# **63529** – 23.5 grams
# **63557** – 7.5 grams
# Impact Melt Breccia

*Figure 1: Photo of 63529. Cube is 1 cm. S92-44046*

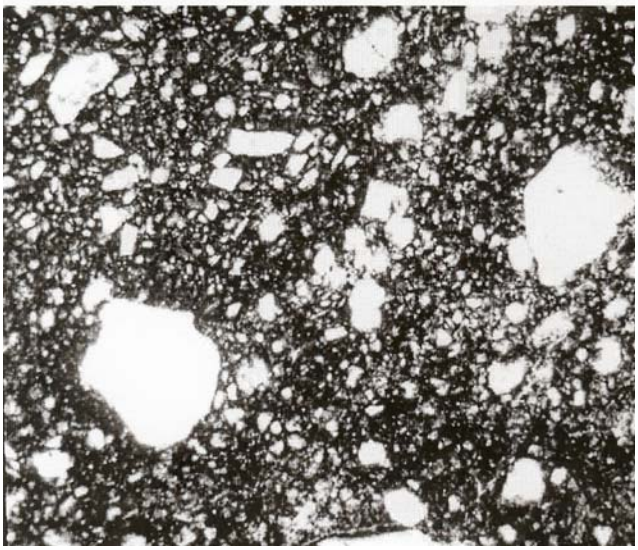


*Figure 2: Thin section photomicrograph of 63529 (from Ryder and Norman 1980).*

## Introduction

The rake sample from station 13 was collected near Shadow Rock; the material may be from North Ray Crater – see section on 63501. 63529 and 63557, along with 63525 etc. are dark, homogeneous, coherent fine-grained impact melt breccias.

## Petrography

Phinney and Lofgren (1972) and Norman and Ryder (1980) describe these fragments as medium dark grey, fine-grained impact melt. Warner et al. (1973) called them "meta-norite". In thin section they look a lot like 63525. They have a similar clastic texture with a dense microcrystalline matrix (figure 2).

## Chemistry

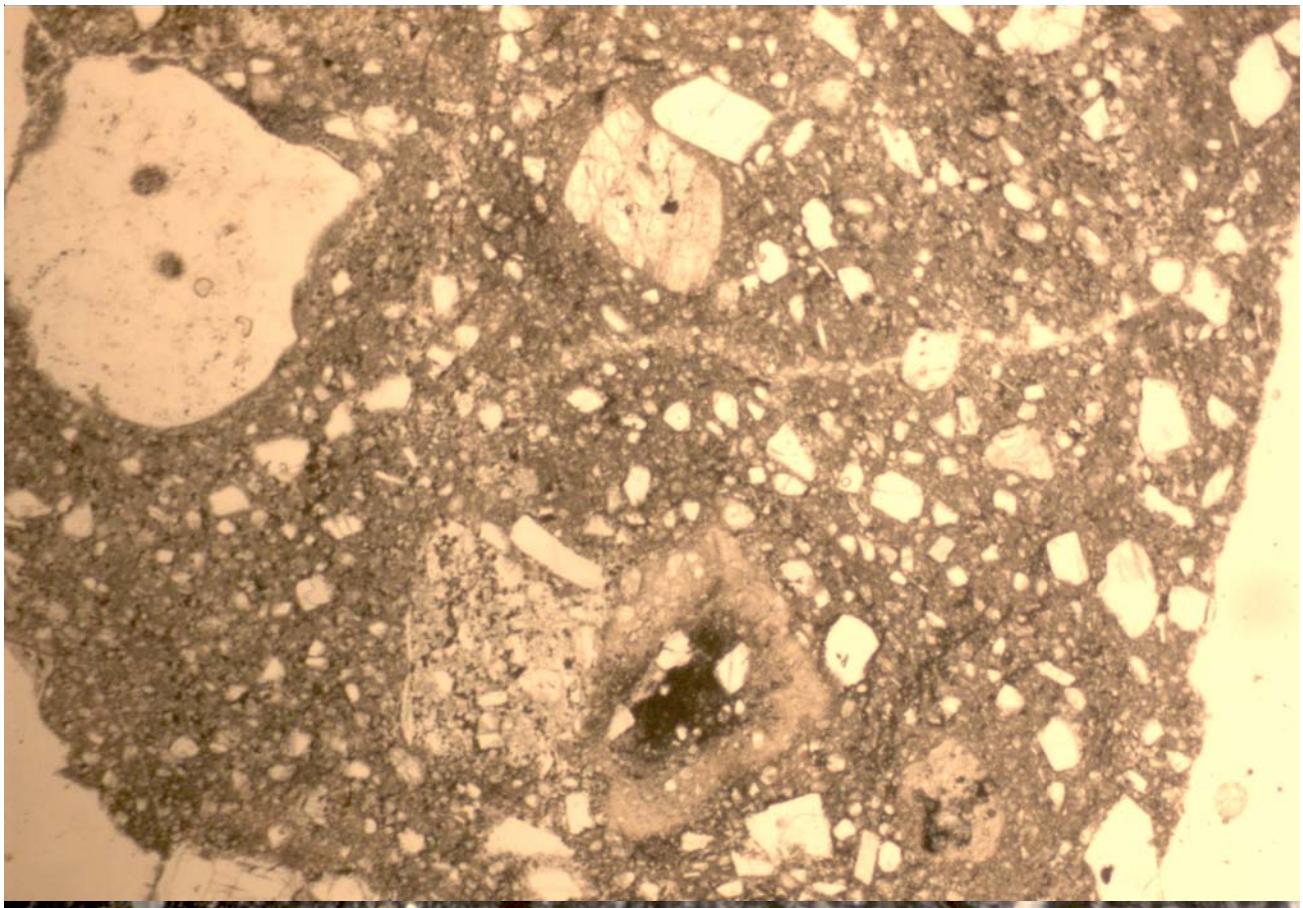
Stoffler et al. (1985) reported the composition of 63529. Floran et al. (1976) and Blanchard (unpublished) provide preliminary analyses of 63557 (figure 3).

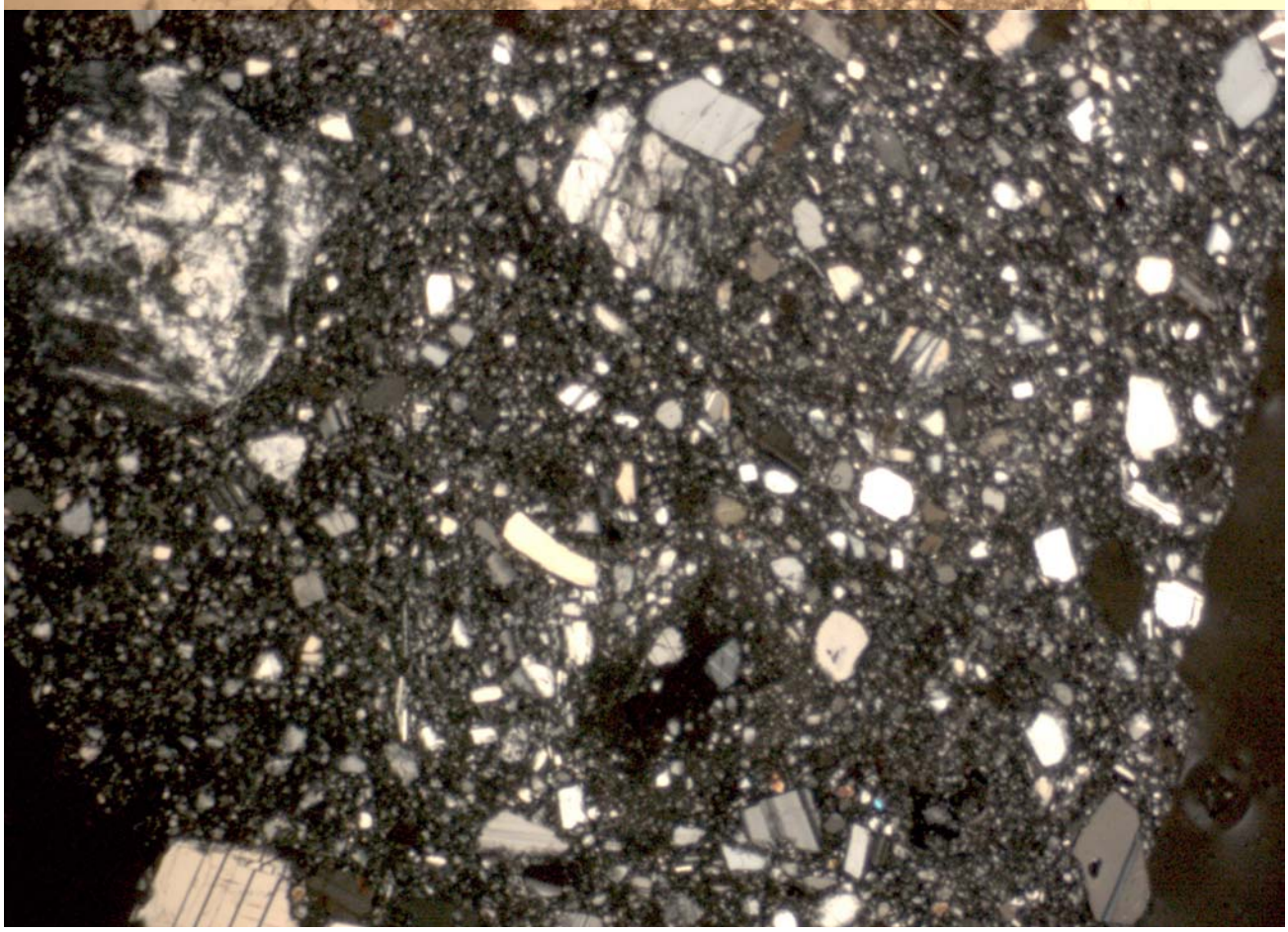
## Radiogenic age dating

none

## Processing

There are two thin sections of 63529 and one for 63557.





## Table 1. Chemical composition of 63557

| | **63529** | | 63557 | |
|---|---|---|---|---|
| *reference* | Stoffler85 | | Floran76 | |
| *weight* | | | Ryder80 | |
| SiO2 % | 45.6 | (b) | 44.74 | (a) |
| TiO2 | 0.24 | (b) | 0.38 | (a) |
| Al2O3 | 31.4 | (b) | 29.84 | (a) |
| FeO | 2.57 | (b) | 3.5 | (a) |
| MnO | 0.02 | (b) | | |
| MgO | 2.38 | (b) | 3.2 | (a) |
| CaO | 17.2 | (b) | 17 | (a) |
| Na2O | 0.46 | (b) | 0.62 | (a) |
| K2O | 0.04 | (b) | 0.08 | (a) |
| P2O5 | 0.05 | (b) | | |
| S % | | | | |
| *sum* | | | | |
| | | | | |
| Sc ppm | | | 6.2 | (a) |
| V | | | | |
| Cr | | | | |
| Co | | | 7.2 | (a) |
| Ni | | | 44 | (a) |
| Cu | | | | |
| Zn | | | 9 | (a) |

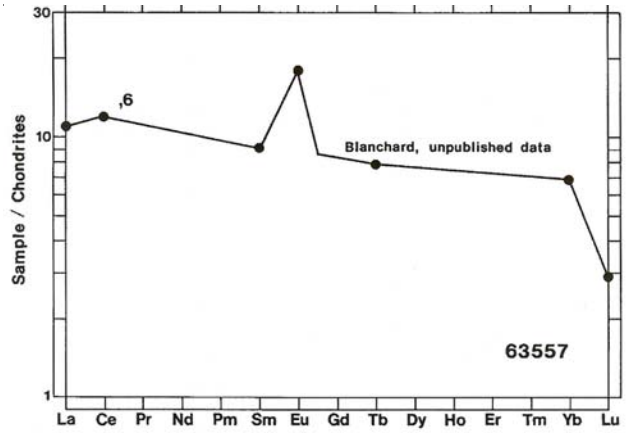
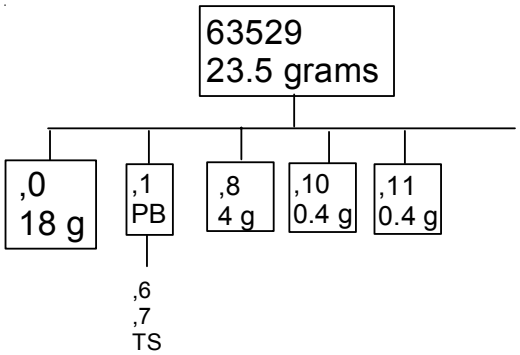
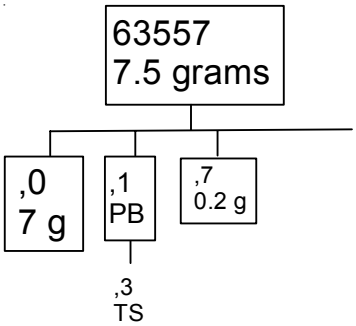



*Figure 3: Normalized rare-earth-element diagram for 63537 (unpublished data by Blanchard ).*

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