

INTRODUCTION: 67935 is a moderately coherent, light gray, basaltic impact melt that is cut by many penetrating fractures and glass veinlets (Fig. 1).

This sample was collected, along with 67936 and 67937, from within the spall zone of a shatter cone on Outhouse Rock (see 67915, Fig. 1). Its precise lunar orientation is unknown, but many zap pits are present on the B surface. In contrast, zap pits are absent from all other surfaces, which are fresh fracture faces.



FIGURE 1. S-72-53502.

PETROLOGY: 67935 is a fine-grained impact melt of somewhat varied grain size and texture. The coarser-grained areas tend to be basaltic with a subophitic texture (Fig. 2). Many of the plagioclase laths are hollow and a flow-alignment is apparent in some areas, ilmenite and glassy mesostasis are minor, interstitial components. In finer-grained (down to a few microns) areas the rock takes on a vaguely poikilitic texture with oikocrysts generally a few tenths of a mm across. Fe-metal/troilite intergrowths are randomly distributed through the rock, locally in association with a small amount of phosphide and/or ilmenite (?). Clasts of plagioclase and anorthosite, showing varied degrees of shock and recrystallization, make up ~10% of the rock.

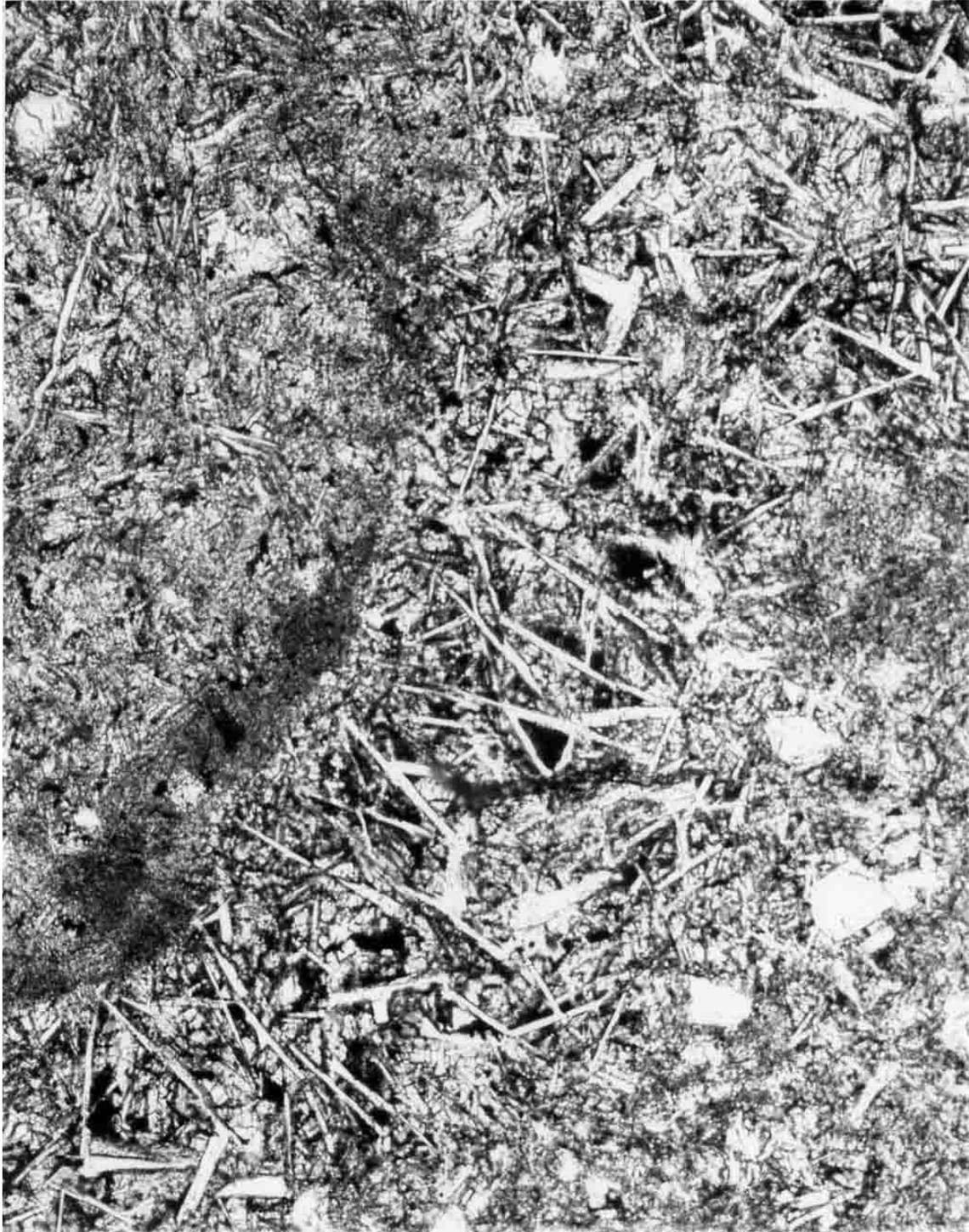


FIGURE 2. 67935,25. Basaltic melt, ppl. Width 1 mm.

CHEMISTRY: Hertogen et al. (1977) report meteoritic siderophile and volatile abundances and Clark and Keith (1973) present natural and cosmogenic radionuclide abundances. On the basis of these limited data, 67935 appears to be unique among rocks from the North Ray Crater area. It has high Rb and K₂O contents (Table 1). Ge (633 ppm, Hertogen et al., 1977) is also quite high, although volatile/involatile ratios, e.g. Ti/Cs, are not particularly high (compare to diagrams in Krahenbuhl et al., 1973). Siderophile elements are also present at very high levels (Table 1) and are classified as meteoritic group 1H (a group largely restricted to Apollo 16) by Hertogen et al. (1977).

RARE GAS/EXPOSURE AGE: Clark and Keith (1973) and Fruchter et al. (1978) provide cosmogenic radionuclide abundances. These authors and Yokoyama et al. (1974) agree that 67935 is unsaturated in absolute amounts of ²⁶Al but Fruchter et al. (1978) contend that the sample can be considered essentially saturated if it is partially shielded position on the lunar surface is taken into account. From a comparison of ⁵³Mn and ²⁶Al activity, Fruchter et al. (1978) conclude that the shatter cone from which 67935 was taken formed ~2 m.y. ago, possibly during the South Ray Crater event.

PROCESSING AND SUBDIVISIONS: In 1972, 67935 was split into five subsamples (.1 - .5; Fig. 1). All allocations have been filled from .1 and .5. The rock separates easily along fractures and splits have always been made by prying. The largest single piece remaining is .5 (70.22 g) at JSC.

TABLE 1. Summary chemistry of 67935.

K₂O	wt%	0.196
Rb	ppm	6.07
Ni	ppm	659
Ir	ppb	12.9
Au	ppb	12.3
Zn	ppm	3.98