Morrison et al. (1972) found the lowest average ratio (3) of spall diameter to central pit diameter on the glassy surface of 14301. The exposure age using the particle track method (Hart et al., 1972) is 3.4×10^5 years. This correlates with the small cumulative number of craters with spall diameter larger than 0.1 (Morrison et al., 1972). The microcrater distribution and exposure age for rock 14301 indicate a production of 10 craters per million years of 0.1 cm spall diameter or larger.

Sample 14301 was studied by Warner (1972), who classified it as his metamorphic grade 2 (low grade). Wilshire and Jackson (1972) list it as an F₂, and Chao et al. (1972) classify it as an unshocked, porous, regolith microbreccia. Simonds et al. (1977) list it as a vitric matrix breccia (VMB). King et al. (1972) list 14301 as one of the samples with abundant chondrules and chondrule-like bodies present.

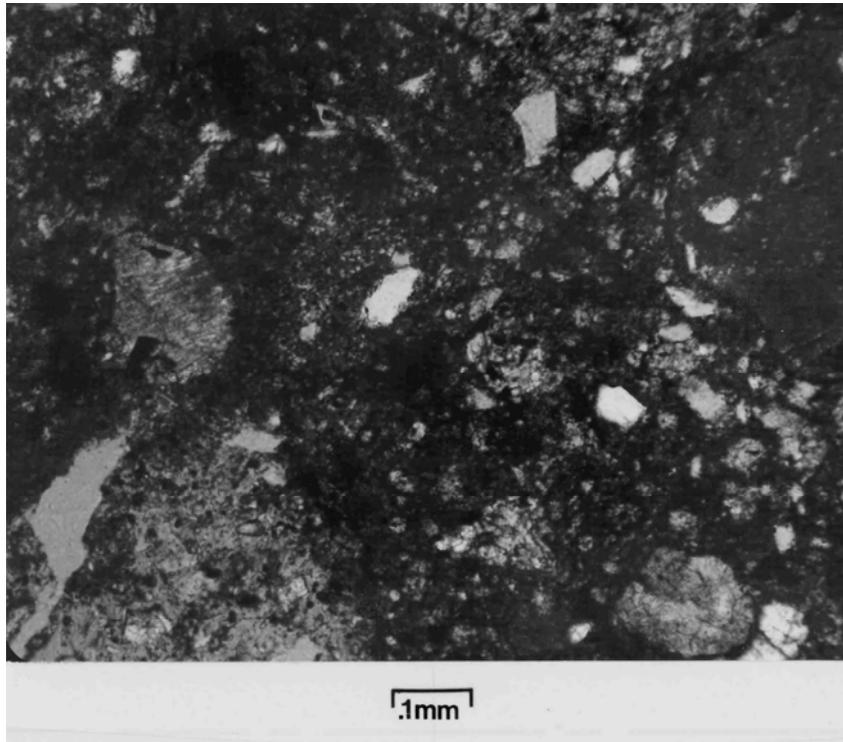
Sample 14301 is one of those mapped by Twedell et al. (1978).



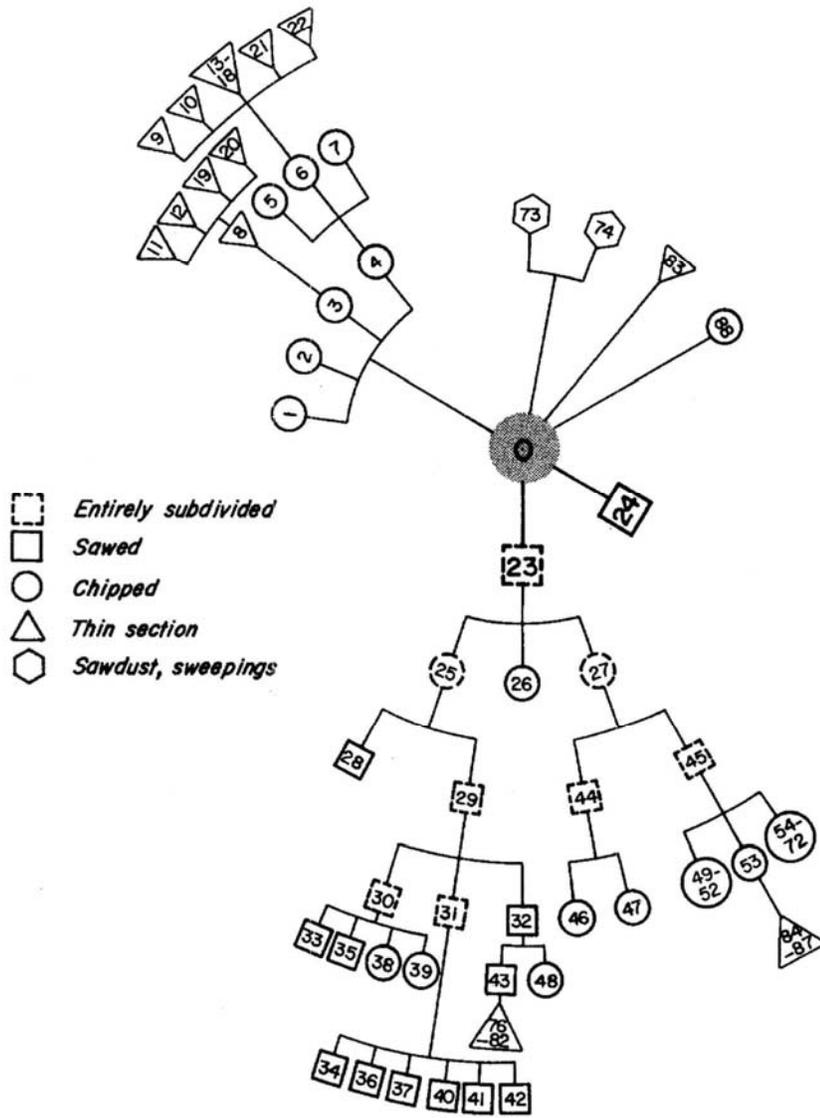
S-71-32476



S-77-23456



14301,81



Sample genealogy