

**70012**  
Drive Tube  
485 grams



*Figure 1: Photo of Apollo 17 Lunar Module (LM) showing smooth terrain of landing site. AS17-137-20873.*

**Introduction**

Lunar core 70012 “was hand driven to a hard layer at 28 cm depth 0.5 m inside the plus-Y footpad of the LM (figure 1). The site lies on regolith developed on basaltic subfloor, near the center of the Valley, approximately 750 m equidistant between the large (300 to 400 m) craters Camelot and Sherlock. The sample was collected in a relatively flat area with common, but subdued 10- to 30 cm diameter craters. Most of the surface appeared fine grained with particles near the limit of resolution of the surface photographs, but 1 to 2 percent of the surface was covered with particles as much as 3 or 4 cm in diameter. Similar material is in the core. Although this core was not

disturbed by footprints, the top 1 or 2 cm were probably depleted in fine soil by the LM descent propulsion engine.”

“When the buddy secondary life-support system bag was opened in the Lunar Receiving Laboratory, the bottom cap of the core was off and lying nearby, and the soil was spilling from the bottom. Forty-seven grams of slumped material were excavated from the base of the core to provide a fresh vertical face, which was supported by a plug of aluminum foil. The upper follower was in place, and the X-ray indicated

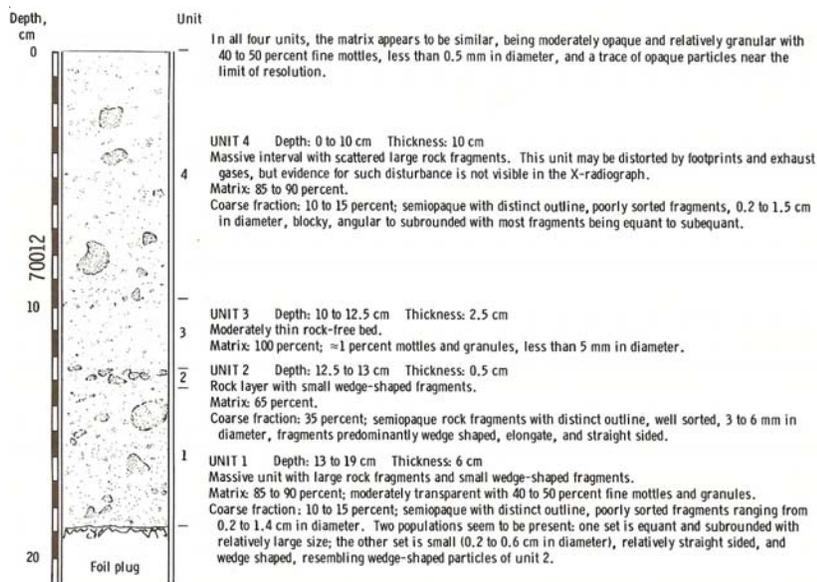
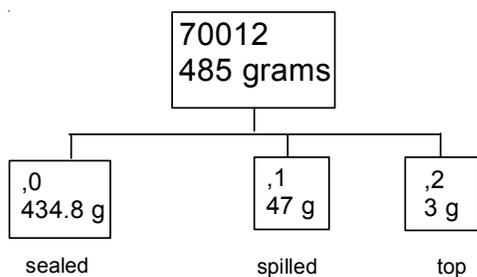


Figure 2: Artist sketch of what might be inside core tube based on interpretation of X-ray.



no serious cracking or slumping in the remainder of the core (figure 2).”

“The excavated material was mostly fines, with 10 % being fragments of medium- to coarse- grained vesicular basalt as much as 11 mm in diameter. Although this samples is petrographically similar to the upper bed of 70008, it is finer- grained. None of the breccias fragments or coarse-grained framework-textured soil of the deep drill string appear in this core, however, the hard layer which prevented further penetration, could be the coarse-grained deposit.” (LSPET 1973)

### Petrography/Chemistry/Rare Gases etc

None reported.

### Processing

A footnote in table 8 in Mitchell et al. (1973), mentions that 114 cm<sup>3</sup> of material may have fallen out of the bottom of 70012 into the bag, because of a loose cap!

### **References for 70012 core.**

- Butler P. (1973) Lunar Sample Information Catalog Apollo 17. Lunar Receiving Laboratory. MSC 03211 Curator’s Catalog. pp. 447.
- Duke M.B. and Nagle J.S. (1976) Lunar Core Catalog. JSC09252 rev. Curators’ Office
- LSPET (1973a) Apollo 17 lunar samples : Chemical and petrographic description. *Science* **182**, 659-690.
- LSPET (1973c) Preliminary examination of lunar samples. Apollo 17 Preliminary Science Report. NASA SP-330, 7-1—7-46.
- Mitchell J.K., Carrier W.D., Costes N.C., Houston W.N., Scott R.F. and Hovland H.J. (1973) 8. Soil-Mechanics. In Apollo 17 Preliminary Science Rpt. NASA SP-330. pages 8-1-22.
- Wolfe E.W., Bailey N.G., Lucchitta B.K., Muehlberger W.R., Scott D.H., Sutton R.L and Wilshire H.G. (1981) The geologic investigation of the Taurus-Littrow Valley: Apollo 17 Landing Site. US Geol. Survey Prof. Paper, 1080, pp. 280.