14306

Sample 14306 is a fragmental rock collected at station G, 230 meters ESE of the lunar module (LM), and 50 meters E of the rim crest of North Triplet Crater. It is said to be somewhat more tabular and less irregular than 60 cm boulder but similar to it in color and albedo. The lunar location and orientation are well documented.

PHYSICAL CHARACTERISTICS

Mass	Dimensions
582.8 g	15.0 x 7.5 x 6.0 cm

This sample is gray with ~25% white clasts and is blocky in shape. The rock is a coherent breccia.

SURFACE FEATURES

The most prominent feature is a 2 mm wide planar fracture lined by vesicular glass, which is oriented at about 20° to the long axis of the sample. This fracture cuts matrix and clasts alike. The rock split along this fracture thereby exposing part of the fracture plane and its glassy coating. The one flat face of 14306 is lightly covered by glass-lined microcraters (zap pits), and the exposed rounded faces are more densely covered with these zap pits. This rock is one of those used by Morrison et al. (1972) to present and interpret crater population data in terms of the flux and mass distributions of meteoroids in near lunar space. The results of their microcrater studies were then applied to reconstruct the history of the rocks during their residence time on the lunar surface.

PETROGRAPHIC DESCRIPTION

The rock is a coherent, rounded, fragmental rock with some norite clasts and few mare basalt clasts as is evident in the mapped surfaces of 14306,103 (Twedell et al., 1978).

This generic is unlike most of the other Apollo 14 rocks in that there is an extremely high clast content with only minor "matrix" material. The sizes of the clasts vary considerably, but few (in the sections examined) exceeded 1 mm in size. The variety of compositions in these clasts is also less diverse than in the other generics.

A total of two thin sections each with a different parent were examined.

Sample	Parent	Dominant Clast ≥ 1 mm
14306,65	29	Glassy dark metaclastic rock, light metaclastic rock and anorthositic rock.
14306,68	41	Fine-grained dark metaclastic rock, light-colored metaclastic rock and anorthositic rock.

This analysis is in very good agreement with the work of Wilshire and Jackson (1972). Their work concluded that the dark metaclastic rock was represented in the largest clasts in the greatest abundance.

DISCUSSION

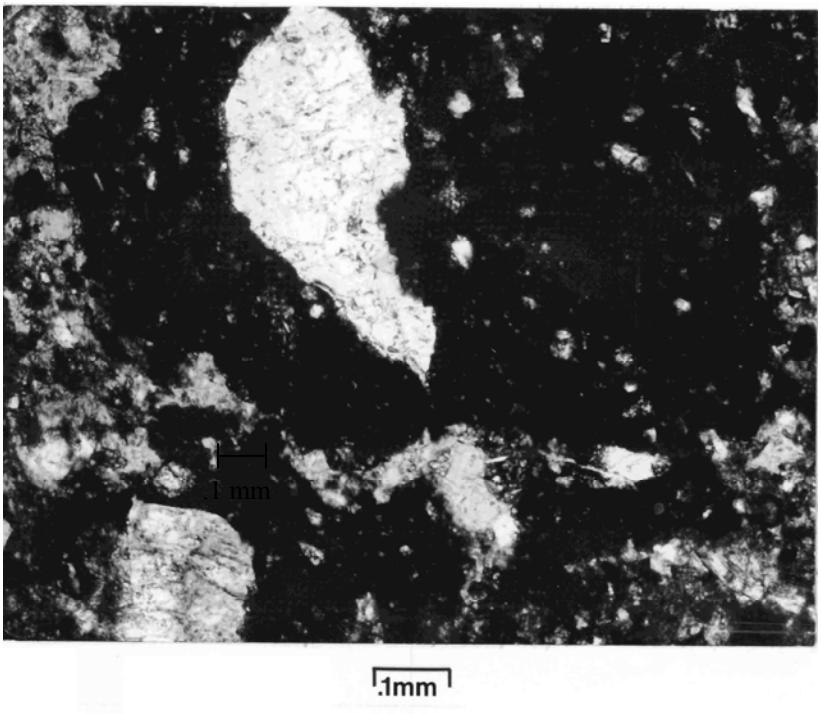
The sample is classified as a crystalline matrix breccia by Simonds et al. (1977), and like the other CMB's it falls into the F_4 category of Wilshire and Jackson (1972), grade 4 of

Warner (1972), and 2c Fra Mauro (shocked) of Chao et al. (1972). The thermal and mechanical history of sample 14306 has been investigated by Anderson et al. (1972), who describe it as a multi-generation metamorphosed breccia. They found the oldest fragments to be basaltic (noritic) microbreccias that are coarsely crystalline and partly glassy. The second generation fragments are dark-gray micro-to-crypto-crystalline polymict metabreccias. The third generation is the host matrix, and is similar in composition to the second generation. Anderson et al. (1972) interpret the first generation as possibly pre-impact in age. It was fragmented and combined with igneous material to produce the second generation, and the third generation was produced when an impact embedded the second generation material in a crystal rich matrix and was thrown three crater-diameters from Cone Crater. An interesting feature of this rock is that the glass filling the fracture (SURFACE FEATURES) contains three cylindrical metal particles 1-2 mm long and a 200 μm diameter metal spherule observed by Morrison et al. (1972). They noticed that one of the metal particles intersects a glass-walled vesicle and that section of the particle is concave conforming to the vesicle wall. The two other fragments appear to have pulled apart. Although they are now separated by several millimeters, the ends clearly could fit together (Morrison et al., 1972). The particles appear to have been injected with the glass into the fracture at a high temperature.

Crozaz et al. (1972) found the cosmic ray exposure age to be 24 m.y. and feel the rock was ejected during the Cone Crater event, the object that caused the event is interpreted as being metallic.

Wosinski et al. (1972) have identified metal spherules in the same glass on 14306. They are said to range in size from 30 Å to 100 μm in diameter.

The block is 1 cm, S-77-22103

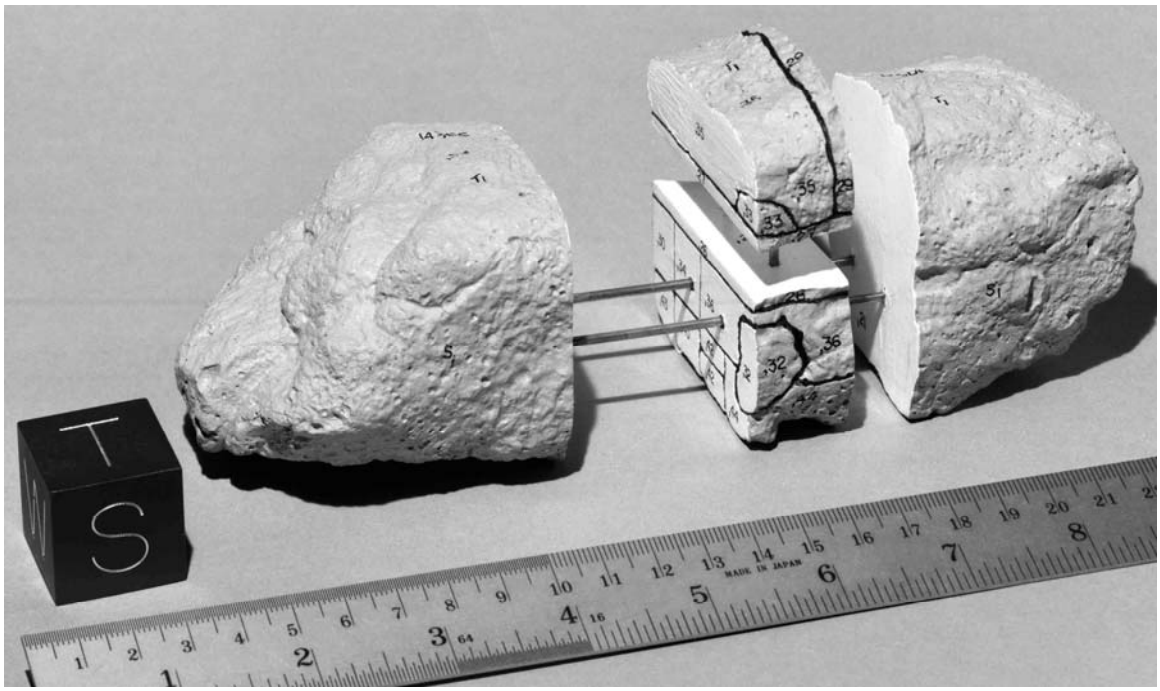


14306,65

SAMPLE MODELS AND GENEOLOGIES

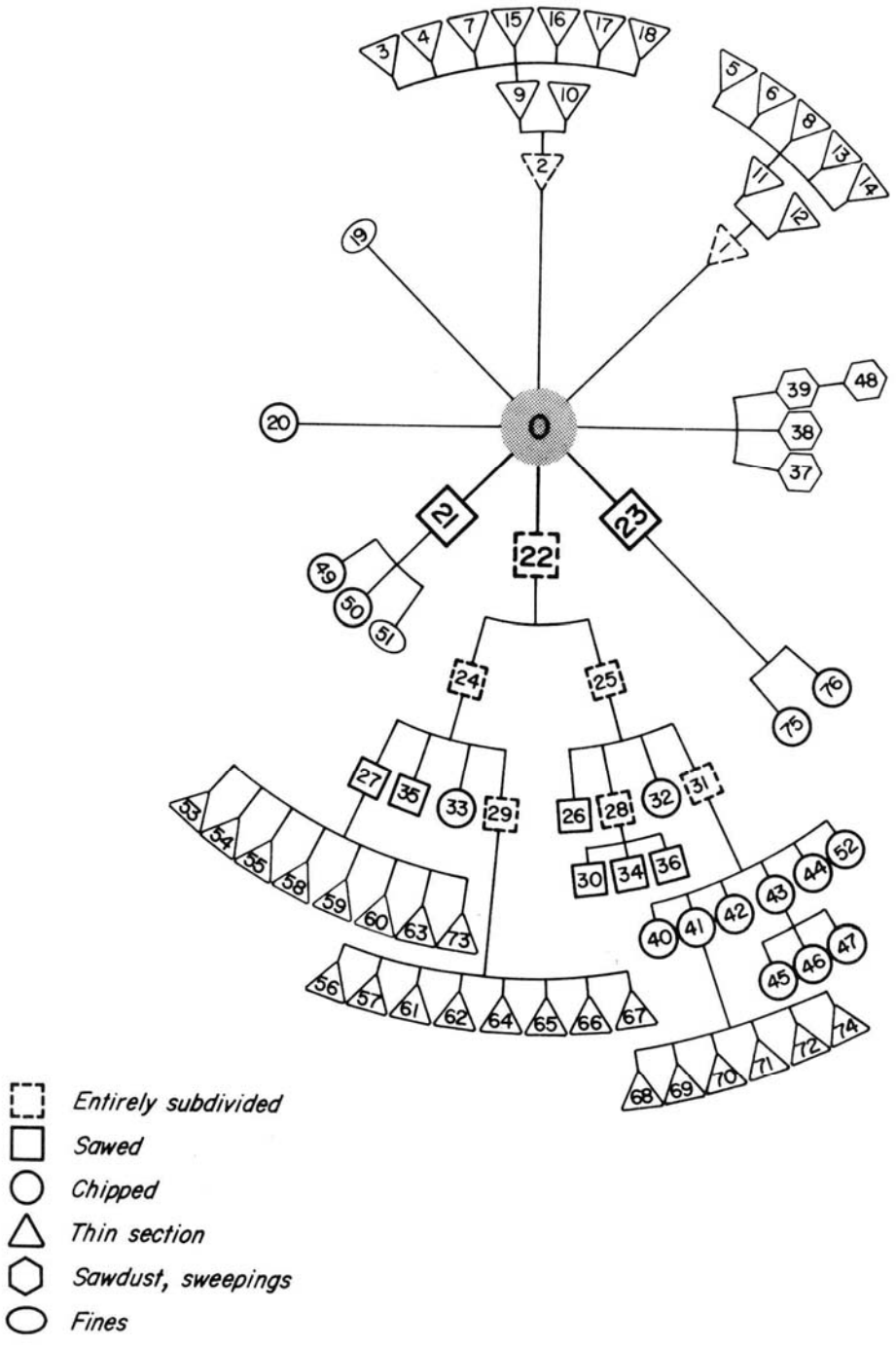
In order to facilitate the job of determining specific sample orientation and orientation within the parent, as well as for historical interest, models of the larger lunar samples have been constructed by the curatorial staff. Photographs of the models made of Apollo 14 samples are included in this section to acquaint the scientific community with their availability and to help lunar scientists identify the original location of their sample within the parent rock.

Genealogies of several Apollo 14 samples have been made and are also included. These genealogies do not reflect any processing which has taken place since the first thin section was made of each sample. It is hoped that these methods of illustrating samples will prove useful, and will become a routine part of sample documentation procedure.



Model 14306, S-78-26756

14306



Sample Genealogy