

**78547****Dark Matrix Soil Breccia**  
**29.91 g, 4.0 x 2.8 x 2.4 cm****INTRODUCTION**

Sample 78547 is a friable soil breccia that was collected as part of a large rake sample at Station 8 (Fig. 1).

**PETROGRAPHY**

Butler (1973) described 78547 as friable, medium grey, matrix-rich breccia with clasts generally of millimeter size composing less than 517b. Small clasts are generally white plagioclase, mare basalt, black aphanite, and orange glass.

Keil et al. (1974) and Warner et al. (1978f) included this sample in their catalogs (Fig. 2). Warner et al. noted that it contained a fragment of very low-Ti basalt, a few recrystallized ANT clasts, and a variety of feldspathic breccia clasts. Also included are glass spherules, angular glass fragments, and several agglutinates (proof of soil origin).

**MINERAL CHEMISTRY**

Warner et al. (1979) have studied the glass compositions in 78547.

**WHOLE-ROCK CHEMISTRY**

Laul and Schmitt (1975c) have reported the chemical composition of 78547 (Table 1). This soil breccia has only about half the  $\text{TiO}_2$  (2.2%) of the local soil 78501 (5.2%). It also has a lower and flatter REE pattern (Fig. 3) and may be a soil breccia derived from further up the slope of the Sculptured Hills.

**SIGNIFICANT CLASTS**

One clast is ~7 mm across (Fig. 1). This clast has not been studied.



Figure 1: Photograph of 78547. Scale is 1cm. S73-21404.

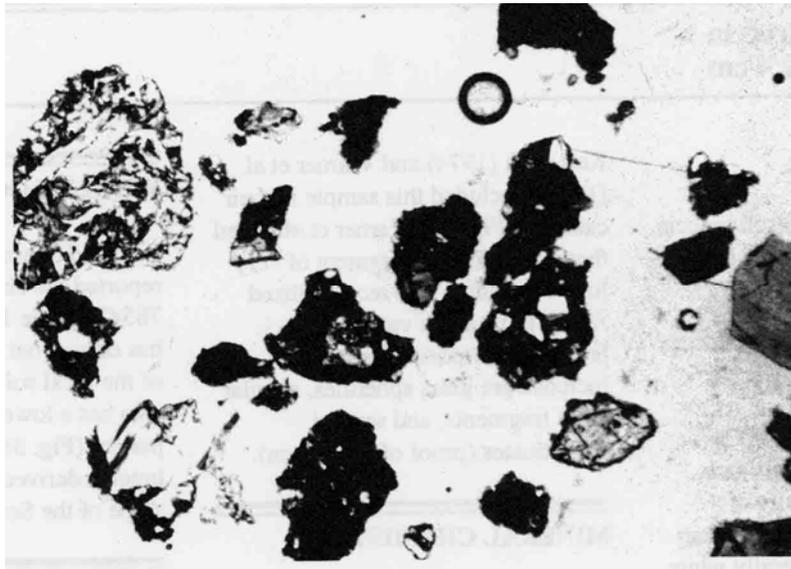


Figure 2: Photomicrograph of grains from 78547. From Warner et al. (1978f).

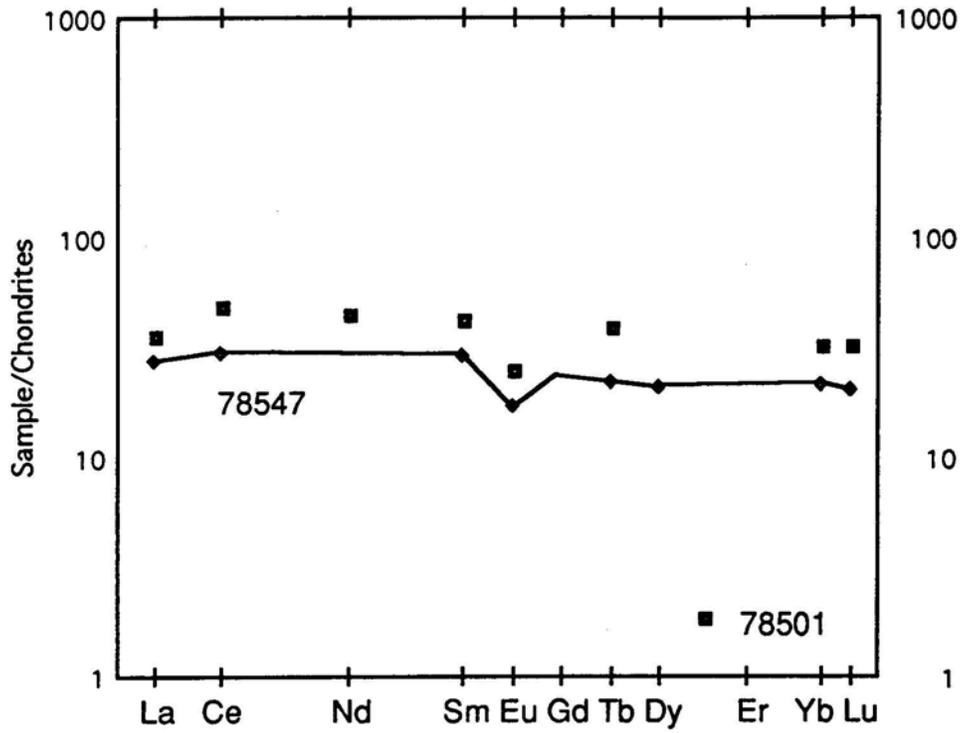


Figure 3: Normalized rare earth element diagram for 78547 with data from soil 78501 for comparison. Data from Laul and Schmitt (1975).

**Table 1: Whole-rock chemistry of 78547.**  
From Laul and Schmitt (1975c).

<b>Split Technique</b>	<b><sup>3</sup> INAA</b>
SiO <sub>2</sub> (wt%)	–
TiO <sub>2</sub>	2.2
Al <sub>2</sub> O <sub>3</sub>	16.3
Cr <sub>2</sub> O <sub>3</sub>	0.36
FeO	11.8
MnO	0.16
MgO	11
CaO	11.1
Na <sub>2</sub> O	0.36
K <sub>2</sub> O	0.085
Nb (ppm)	
Zr	–
Hf	2.9
Ta	0.47
U	–
Th	1.0
Ni	150
Co	33
Sc	30
La	6.4
Ce	18
Nd	
Sm	4.2
Eu	0.94
Gd	
Tb	0.8
Dy	5
Er	
Yb	3.4
Lu	0.48
Ge (ppb)	
Ir	
Au	