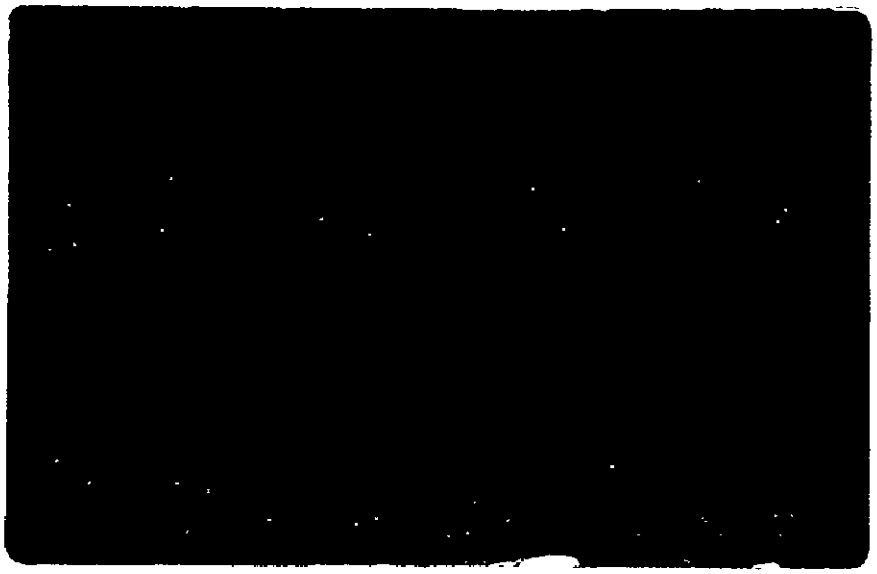
UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY



This report is preliminary and has not been edited or reviewed for conformity with U.S. Geological Survey standards and nomenclature.

Prepared by the Geological Survey for the National Aeronautics and Space Administration

U.S. Geological Survey
Interagency Report: 34

Preliminary documentation of the Apollo 15 samples

Errata and additions
August 30, 1971

Figures

Figure 1: At Station 7, bag 195, delete "]", insert ", 923]."

Figure 2: Double core location is at end of arrow

Figure 13: "cross sun photograph AS15-86-11534, looking south."

Figure 15: add "Tongs inserted in soil at sample location."

Figure 21: Disregard "crater rim," arrow, and short-dash circle

Figure 25: change "pif" to "pit"

Figure 26: In photograph, area of two scoops extends past arrow point, from left (east) of LRV track to about one-third into LRV track

Figure 31: view is "northeast", not "north". Samples 400-405 are from bag 168.

Figure 32: change "disturbeded" to "disturbed"

Figure 33: Photograph:

After"425-426", add ", 923".
After"445"add "collected from west of boulder"
After"465"add "-469".

Caption:

"Samples shown are 410-414, 415, 417-419, 425, 426, 430-, 445, 455, 465-469, 923."

Figure 41: View is "cross sun", not "down sun"

Figure 42. Delete "465-", add "465?," in front of "466?"

Explanation for station maps, p. 58-61

× Location of sample containers

 LRV, dot shows TV camera

 Large rocks

 Crater rims or other topographic features

 Panorama stations

FSR "Football-size" rock

Station maps

Station 1: "200 m" should read "200 ft."

Station 6: p. 59: 1

Pan 10 location is at dot between "Pan" and "10 (west)"

Insert "-1" after "SESC"

Station 6a: p. 59:

Bag 168 is located on the large rock symbol

Station 7: p. 60:

Add "x" for bag 171 1 mm west of large rock symbol just above "bag 171".

Tables

Table 1, p. 62: bag 195: add "15923"; "(923)" after the word soil

Table 2, p. 66: add "15923", bag "195", Station "7", EVA "2".

Table 3, p. 67: 15256 is basalt, not breccia
: 15418 is breccia, not basalt
p. 68: 15529 weighs 1531.0, not 1531.9

Table 4, p. 70: bag 195: add "923" under "LRL no."

Table 5, p. 72: in caption, add "*after sample numbers denotes rocks >25 g.
add "15923", bag "195", page "108".
p. 108: add "15923," beneath "15426*"
p. 140: after "15610," delete "+", insert "-"
p. 142: after "15600," delete "+", insert "-"

INTERAGENCY REPORT: 34

Preliminary documentation of the Apollo 15 samples

by

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Contents

List of illustrations

Station maps

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Preliminary documentation of the Apollo 15 samples

Introduction

This report was prepared to illustrate the locations of the documented samples returned by Apollo 15, and as a cross-reference including photographic coverage of sample sites, crew descriptions, general rock types, and numbering systems. The first two digits (15) of all LRL sample numbers are omitted from all of the illustrations in this report. Numbers indicated as 110- represent a reserved series for a group of samples, but the numbers are not yet specifically assigned.

Sample locations were determined from lunar surface photographs, from video tape recordings, from descriptions by the astronauts at the time of sampling and debriefings after their return; and from a correlation between the sample bags in which the samples were returned and the traverse locations where those bags were used.

Sample orientations can be determined for most of the samples and will be shown in the Final Documentation Report after the LRL stereo photos of samples are available.

Illustrations

The figures are mainly the pre-sample EVA documentation photos annotated with LRL sample numbers, container numbers, and sampling areas where necessary. For some samples, more than one EVA photo is used to show successive stages in the sampling.

The map (fig. 1) shows the traverses based on Hasselblad panoramas, LRV navigation data, and astronaut descriptions. The traverse stations are annotated with sample container numbers and corresponding LRL sample numbers. The map is still preliminary pending receipt of a higher resolution base map from the Apollo 15 pan camera photography.

The station maps are still in a preliminary stage and should be considered only as sketches. The azimuths relative to the camera stations of items shown on the maps are fairly accurate; the distances along the azimuthal lines are approximate.

Tables

The tables (tables 1-5) show the correlations between LRL sample numbers, lunar documentation container numbers, traverse stations, and sample types.

Table 1 is a correlation based on ascending lunar documentation container numbers (i.e. bag numbers).

Table 2 is a correlation based on ascending LRL sample numbers.

Table 3 is a list of Apollo 15 rocks that weigh more than 25 grams (based on LRL inventory as of August 24, 1971).

Table 4 is a reference between samples and lunar surface documentation photographs.

Table 5 is a cross reference between lunar samples, lunar surface documentary photographs, and comments by the Apollo 15 crew relating to

samples. The samples are listed in sequence by time of collection in three EVA periods. An index of samples precedes the table.

Acknowledgments

We gratefully acknowledge the drafting support by R. E. Sabala, and the typing by L. B. Sowers, J. D. Loman, and R. S. Madden.

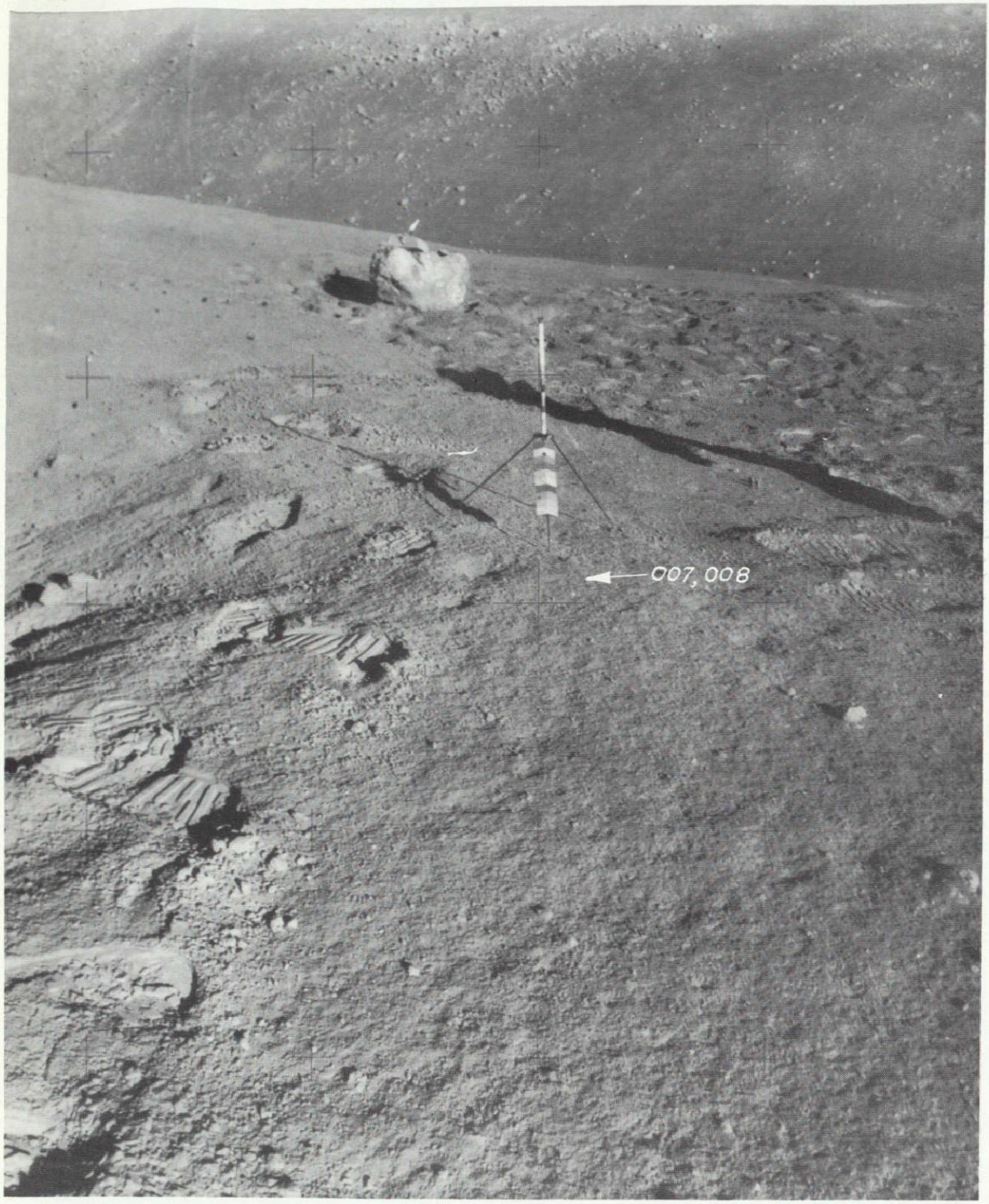


Fig. 2.--Samples 007 and 008 from near St. George crater, double core U-03/L-10, collected at Station 2. Pre-sampling, cross-sun photograph AS15-85-11443, looking northwest.

Fig. 3.--Sample 009 from core tube U-07, collected on north rim of crater at Station 6. Location of core shown by small ellipse upsun from leg of the gnomon. Pre-sampling, cross-sun photograph AS15-86-11647, looking north.

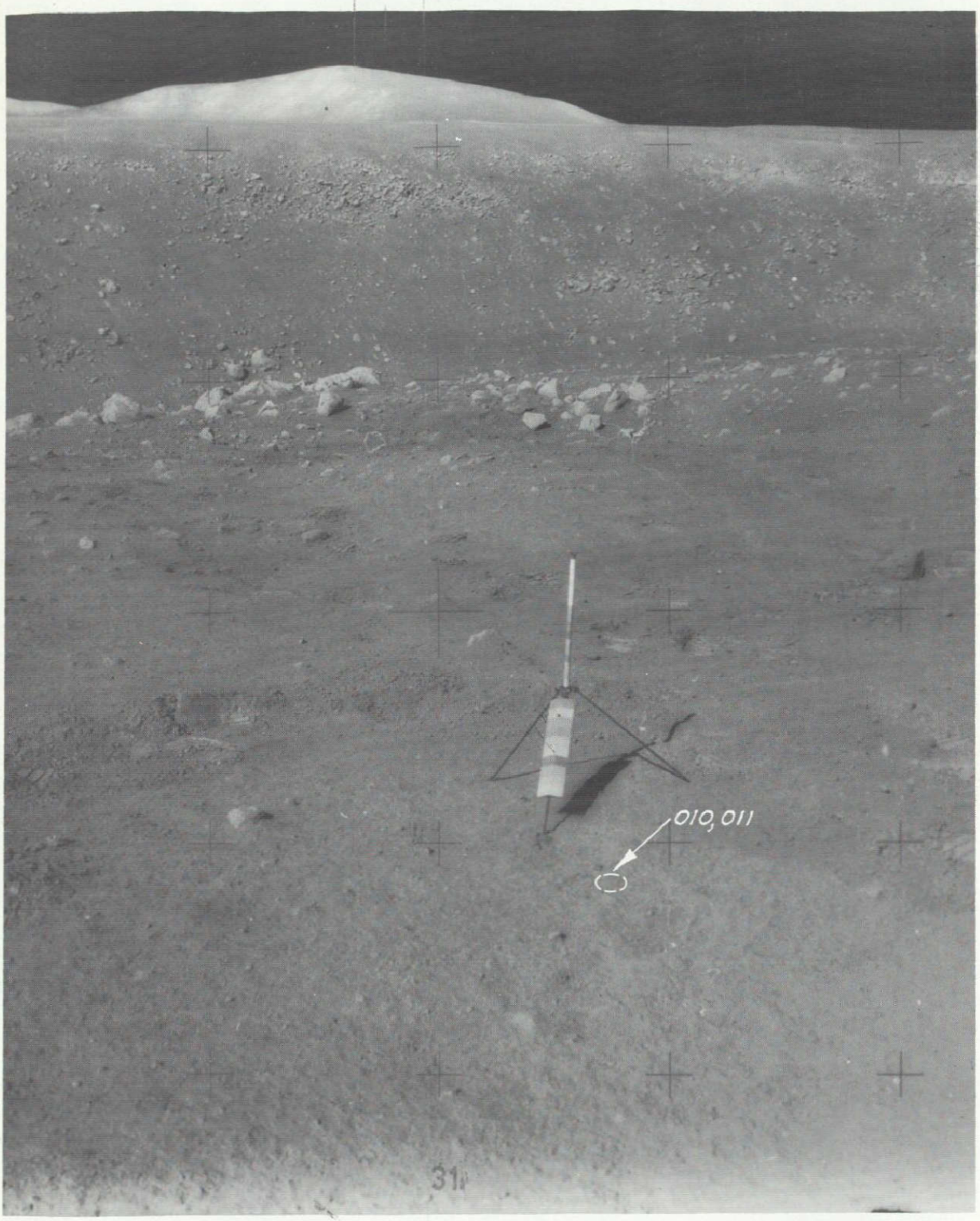


Fig. 4.--Samples 010 and 011 from double core U-09/L-14, collected at Station 9a about 20 m east of rim of Hadley Rille. Pre-sampling, down-sun photograph AS15-82-11159, looking southwest.

Fig. 5.--Approximate area of deep trench, samples 013, 030-034, and 040-044, prior to digging, at Station 8 west of LM. Pre-sampling, cross-sun photograph AS15-92-12417, looking north.

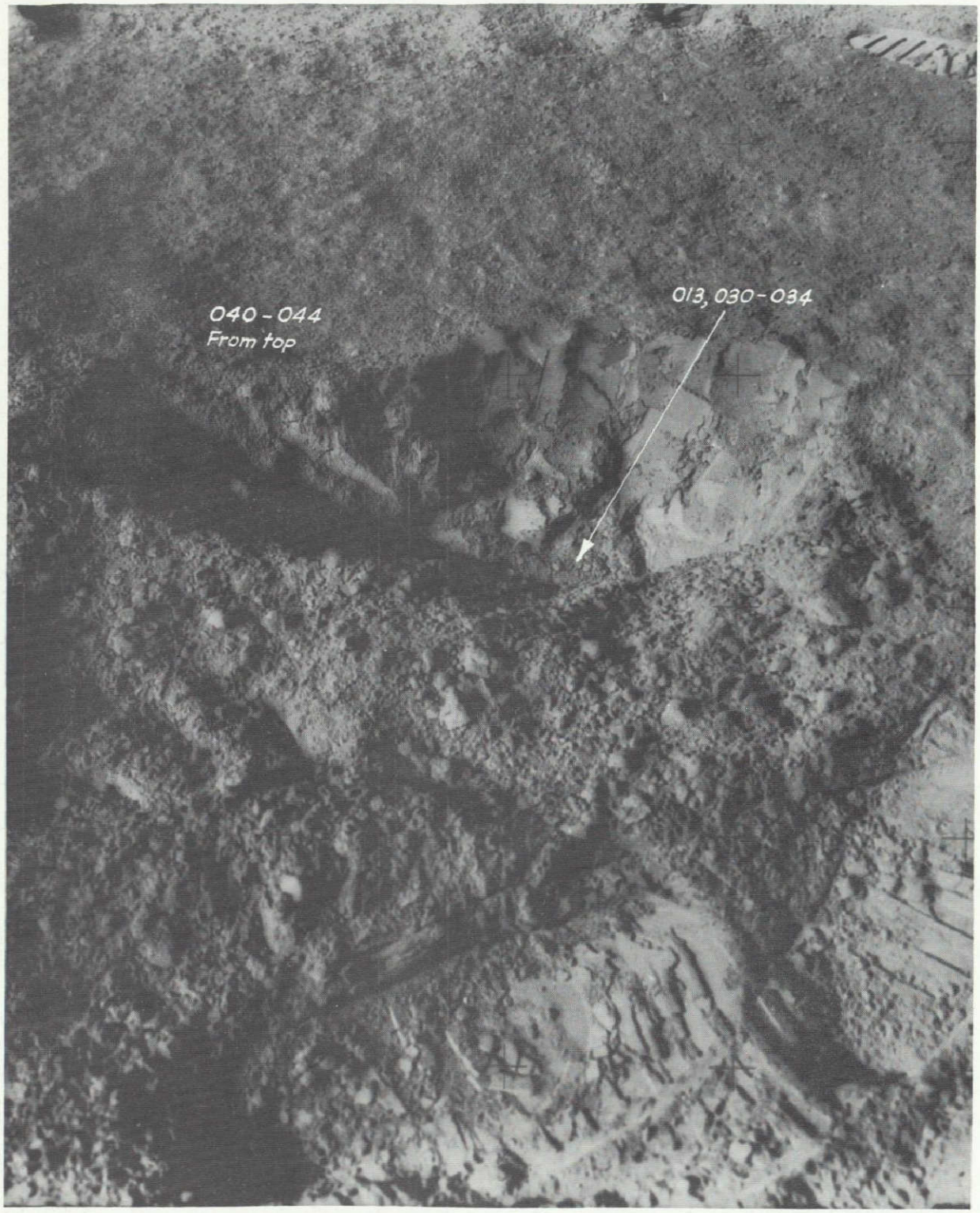


Fig. 6.--Samples 013, 030-034, 040-044 from the unnumbered SESC, bag 252, and bag 253 (respectively), collected from deep trench at Station 8 west of LM. Cross-sun photograph AS15-92-12439, looking south.

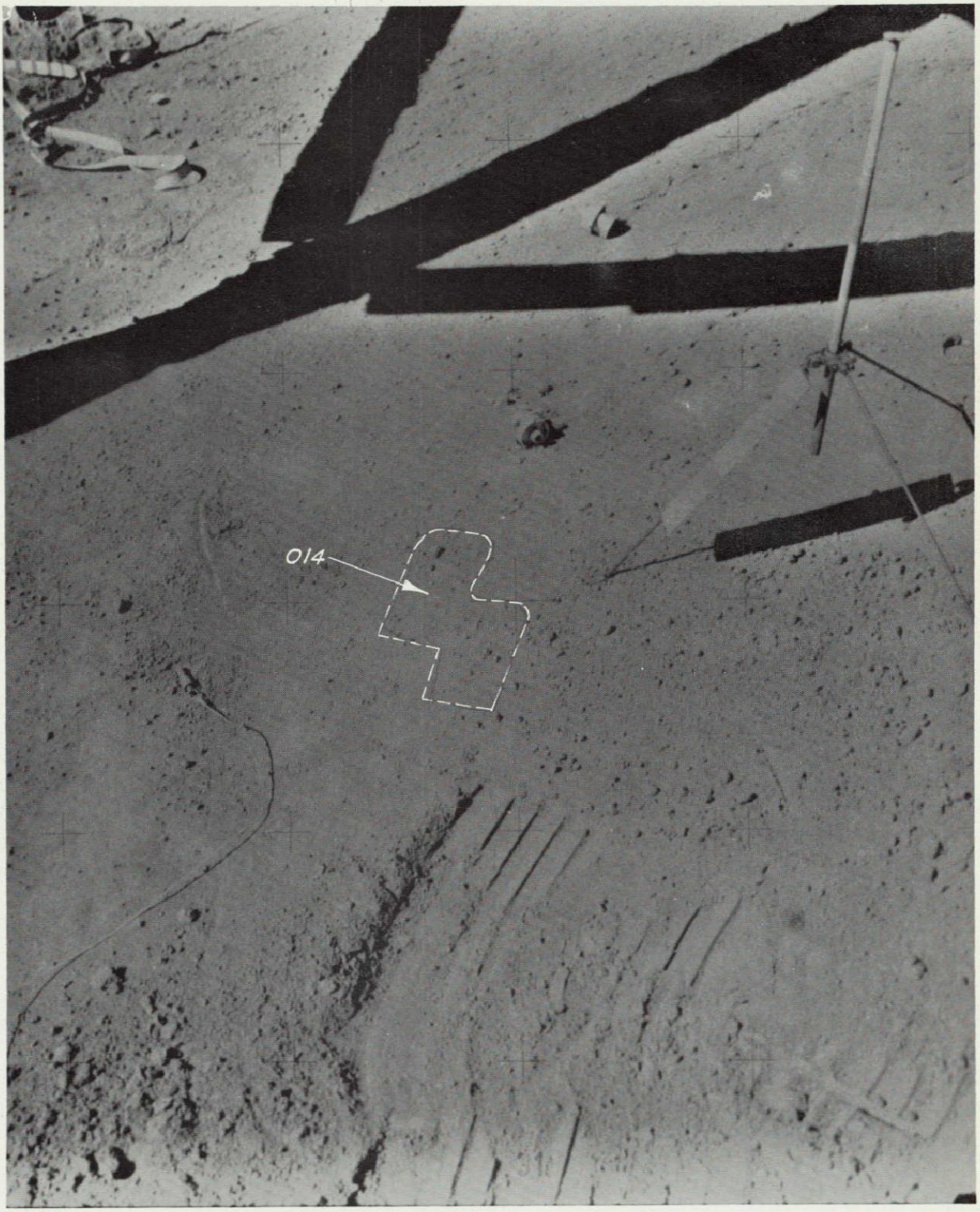


Fig. 7.--Sample 014 from SESC 2, collected just north of the LM on EVA III. Pre-sampling, cross-sun photograph AS15-88-1184, looking south.

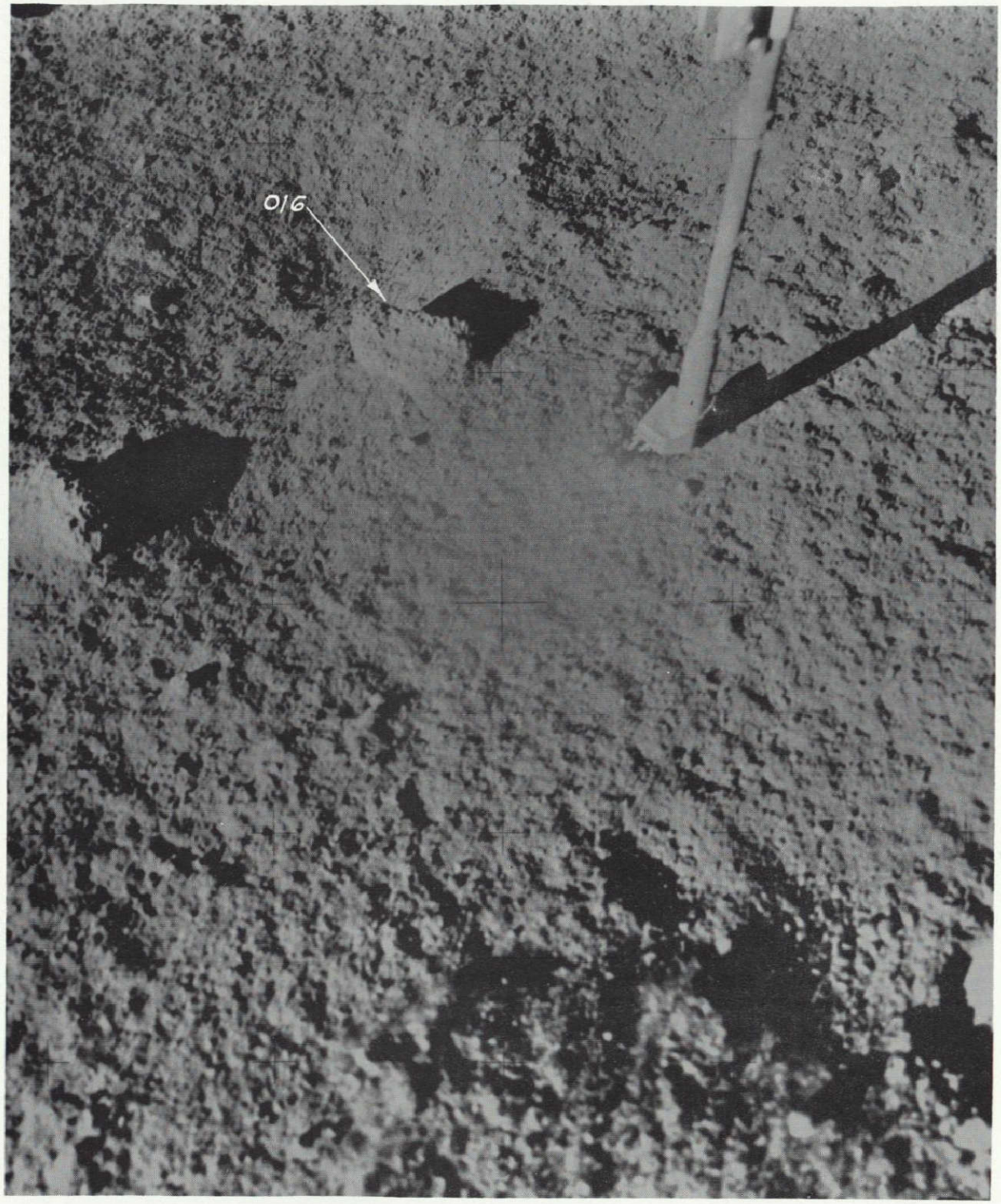


Fig. 8.--Sample 016 from SCB 4 collected at Station 3. Pre-sampling, cross-sun photograph AS15-86-11581, looking south-west.

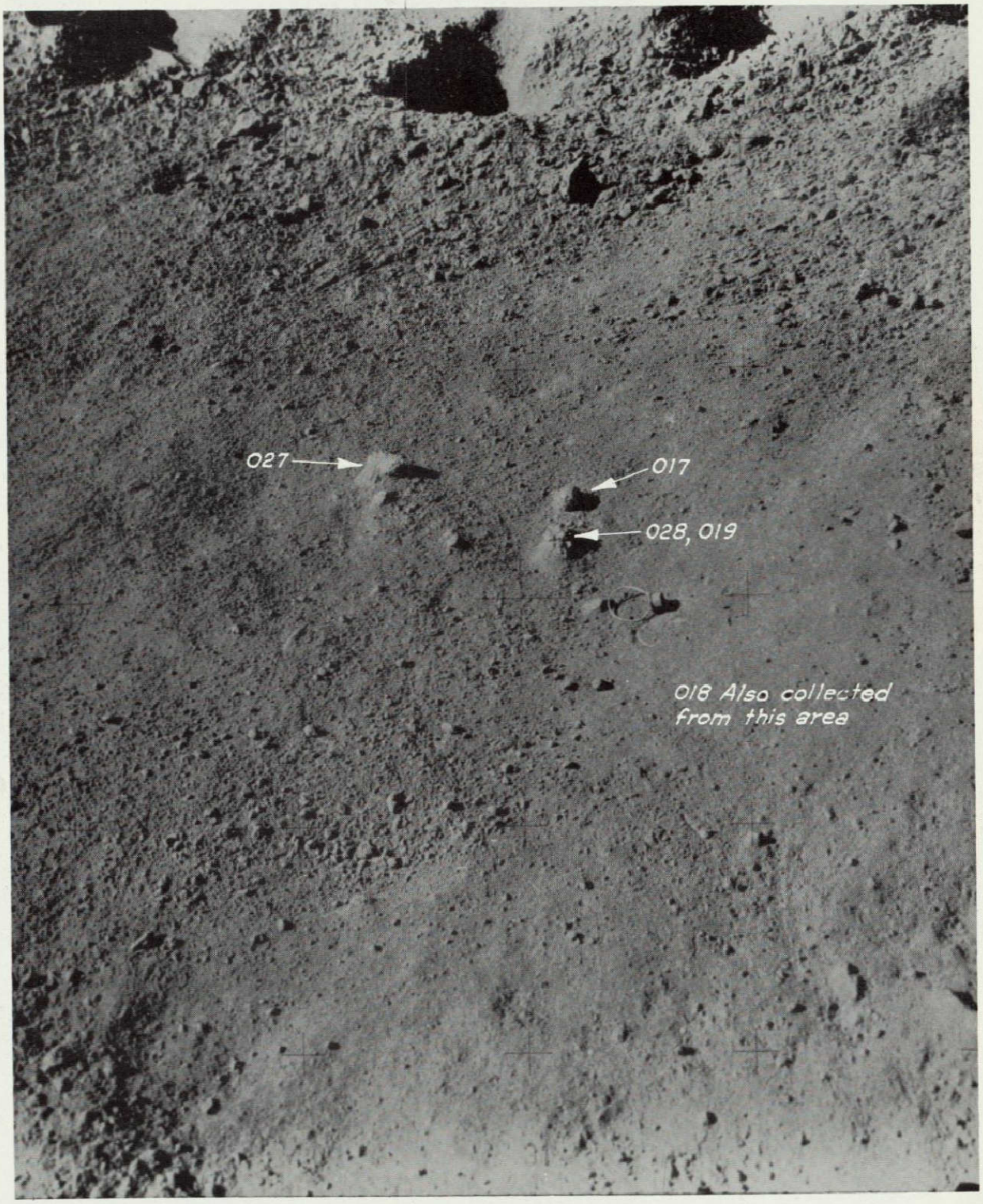


Fig. 9.--Samples 017-019 and 027, 028 from bag 162, collected about 15 m west-southwest of the LM. Pre-sampling, cross-sun photograph AS15-86-11604, looking south.

Fig. 10.--Sample 058 from SCB 6 collected on south side of ALSEP area. Pre-sampling, cross-sun photograph AS15-92-12410 looking south.

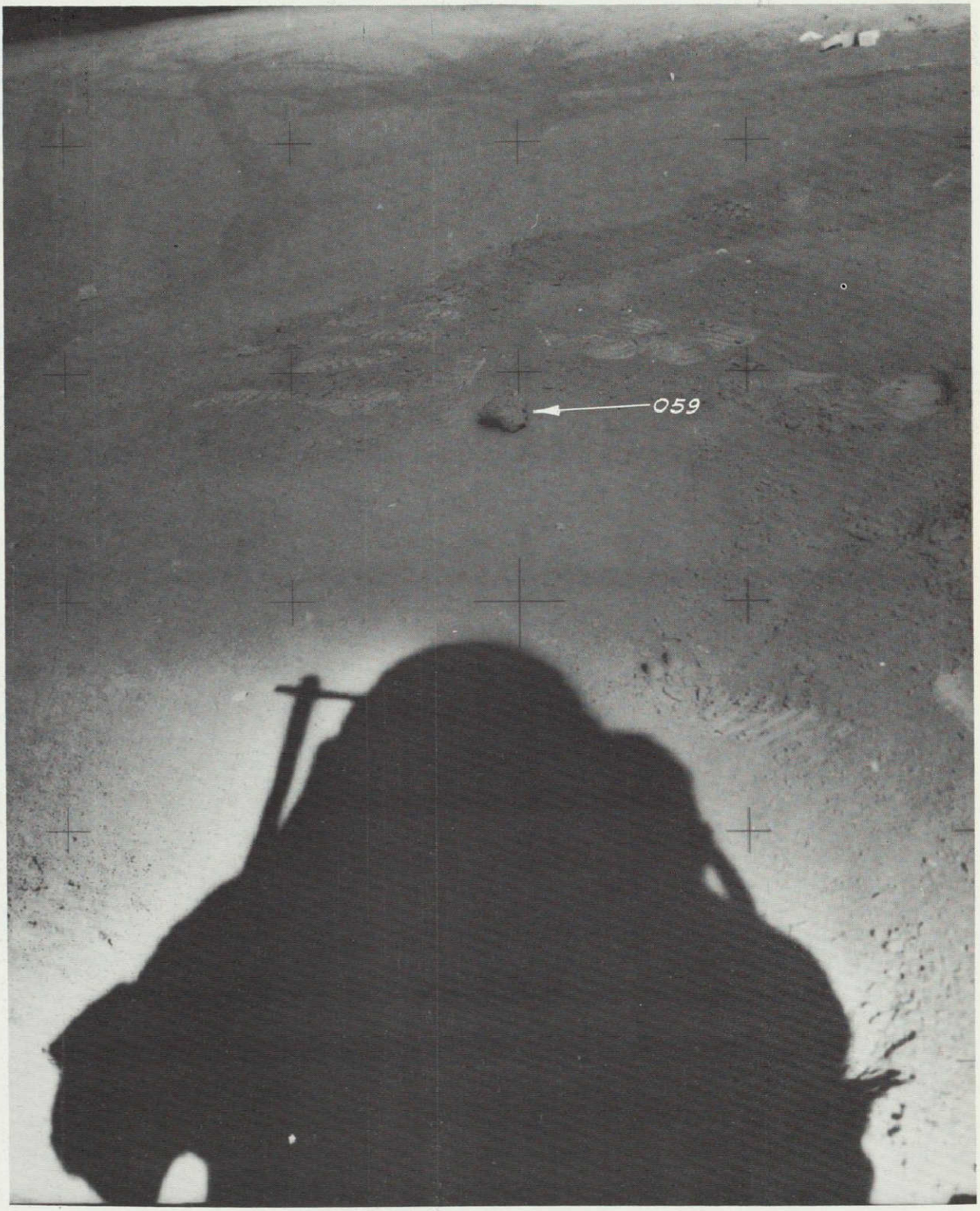


Fig. 11.--Sample 059 from SCB 6, collected on east side of ALSEP area. Pre-sampling, down-sun photograph AS15-92-12413, looking west.

Fig. 12.--Sample 065 from bag 156 collected on east rim of Elbow crater at Station 1. First sample of radial sample at Elbow. Pre-sampling, cross-sun photograph AS15-86-11531, looking south.

Fig. 13.--Samples 070-074 (soil) and samples 075 and 076, from bag 157, collected at Station 1 from the east rim of Elbow crater. Second sampling point in radial sample. Pre-sampling, oblique-to-sun photograph AS15-86-11534, looking northwest.

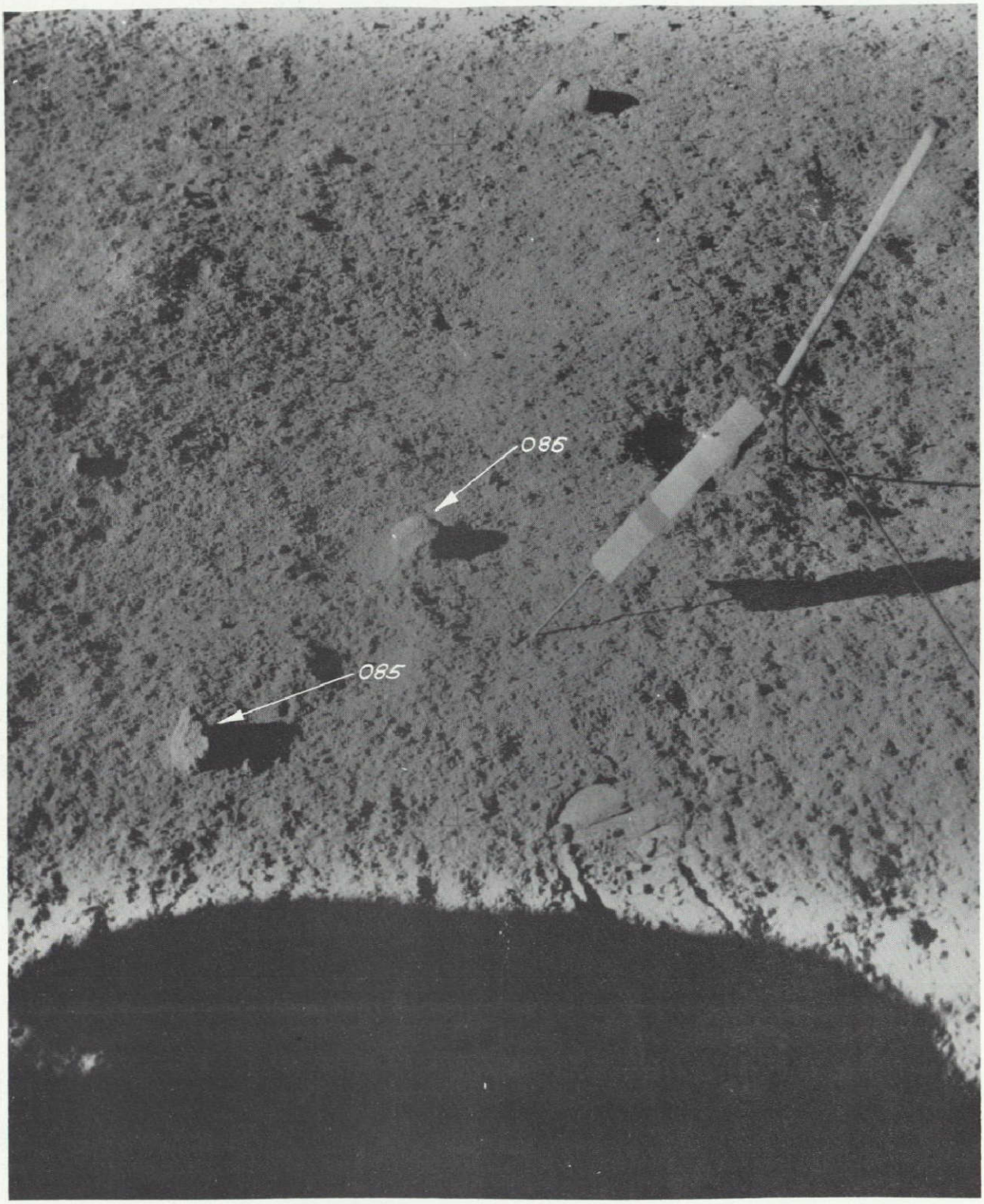


Fig. 14.--Samples 085 and 086 from bag 158, collected from east rim of Elbow crater. Third sampling point (farthest out) of radial sample. Pre-sampling, cross-sun photograph AS15-86-11536, looking south.

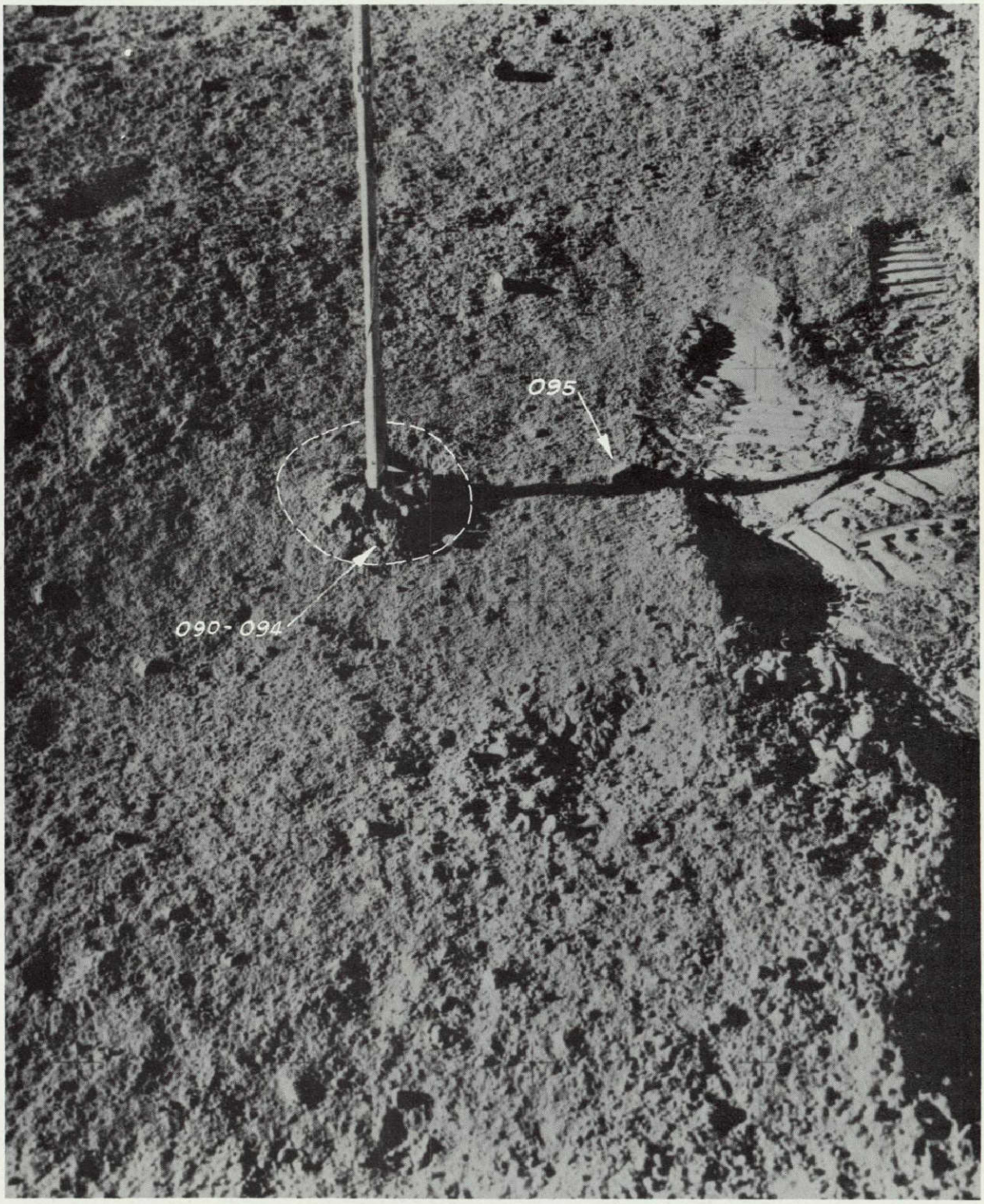


Fig. 15.--Samples 090-094 and 095, from bag 159, collected at Station 2, uphill from big rock. Pre-sampling, cross-sun photograph AS15-86-11549, looking south.

Fig. 16.--Samples 100-105 from bag 187, and samples 110- from bag 186, collected as a comprehensive sample at Station 2. Pre-sampling, oblique-to-sun photograph AS15-85-11442, looking southwest.

Fig. 17.--Samples 205 from bag 161, and 206 from bag 160, collected from boulder at Station 2, near St. George crater. Pre-sampling, cross-sun photograph AS15-86-11547 looking north.

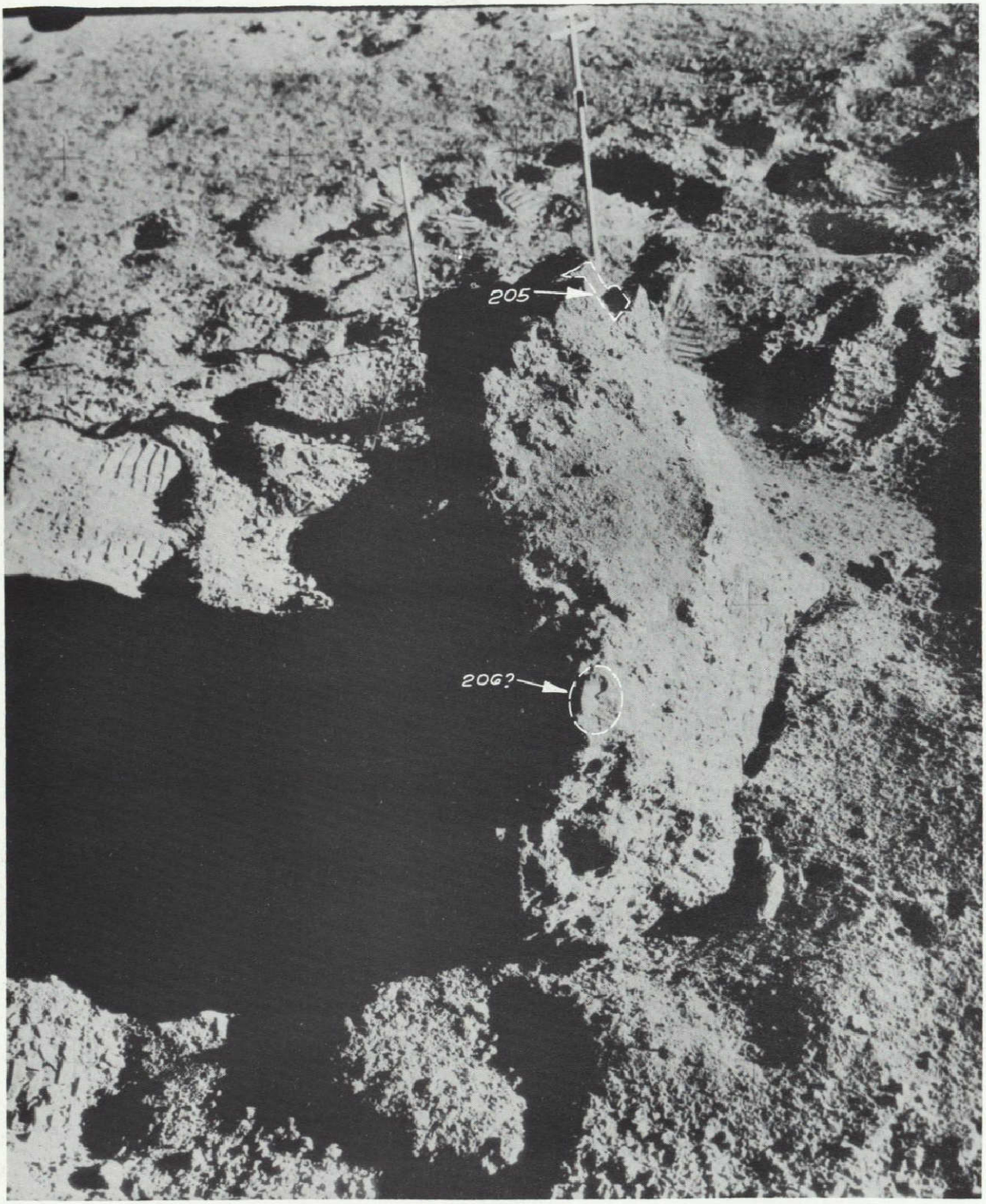


Fig. 18.--Samples 205 from bag 161, and 206 from bag 160, collected from boulder at Station 2, near St. George crater. Post-sampling, cross-sun photograph AS15-86-11558, looking north.

Fig. 19.--Samples 205 from bag 161, 206 from bag 160, 210- from bag 180, and 220-224 from bag 181, collected from on and near the big boulder at Station 2. Post-sampling, oblique-to-sun photograph AS15-86-11560, looking northwest.

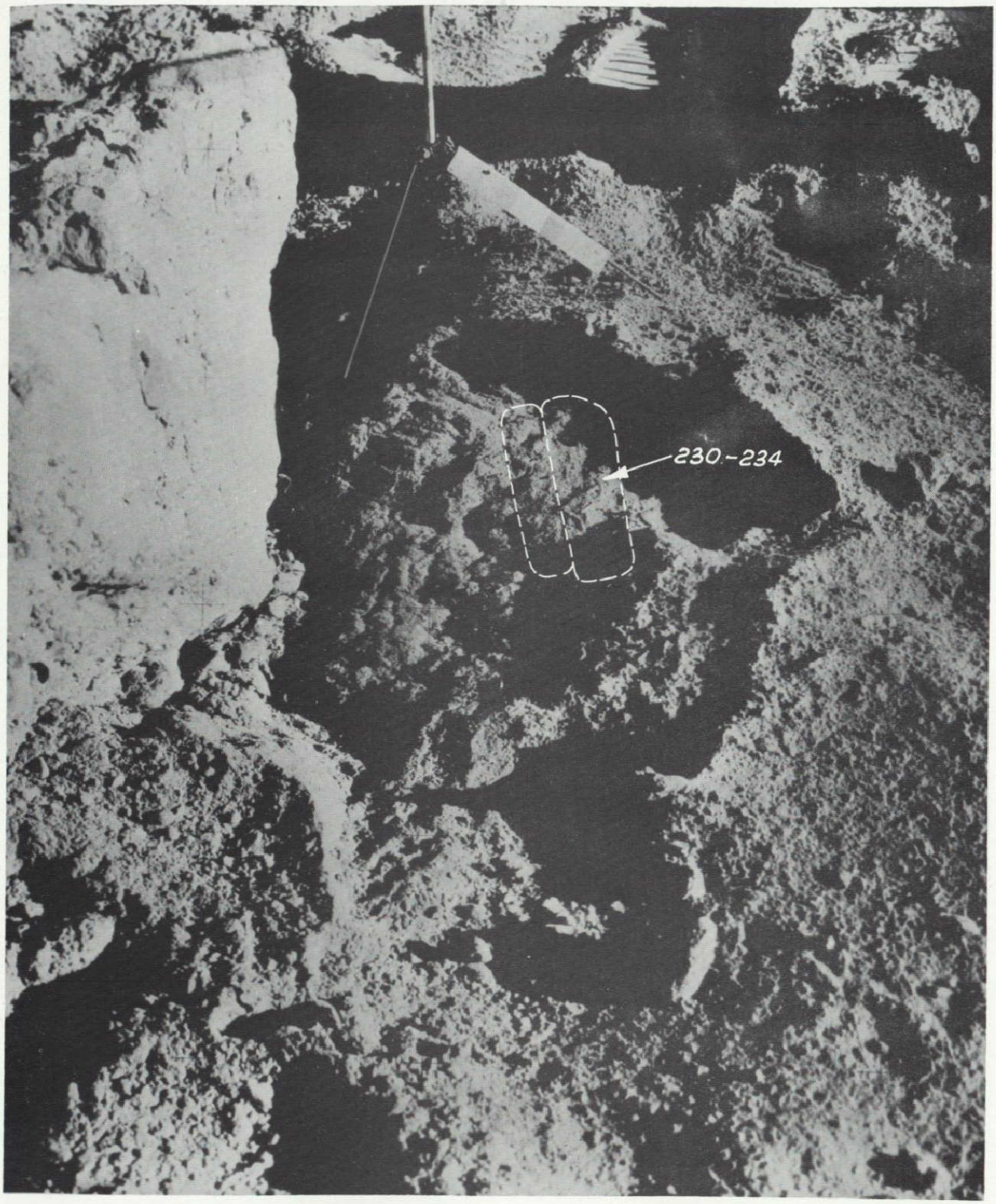


Fig. 20.--Samples 230-234 from bag 182 collected from soil beneath big boulder at Station 2. Pre-sampling, cross-sun photograph AS15-86-11564, looking north.

Fig. 21.--Samples 240- and 250-254 from bags 163 and 164, collected from bottom (240) and rim (250-254) of 1 m diameter fresh crater at Station 6. Pre-sampling, cross-sun photograph AS15-11610 looking north.

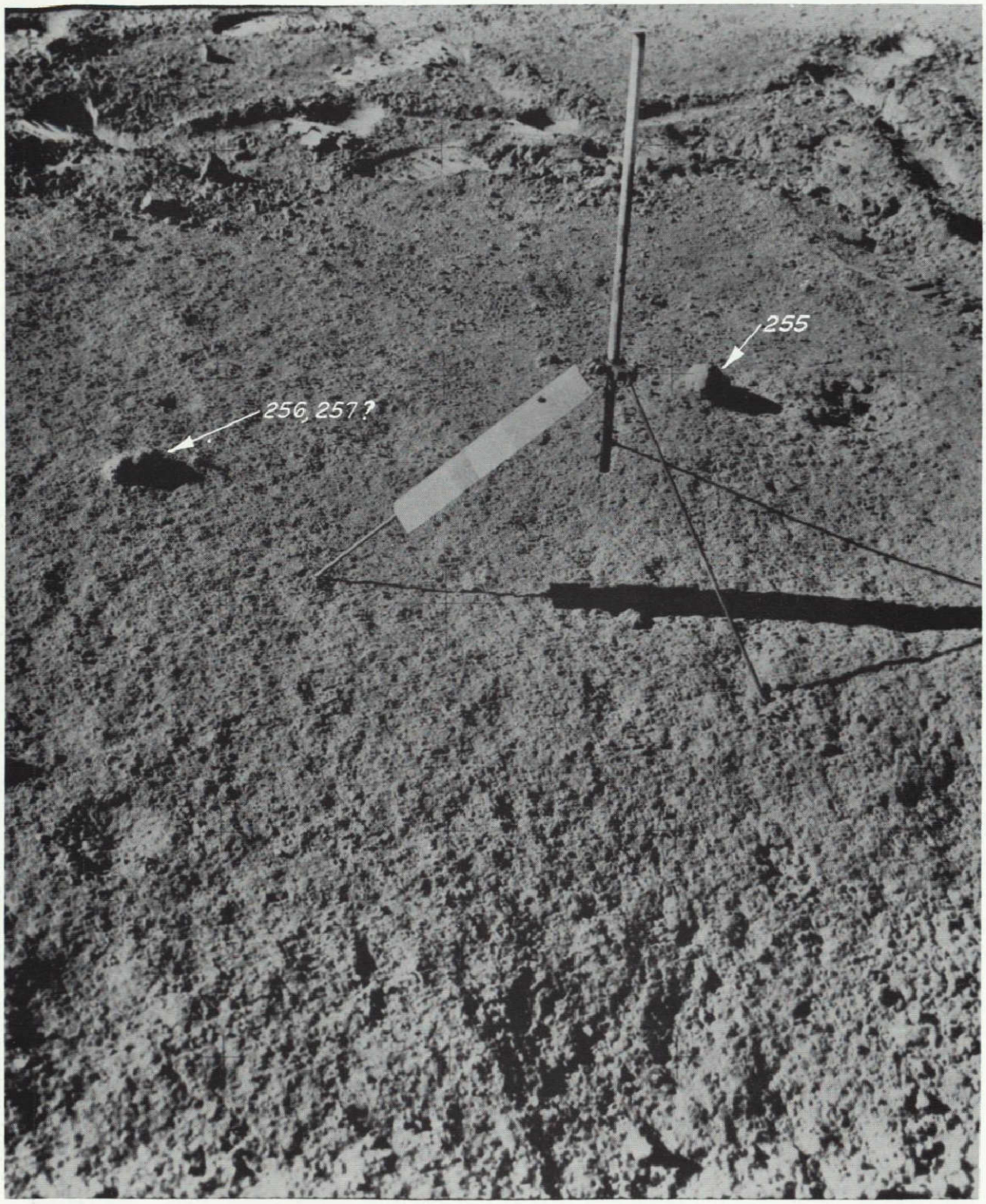


Fig. 22.--Samples 255-257 from bag 190, collected at Station 6. Two rocks were removed; left rock in view probably broke in two. Pre-sampling, cross-sun photograph AS15-86-11630, looking south.

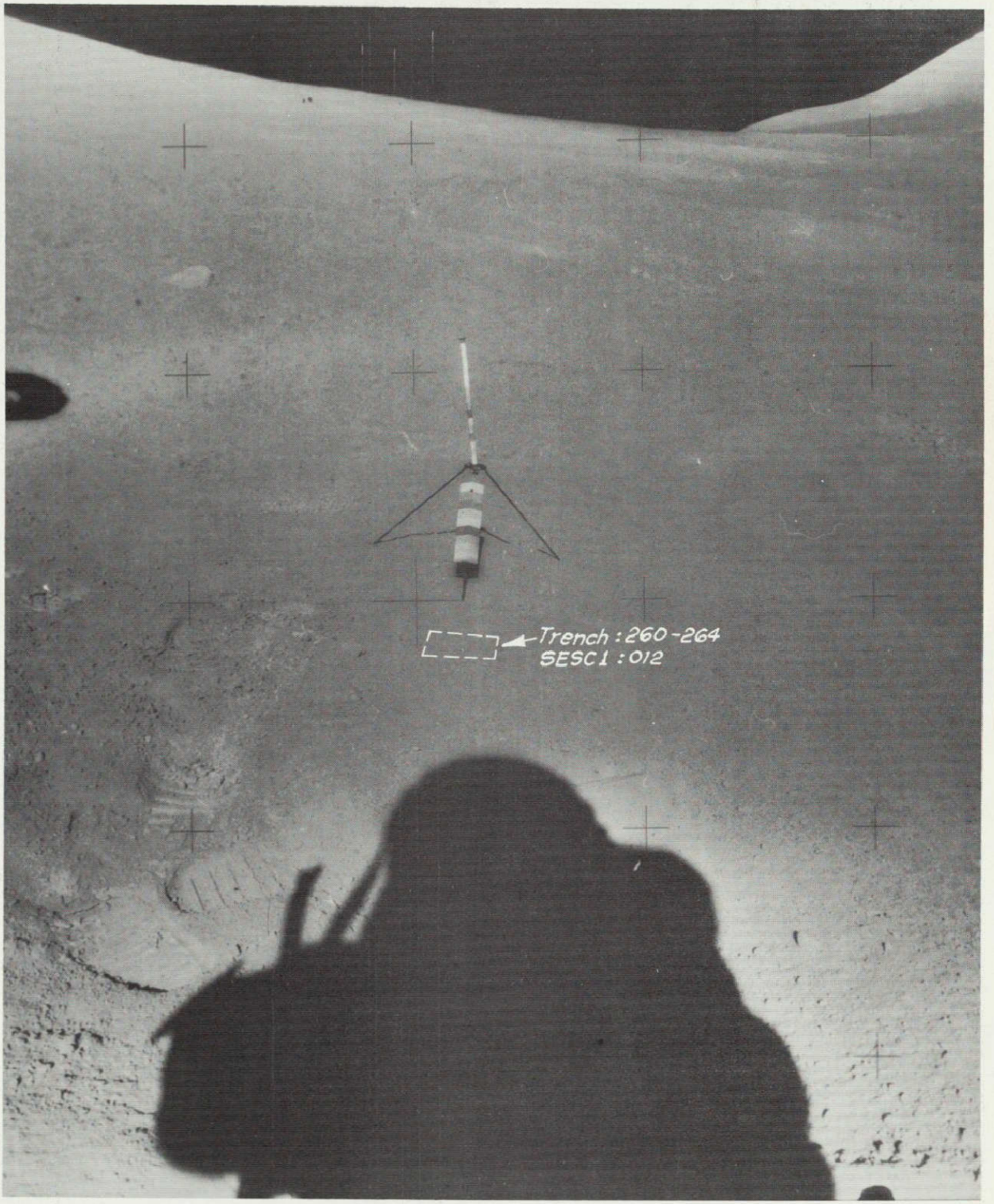


Fig. 23.--Samples 260-264 from bag 166, and sample 012 from SESC 1, collected in small trench from north wall of 12 m diameter crater at Station 6. Pre-sampling, down-sun photograph AS15-85-11525, looking west.

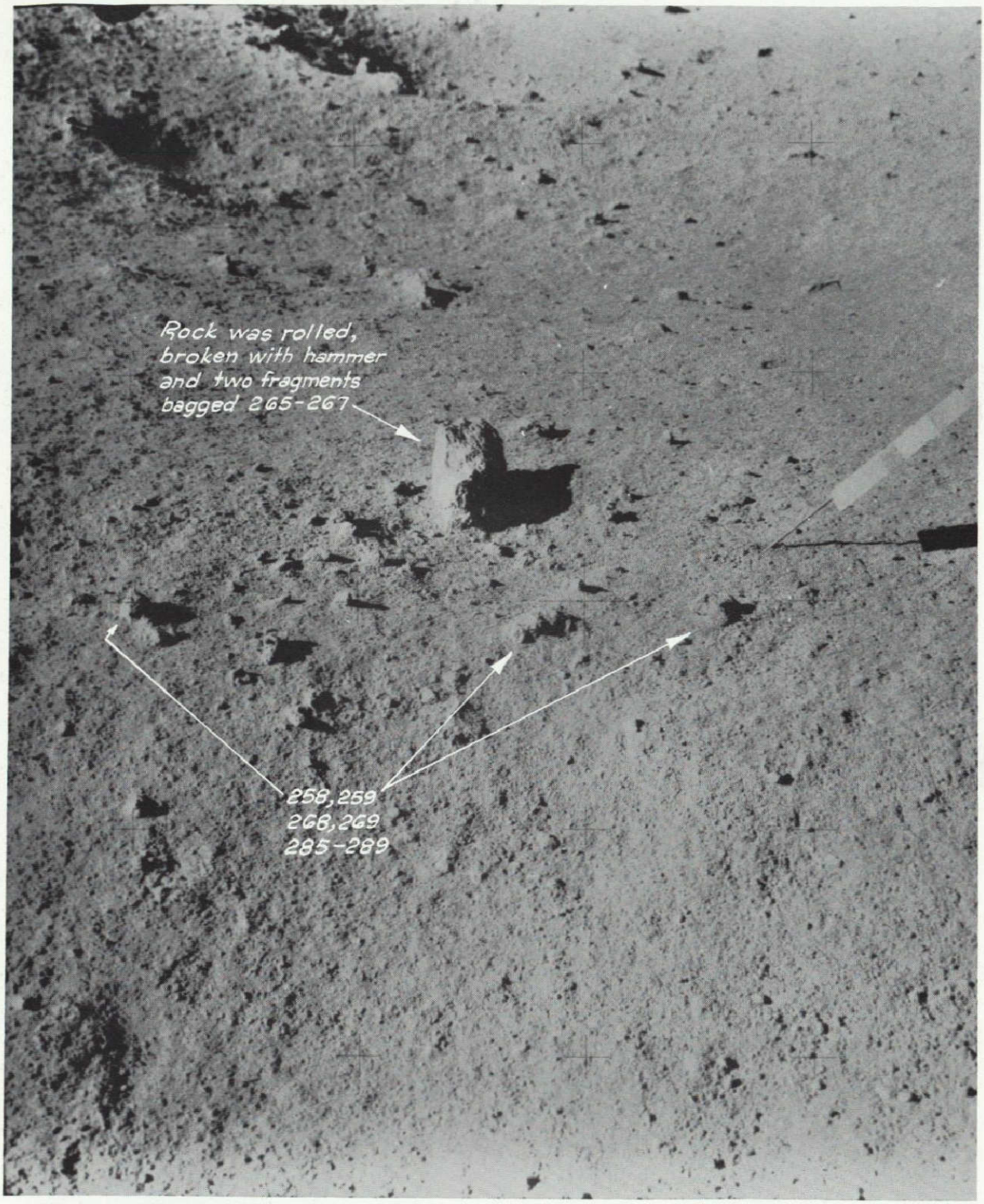


Fig. 24.--Samples 258, 259, 268, 269, 285-289 from bag 192, collected on north rim of 12 m diameter crater at Station 6. Samples 265-67 from bag 193 are chips from the large rock. Four sampling areas are identified in field of view. Pre-sampling, cross-sun photograph AS15-86-11635, looking south.

Fig. 25.--Samples 265-267 from bag 193, collected on north rim of 12-m diameter crater at Station 6. Sample was rolled toward viewer before being hit with hammer to break off the two chips shown and sampled. Sample 267 (1.9 grams) probably broke from one of the larger fragments. Original position of rock was in shallow crater (20 cm diameter) with fragments surrounding it. Samples in bag 192 are probably pieces of the same microbreccia. Pre-sampling, cross-sun photograph AS15-86-11639, looking south.

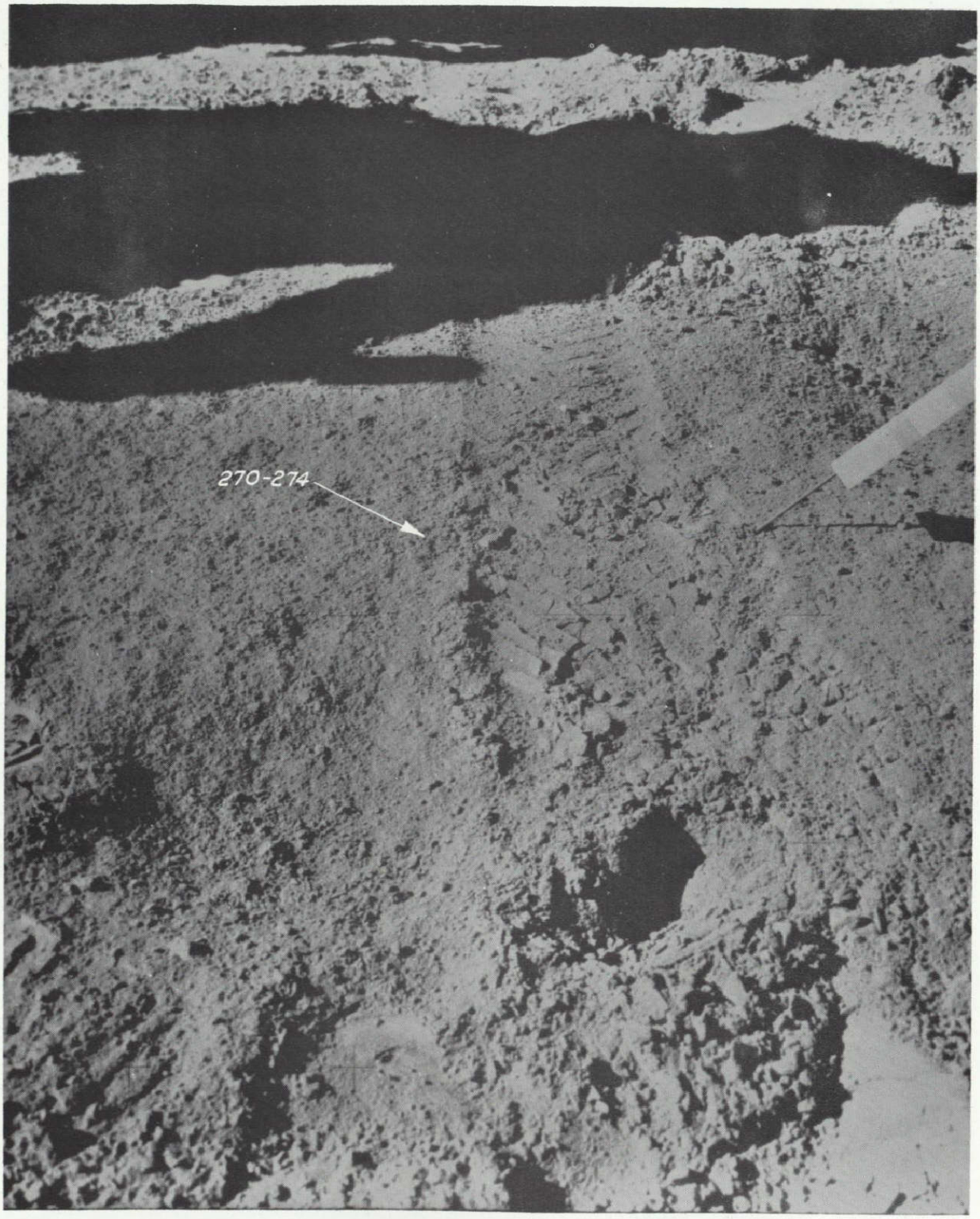


Fig. 26.--Samples 270-274 from bag 167 collected near LRV track at Station 6. LRV shadow at top of photo. Pre-sampling, cross-sun photograph AS15-87-11656, looking south.

Fig. 27.--Samples 290-295 from bag 188, collected from Station 6. Pre-sampling, cross-sun photograph AS15-86-11617, looking north.

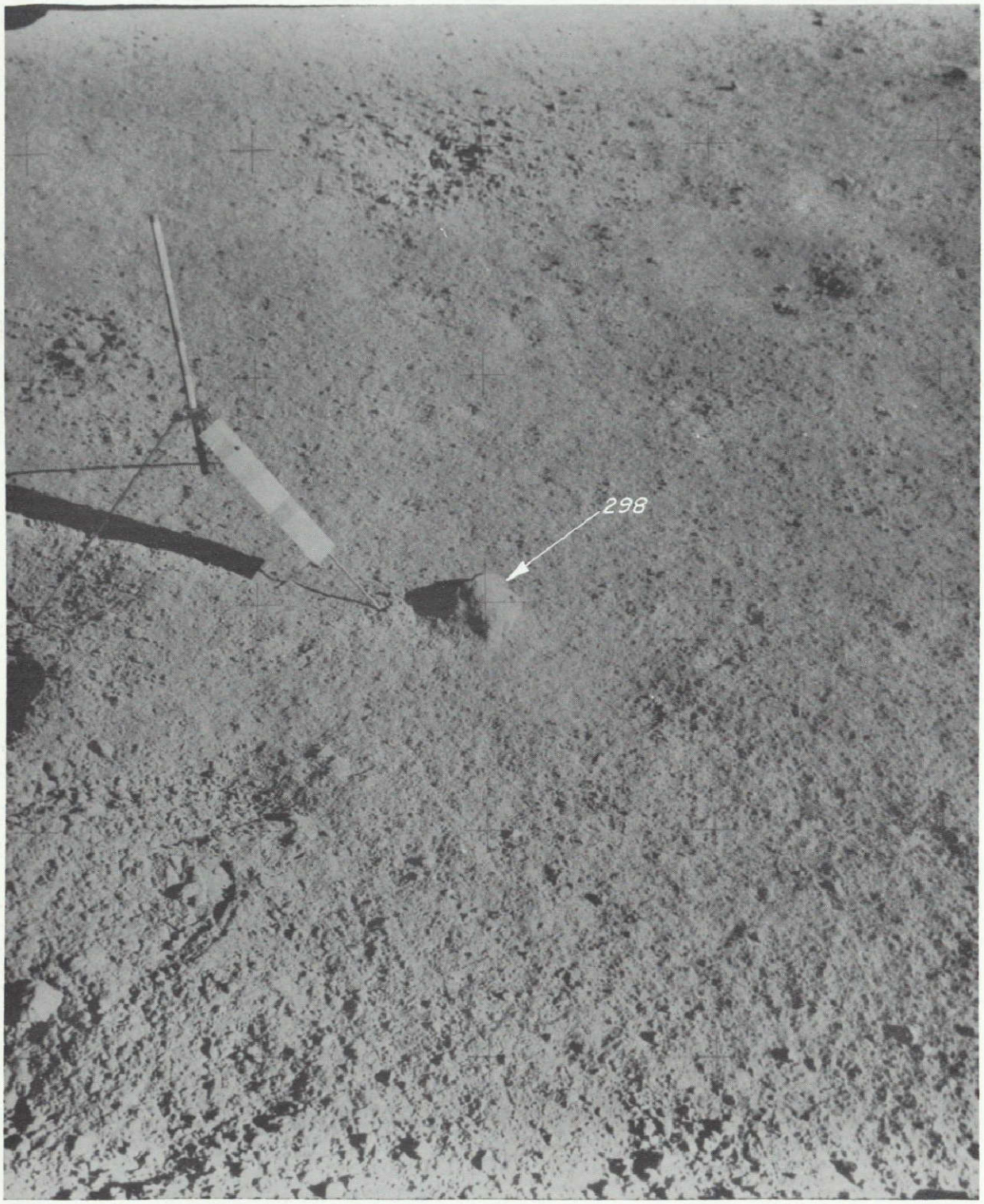


Fig. 28.--Sample 298 from SCB 3 collected at Station 6. Pre-sampling, oblique-to-sun photograph AS15-86-11622, looking northwest.

Fig. 29.--Sample 299 from SCB 3, collected at Station 6. Pre-sampling, cross-sun photograph AS15-86-11624, looking south.

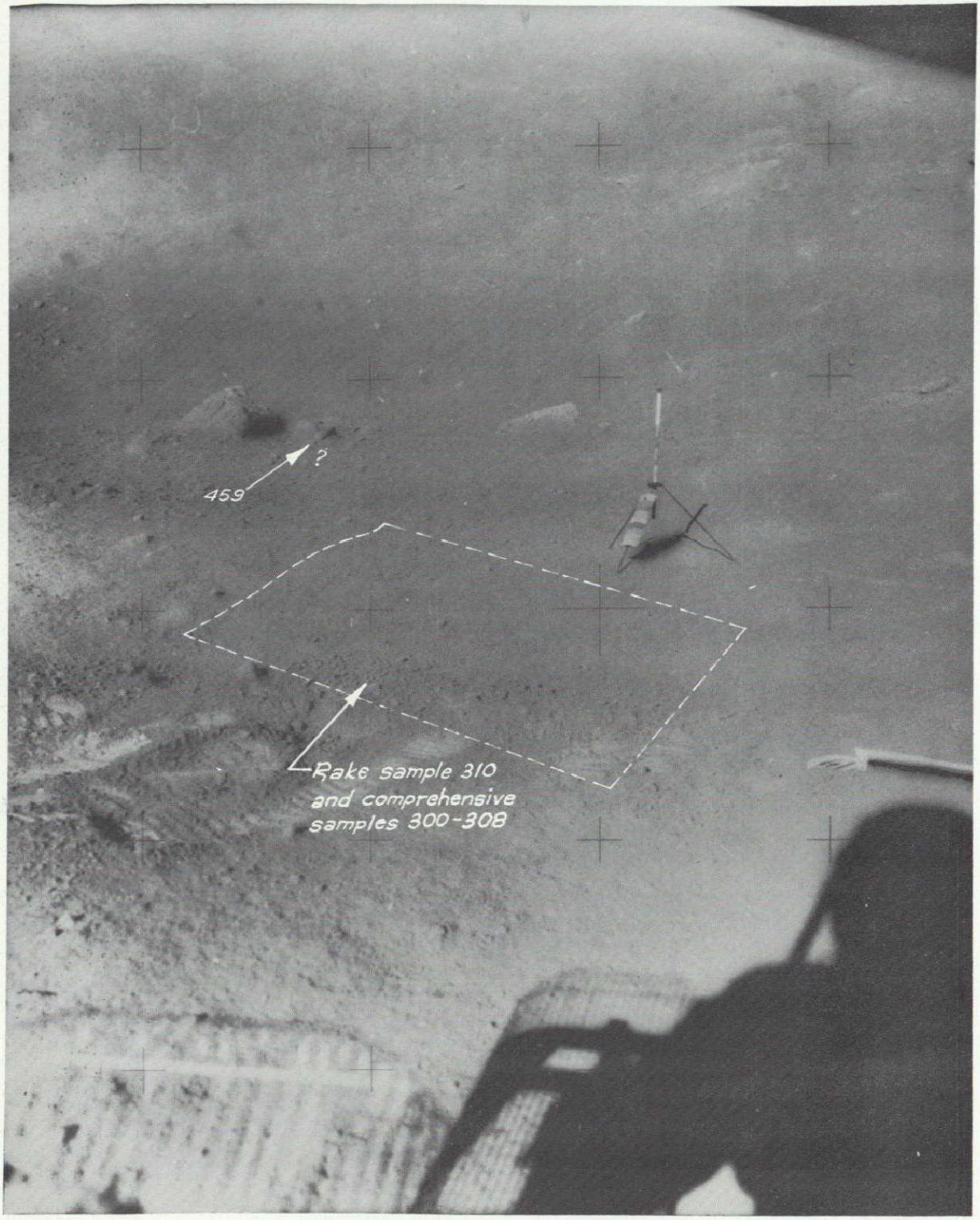


Fig. 30.--Samples 300-308, breccia fragments, glass spherule, and soil, from bag 173, and samples 310- , rake sample from bag 172, collected on northeast rim of Spur crater at Station 7. Sample 459, a rectangular rock, is seen before sampling southwest of the rake sample area. Pre-sampling, down-sun photograph AS15-90-12232, looking west.

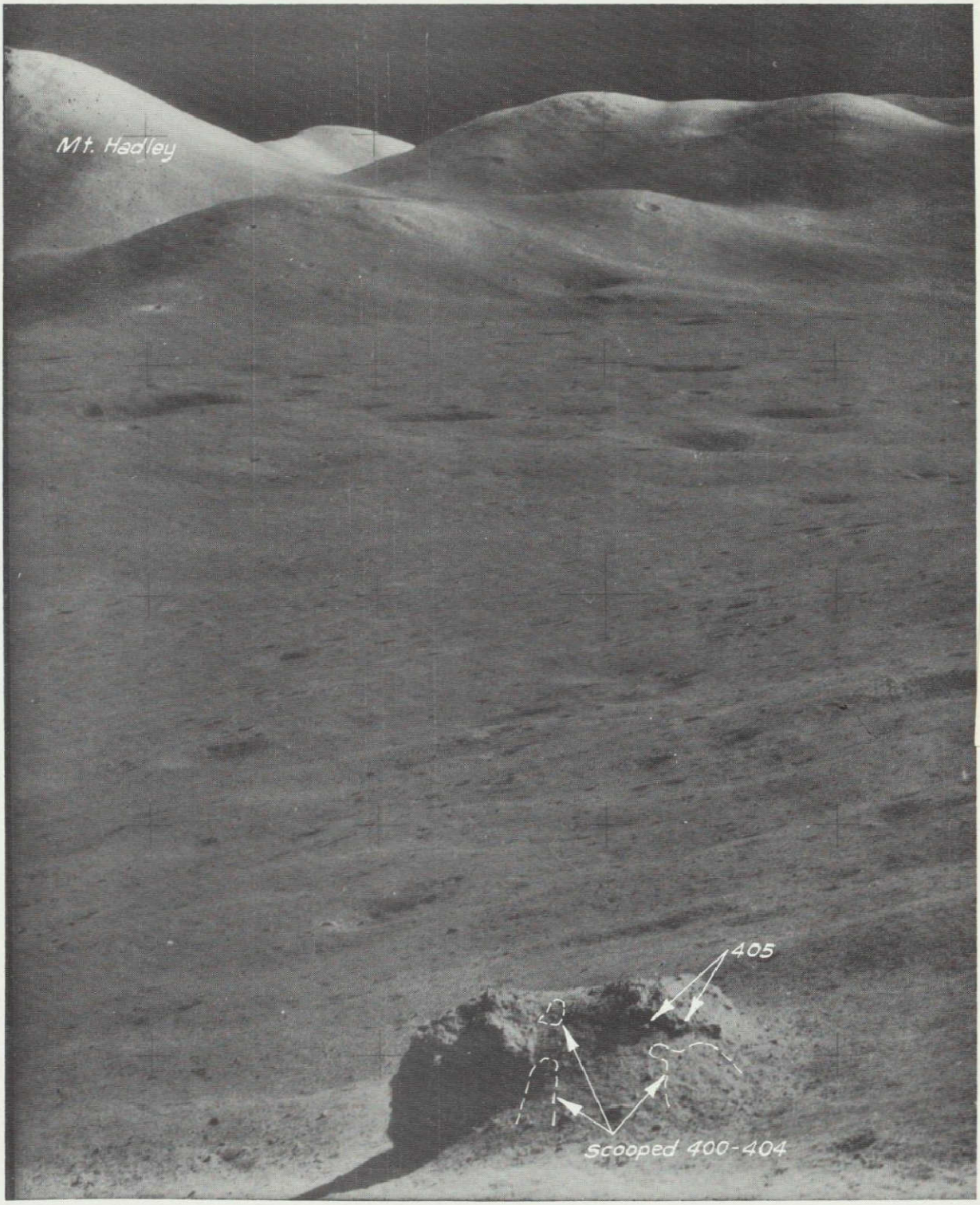


Fig. 31.--Samples 400-405. General view of pre-sampling collection areas on and near large green breccia boulder at Station 6a. Dashed lines represent disturbed or trenched areas. Note that soil samples 400-404 may therefore have come from the large uphill fillet banked against the boulder. Panorama photograph AS15-90-12188 looking north.

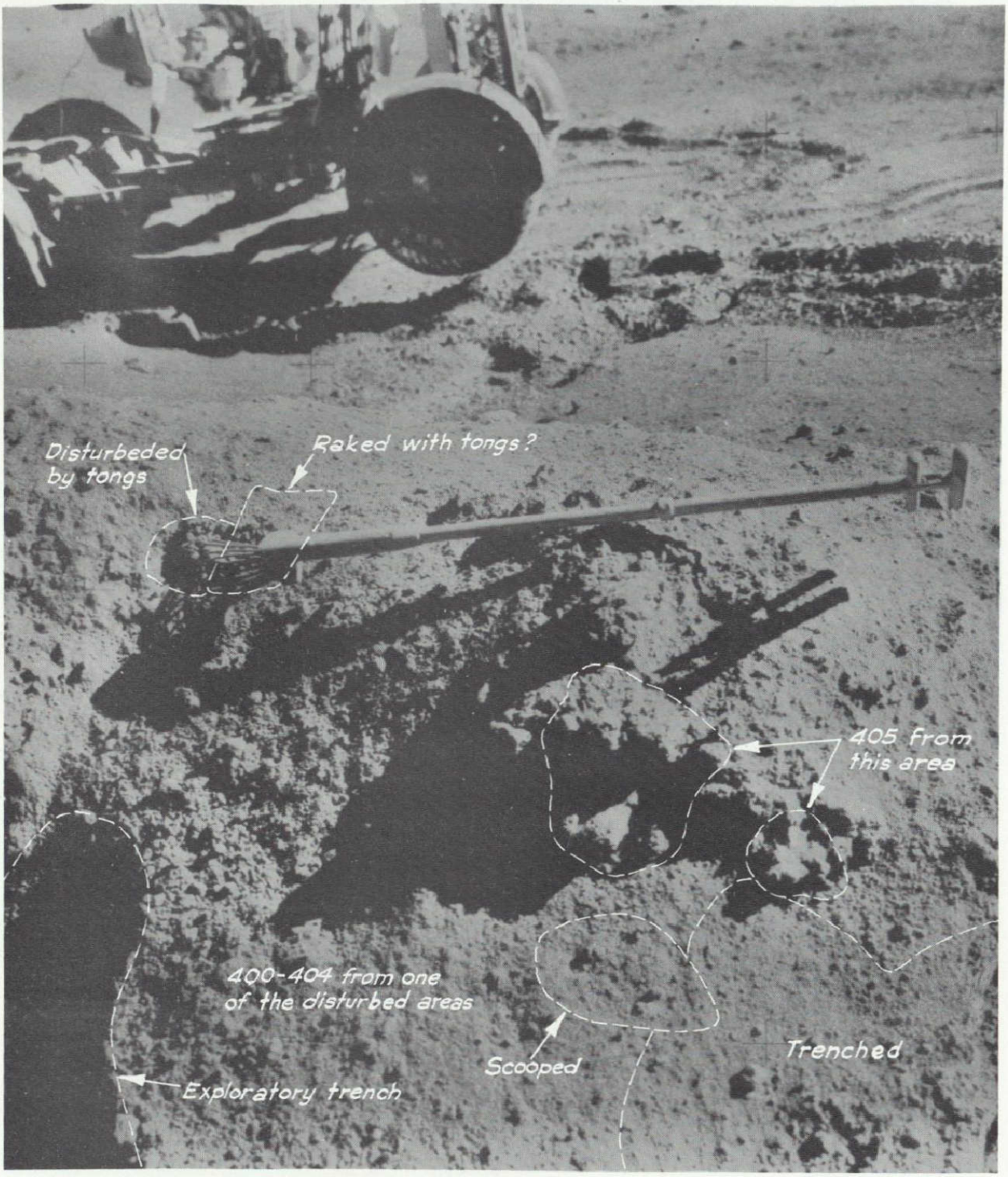


Fig. 32.--Samples 400-404 (soil), and 405 (green breccia), from bag 168, collected at Station 6a. Pre-sampling, cross-sun photograph AS15-86-11658, looking north.

Fig. 33.--Samples collected on the north rim of Spur crater. Samples shown are 410-414, 415, 418-425, 430- , 440- , 445, 465, 469. Down-sun photograph AS15-90-12201, looking west.

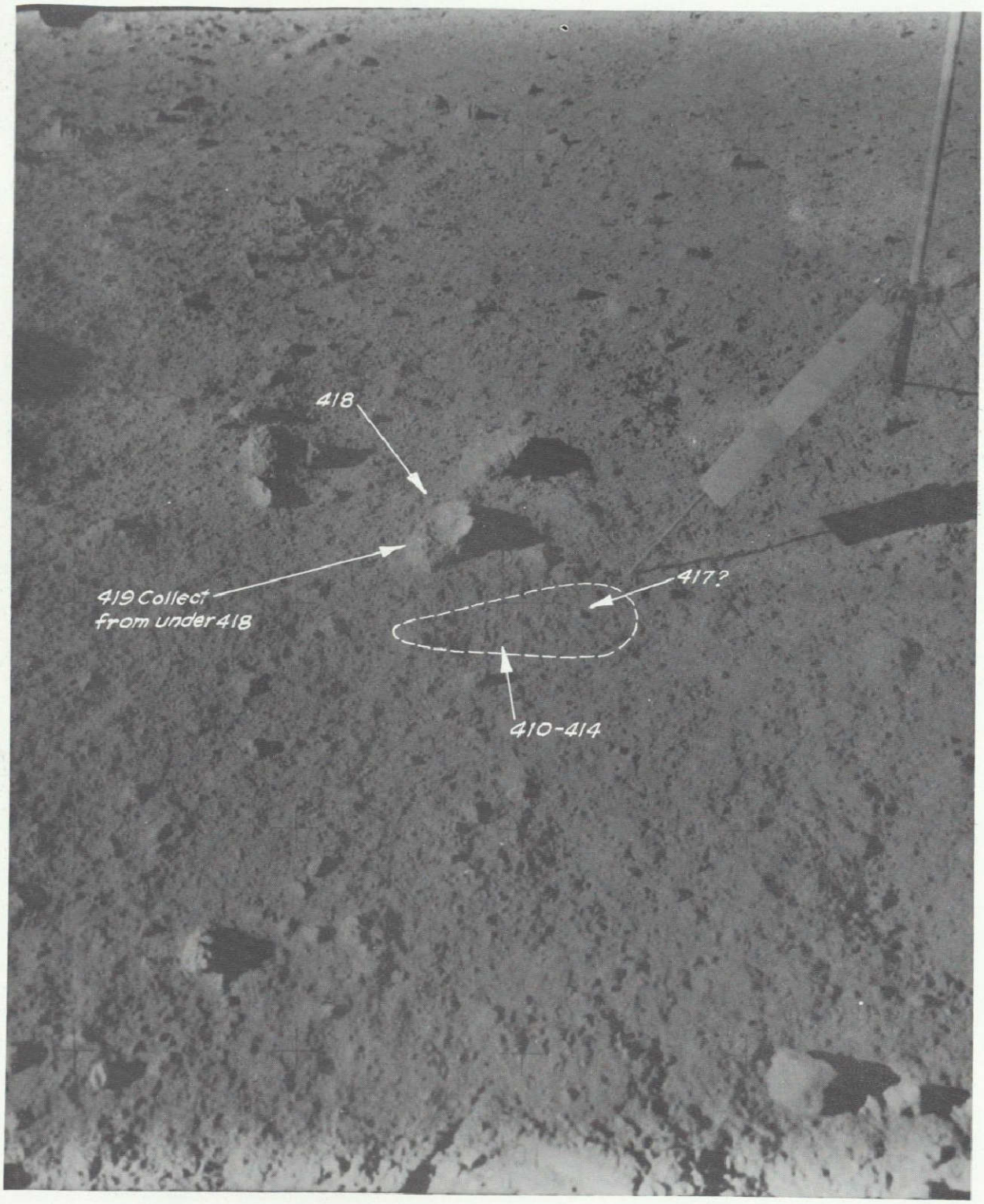


Fig. 34.--Samples 410-414, 417, 418, and 419 from bag 194 collected at Station 7 (Spur crater). Shows sample 418 (breccia) and the soil sample (410 through 414) locality before collection. Pre-sampling, cross-sun photograph AS15-86-11663, looking south.

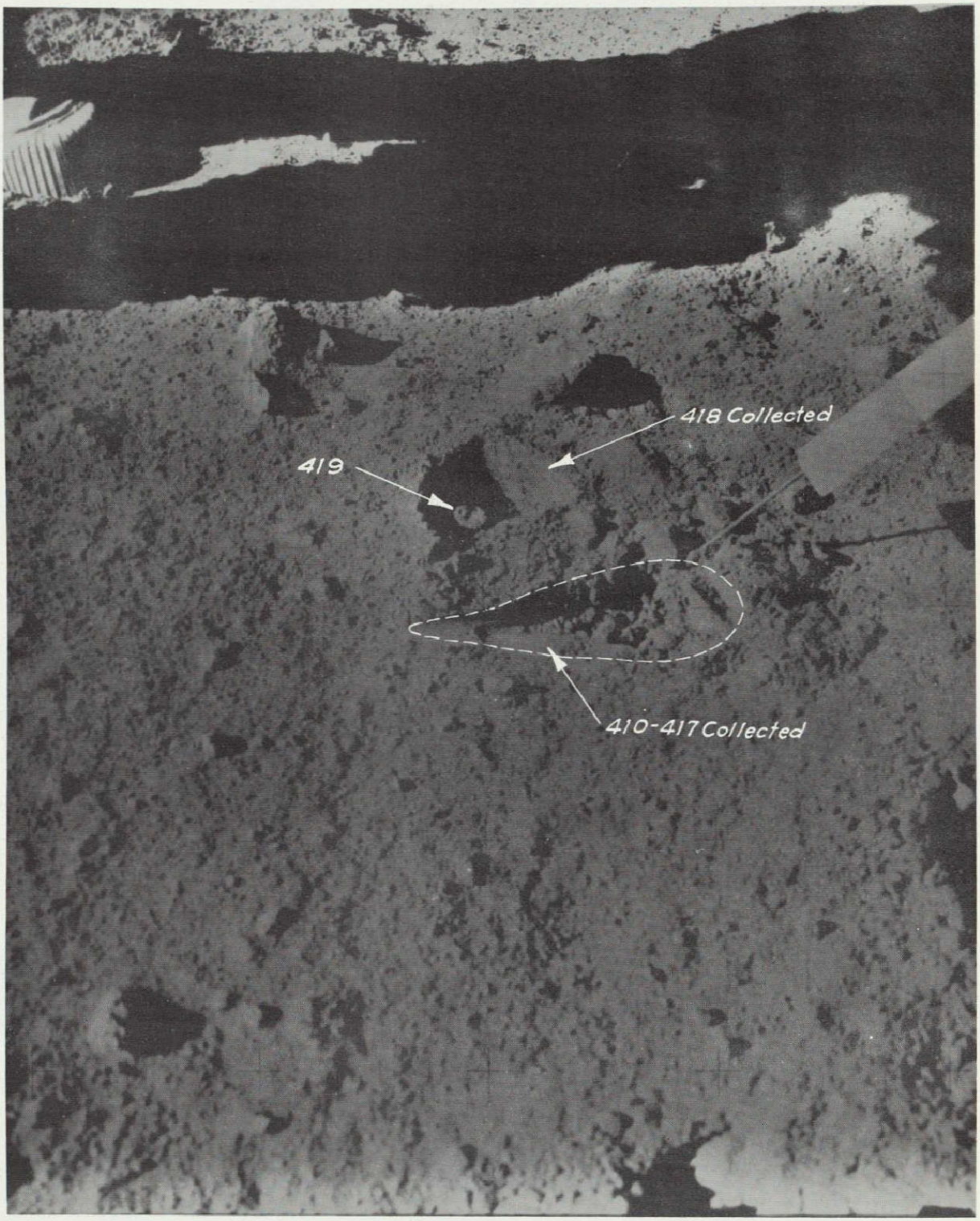


Fig. 35.--Sample 419 from bag 194, collected from underneath sample 418. Pre-sampling, cross-sun photograph AS15-86-11664, looking south.

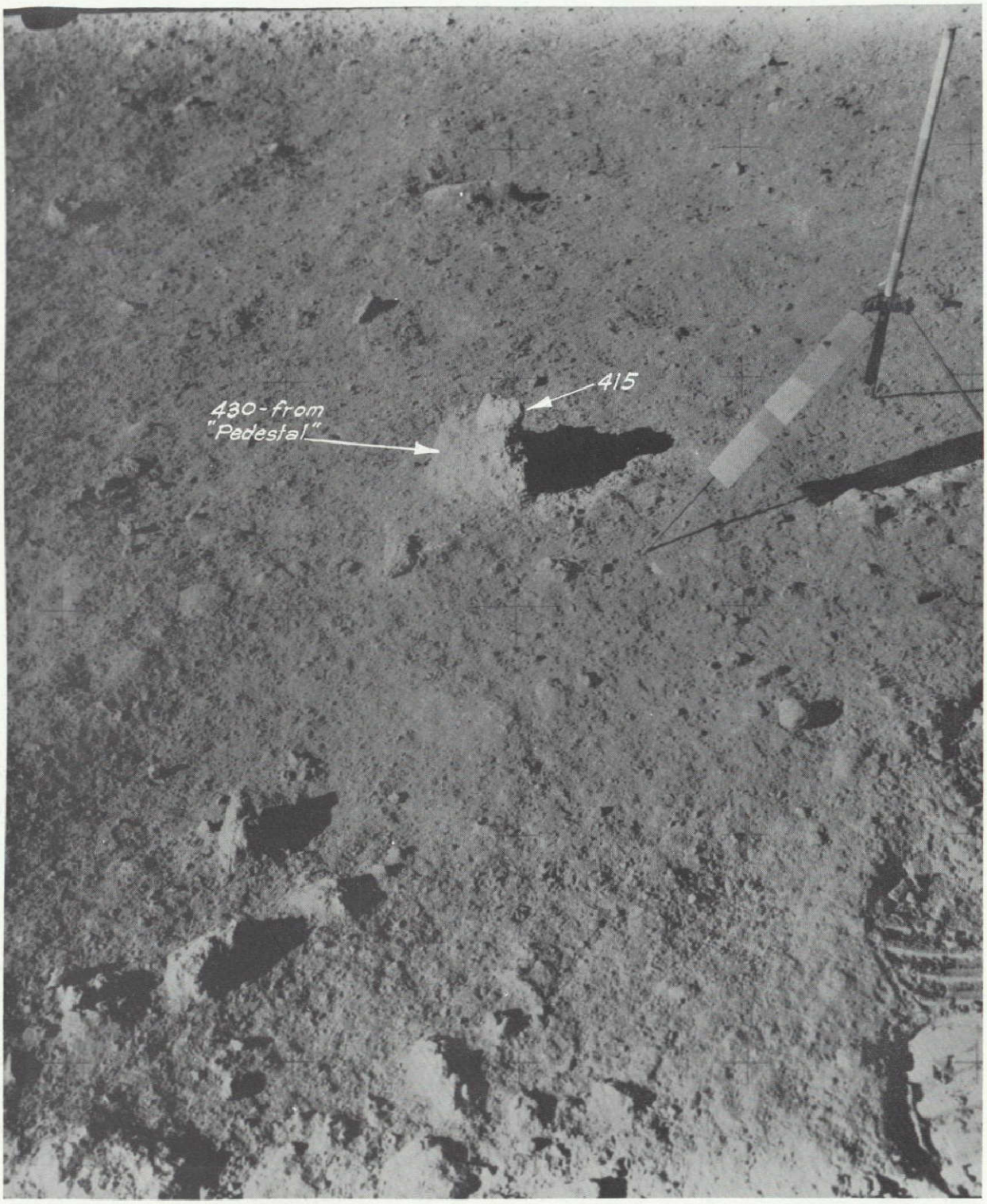


Fig. 36.--Sample 415 from bag 196 and samples 430- from bag 170 collected at Station 7. Pre-sampling, cross-sun photograph AS15-86-11671 looking southwest.

Fig. 37.--Sample 430- from bag 170, collected at Station 7 from a broken "clod" of material beneath Sample 415 inside the north rim of Spur crater. Pre-sampling, cross-sun photograph AS15-86-11673, looking south.

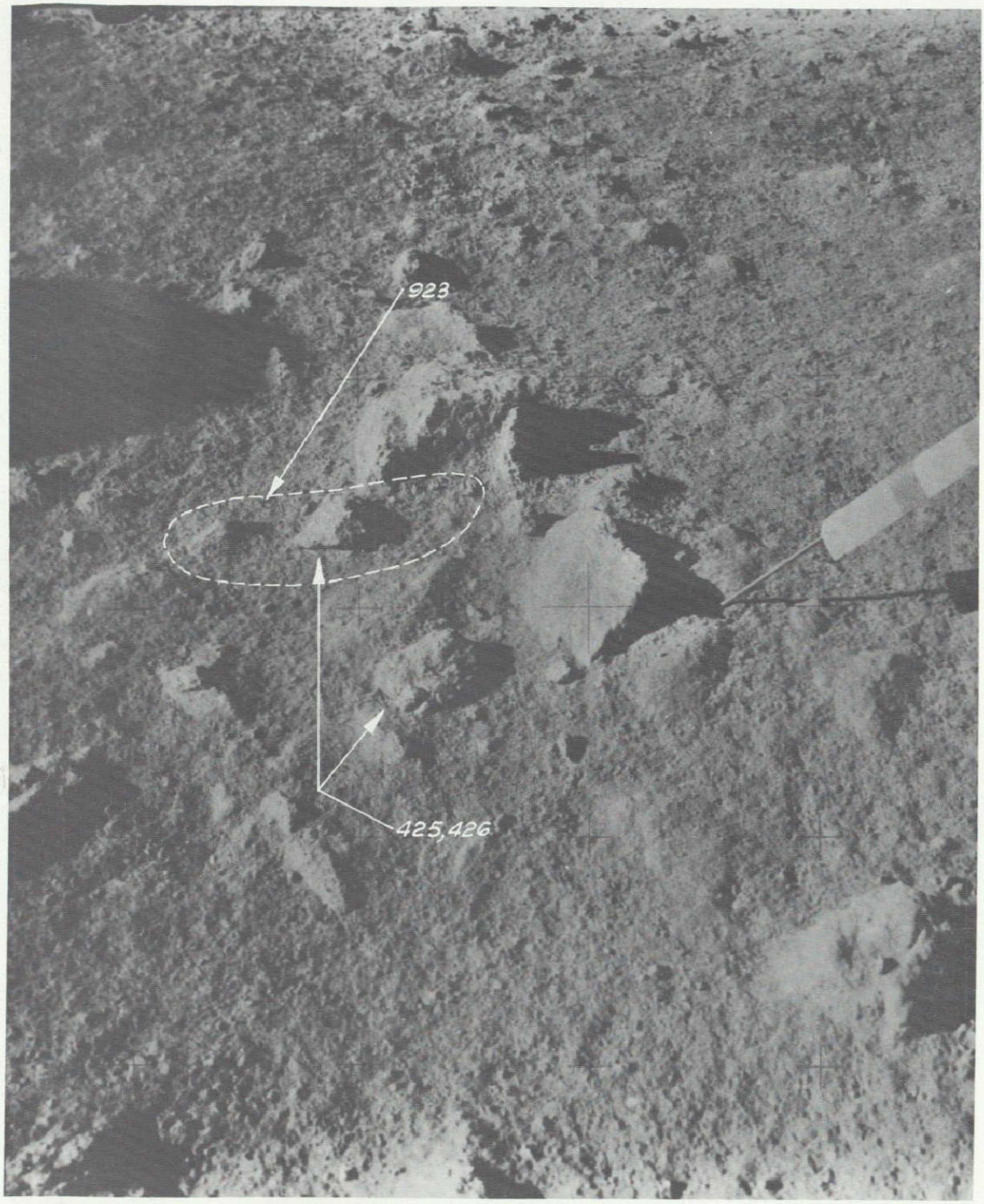


Fig. 38.--Samples 425 and 426 from bag 195, and sample 923 from bag 195, collected at Station 7 from the north rim of Spur crater. Pre-sampling, cross-sun photograph AS15-86-11666, looking south.

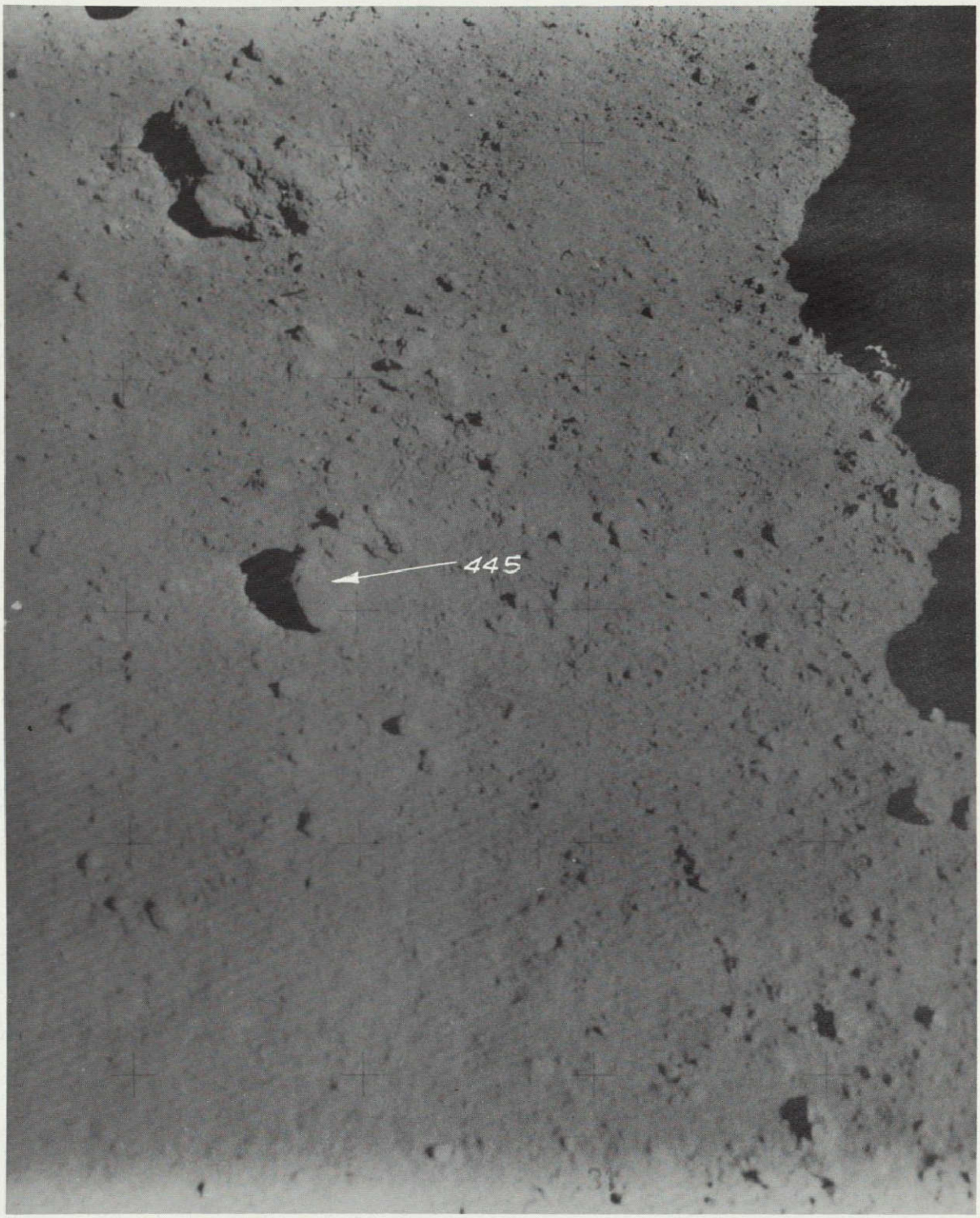


Fig. 39.--Sample 445 from bag 171, collected at Station 7 near large rock inside northwest rim of Spur crater. Pre-sampling, cross-sun photograph AS15-86-11690, looking north.

Fig. 40.--Sample 455 from bag 198, collected at Station 7 from inside of north rim of Spur crater. Pre-sampling, cross-sun photograph AS15-86-11676, looking south.

Fig. 41.--Sample 459 from SCB 6, collected at Station 7. The blocky rectangular sample was broken by the scoop along a pre-existing fracture. Pre-sampling, down-sun photograph AS15-90-12236, looking south into Spur crater.

Fig. 42.--Samples 465 and 466 from bag 199, collected at Station 7 on north rim of Spur crater. Pre-sampling, cross-sun photograph AS15-86-11678, looking south.

Fig. 43.--Samples 475-478 from bag 203 and sample 495 from bag 174, collected on south rim of Dune crater, Station 4. Pre-sampling, cross-sun photograph AS15-87-11759, looking south.

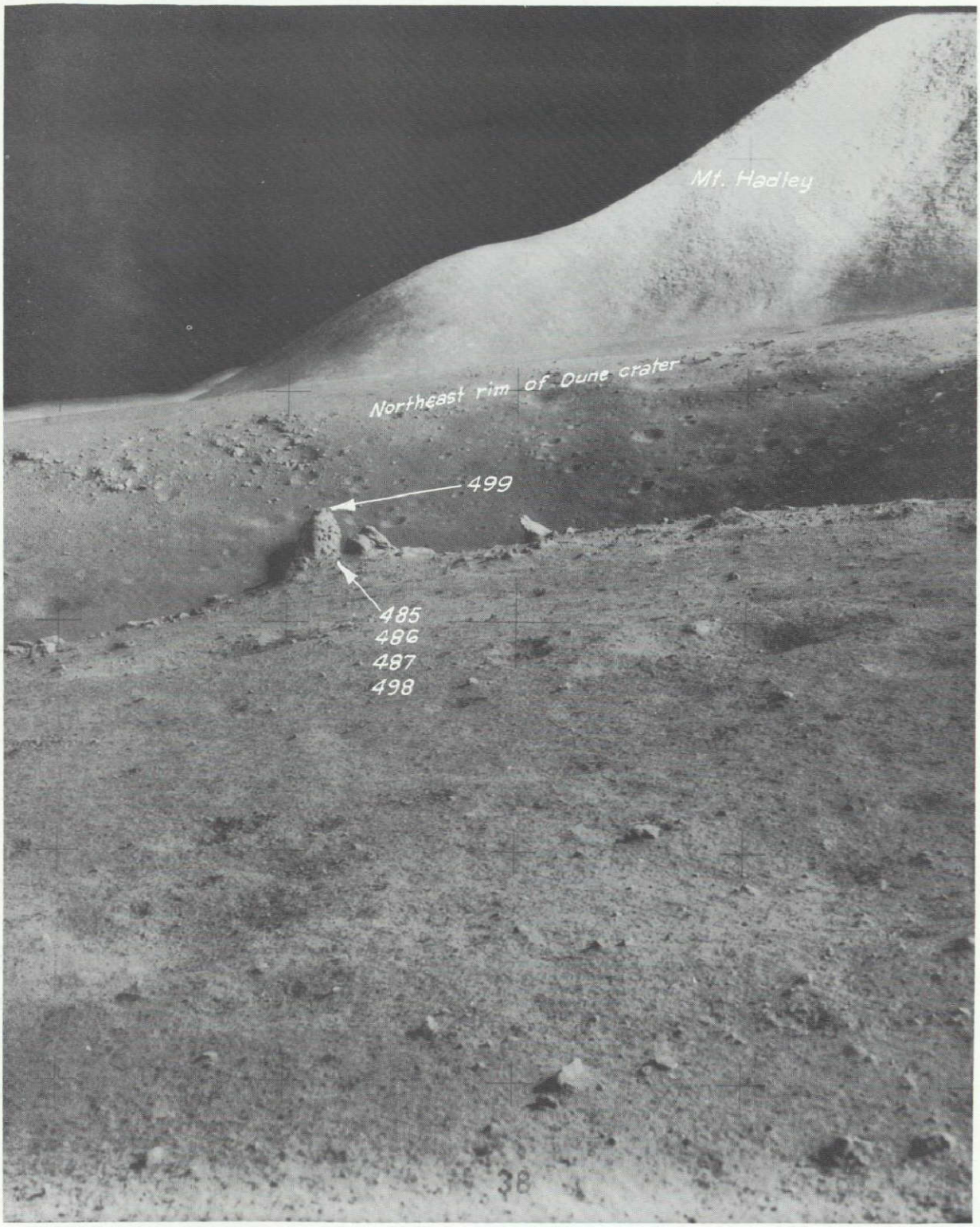


Fig. 44.--Dune crater seen from Station 4 panorama. Samples 485-487, 498 and 499 were collected from locations shown. Photograph AS15-90-12243, looking north.

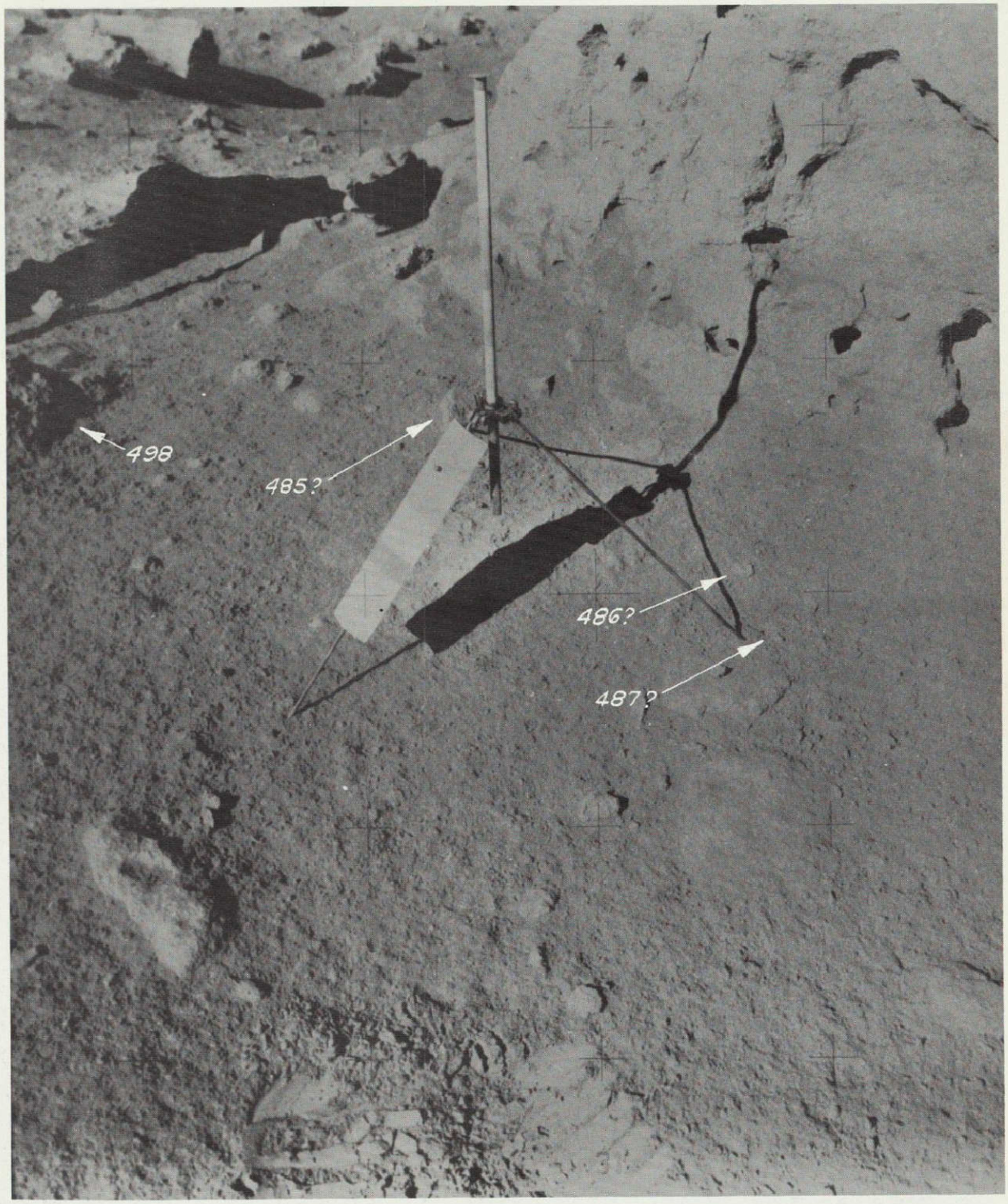


Fig. 45.--Samples 485-487 from bag 204, and sample 498 from SCB 6, collected at Station 4, from surface on east side of large boulder at Dune crater. Samples 485-487 were chipped from the surface of the boulder. Pre-sampling, oblique-to-sun photograph AS15-87-11765, looking southwest.

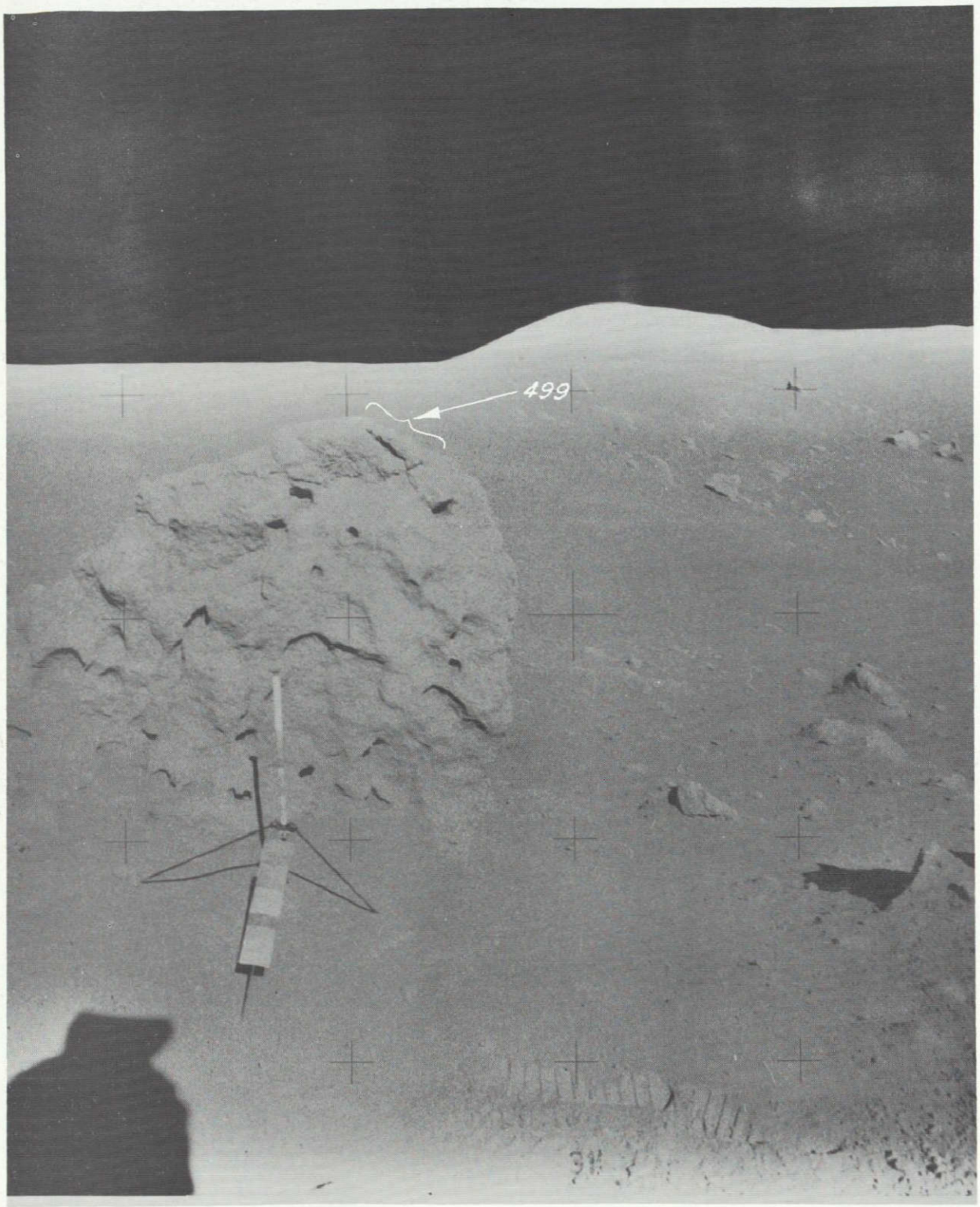


Fig. 46.--Sample 499 from SCB 5, broken off the top of a large boulder of basalt at Dune crater (Station 4). Pre-sampling, down-sun photograph AS15-87-11768, looking west.

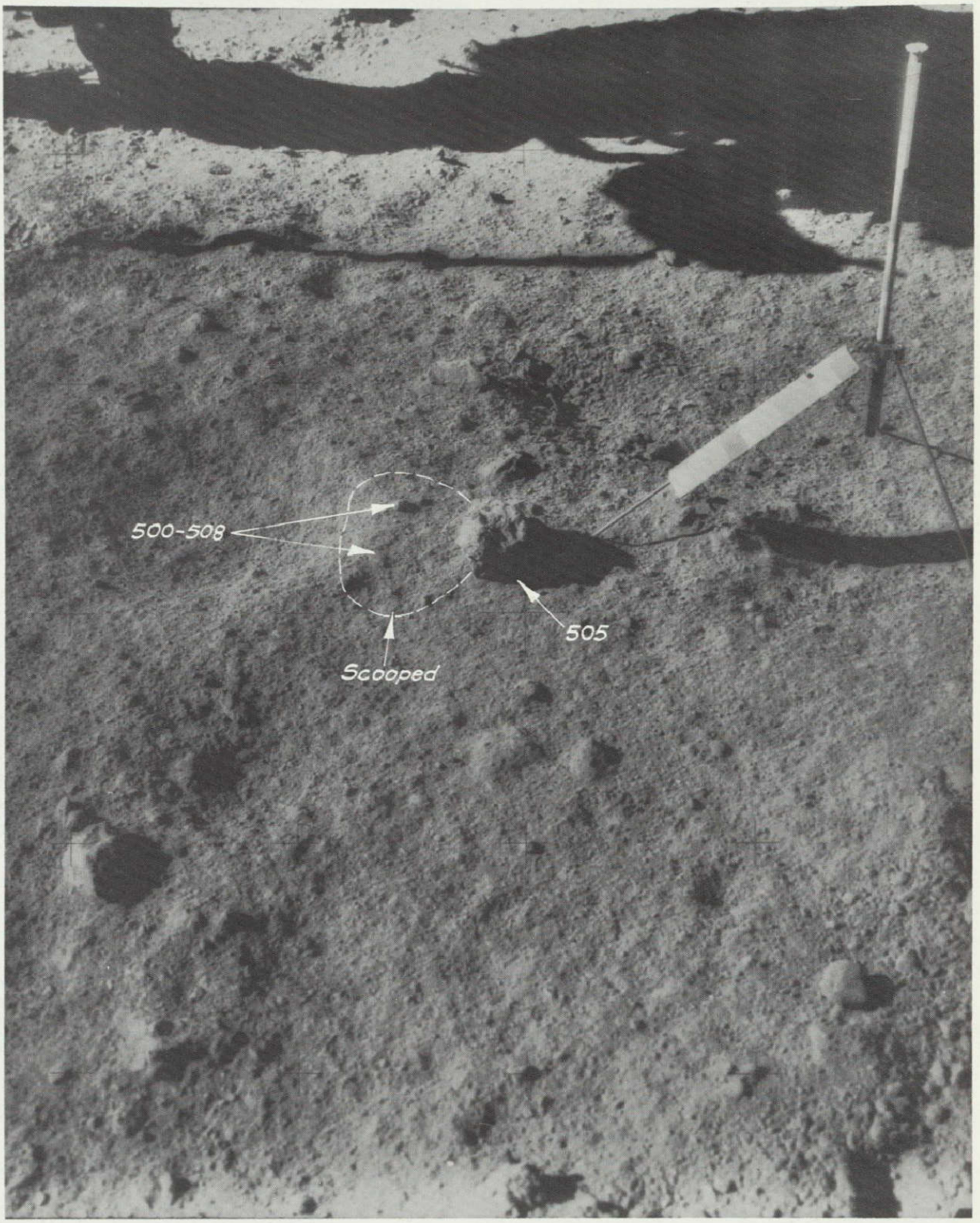


Fig. 47.--Samples 500-508 from bag 255 collected at Station 9 (Scarp crater) taken half way out from the crater rim to the edge of the ejecta blanket, west of crater. Pre-sampling, cross-sun photograph AS15-82-11105, looking south.

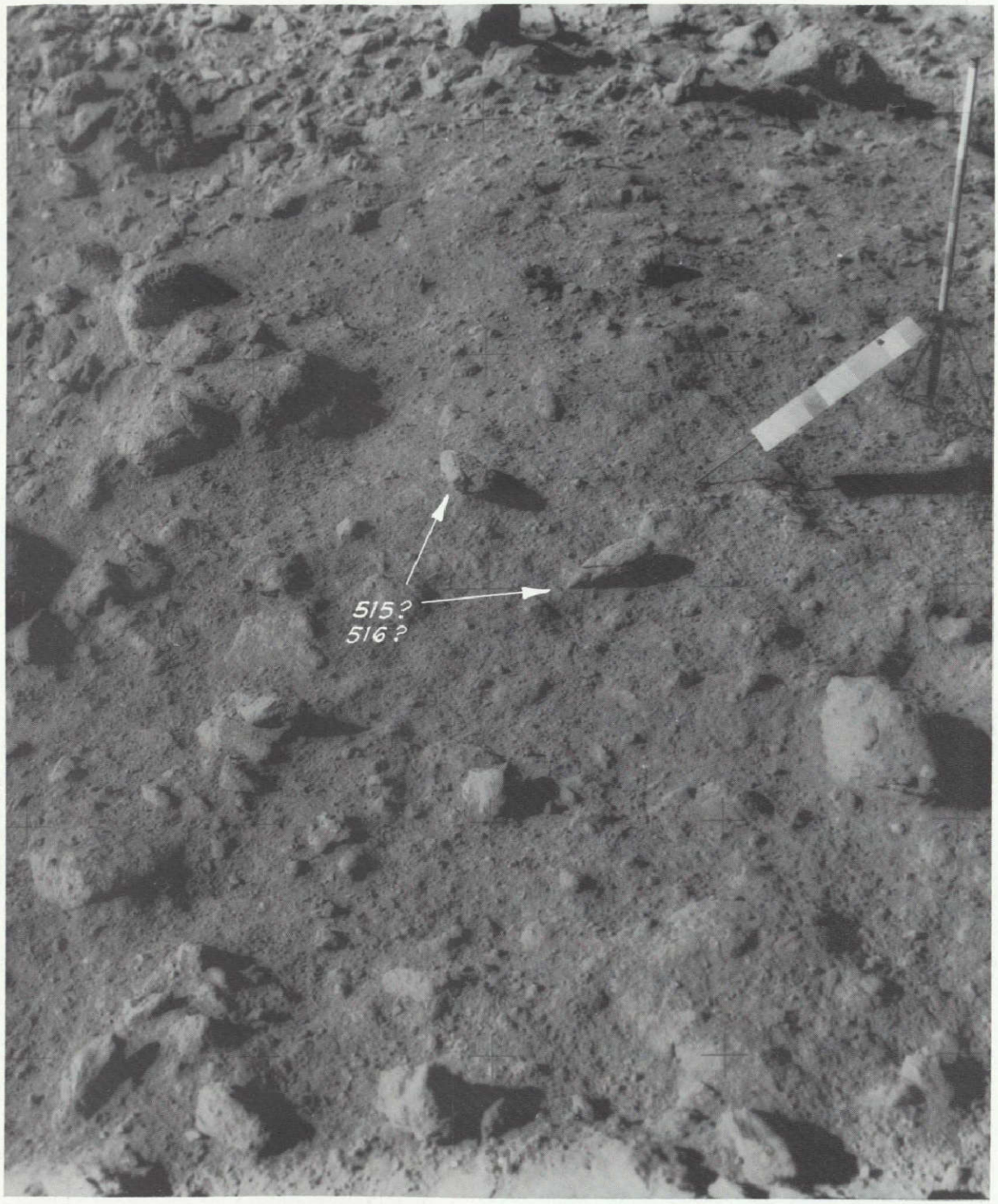


Fig. 48.--Samples 515*-516* from bag 273, collected at Station 9 near Scarp crater. Taken from rim on northwest side of crater. Pre-sampling, cross-sun photograph AS15-82-11098, looking south. (*numbers reserved but not specifically assigned because bag 273 has not been processed at the time of writing)

Fig. 49.--Sample 529 from bag 274, collected at Station 9a. Pre-sampling, cross-sun photograph AS15-82-11129, looking southeast.

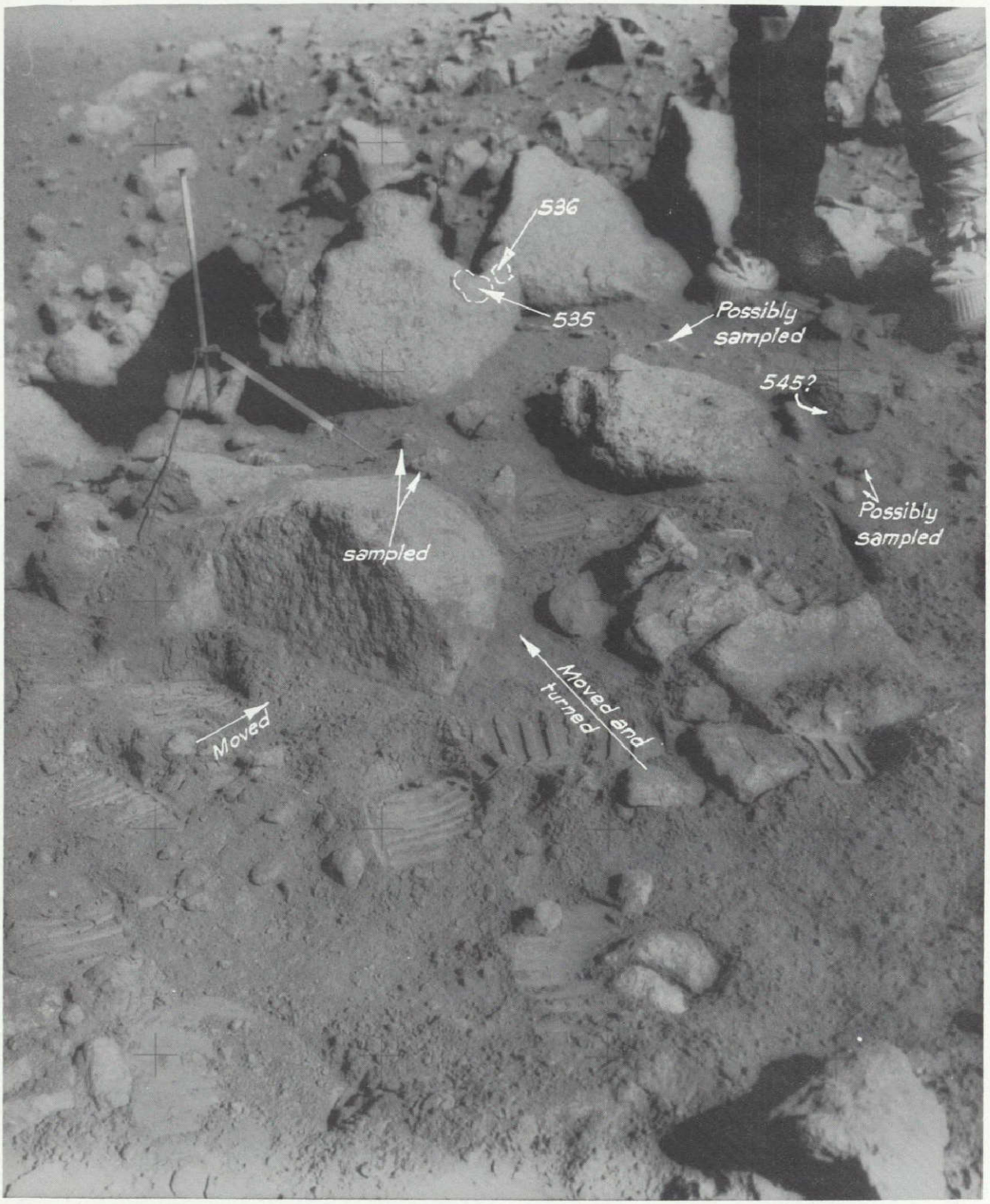


Fig. 50.--Site of samples 530-538 and 540-548, from bags 275 and 278 collected at Station 9a near Hadley Rille. The two chipped samples (535, 536), a soil sample, and probably the two by the gnomon, were put into bag number 275. One more large one (545) was put into bag number 278 along with three smaller ones and some soil. Cross-sun photograph AS15-82-11139, looking north.

Fig. 51.--Sample 555 from BSLSS bag, collected at Station 9a, near Hadley Rille. Pre-sampling, cross-sun photograph AS15-82-11164, looking south.

2

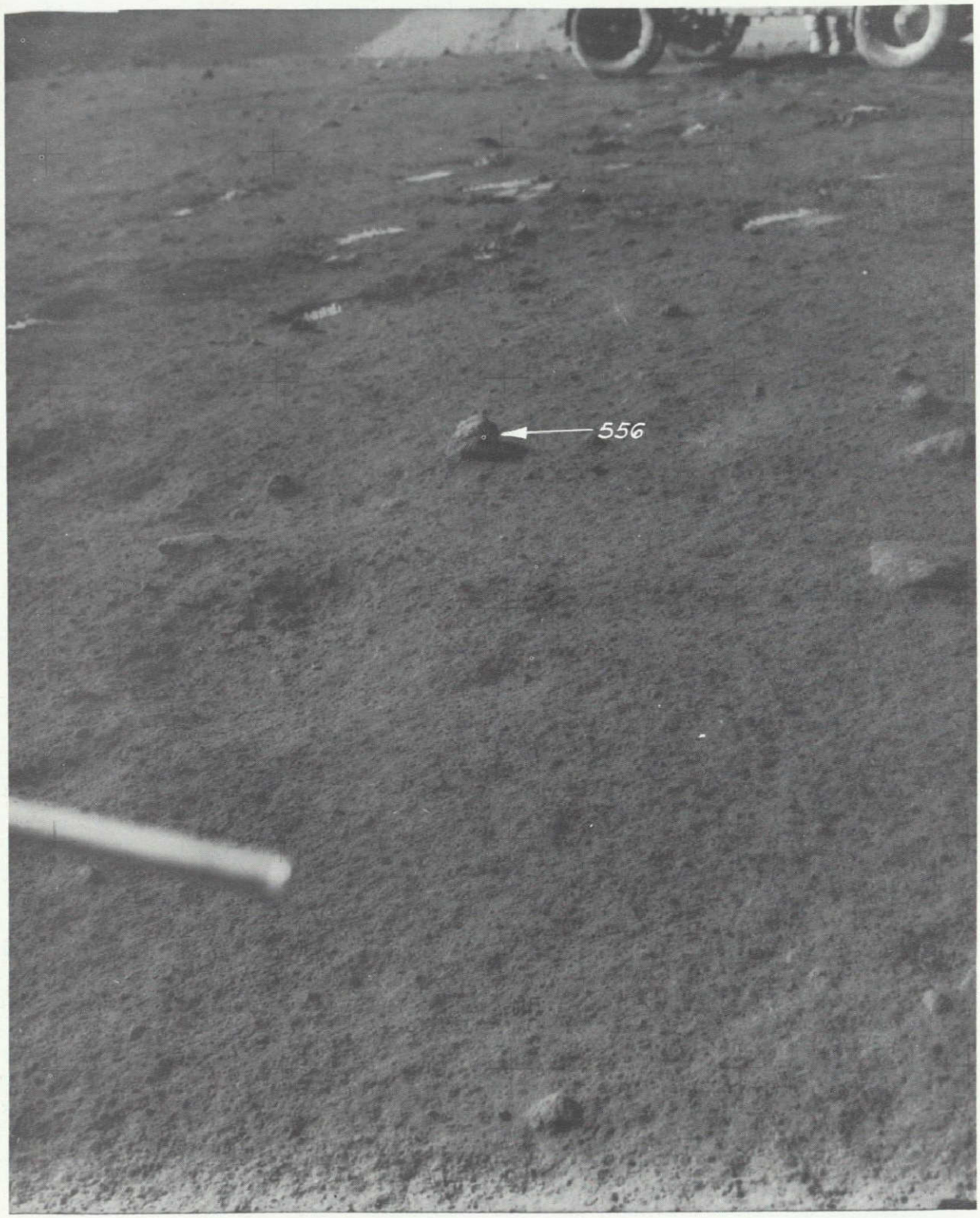


Fig. 52.--Sample 556 from SCB 2, collected at Station 9a near rim of Hadley Rille. Pre-sampling, oblique-to-sun photograph AS15-82-11135, looking southeast.

Fig. 53.--Sample 557 from SCB 2, collected at Station 9a near Hadley Rille. Pre-sampling, cross-sun photograph AS15-82-11137, looking north.

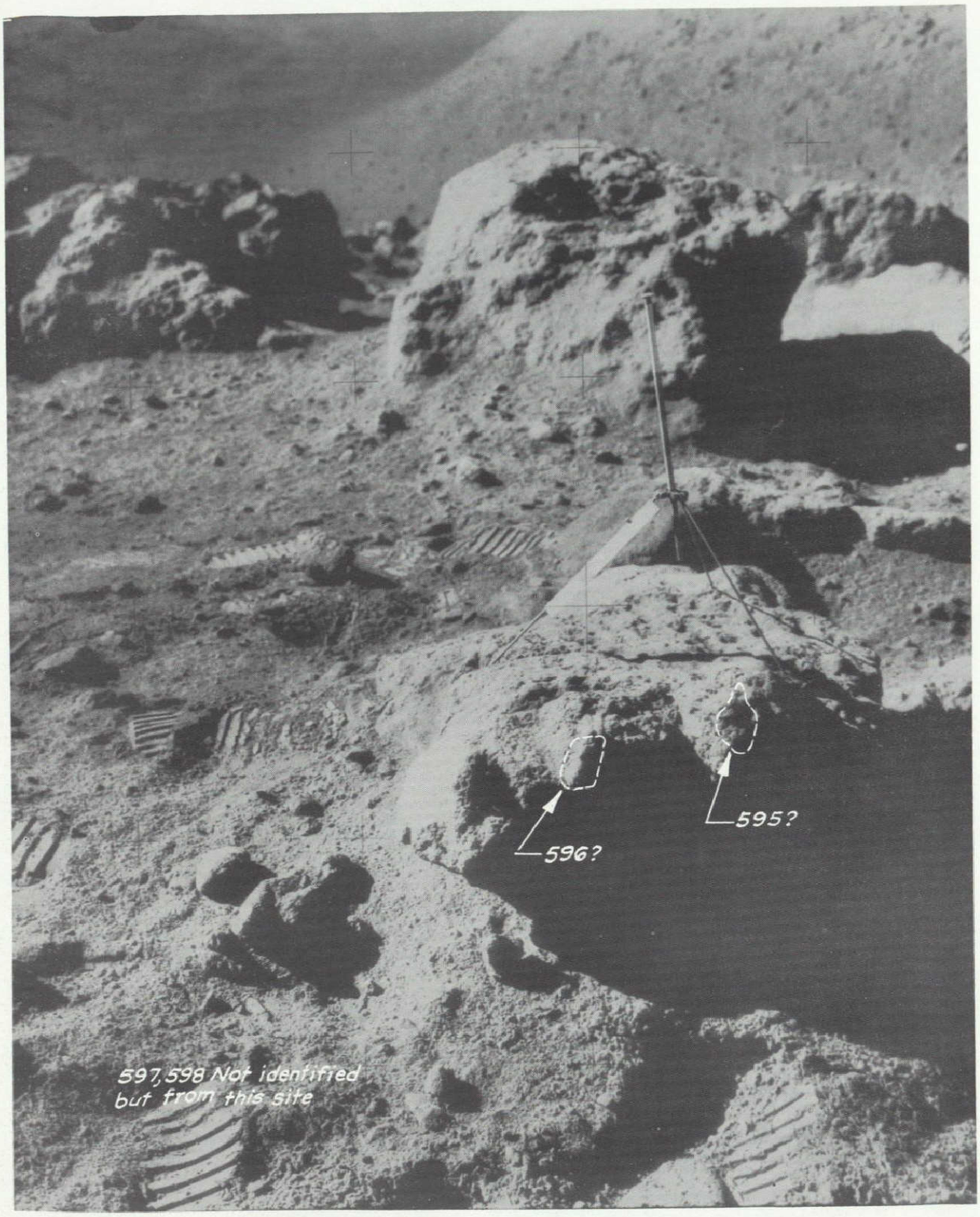


Fig. 54.--Samples 595?, 596? from bag 281, collected from ledge of bedrock exposed near rim of Hadley Rille at Station 9a. Two other fragments (597?, 598?) were also collected from this area. Pre-sampling, cross-sun photograph AS15-82-11143, looking southeast.

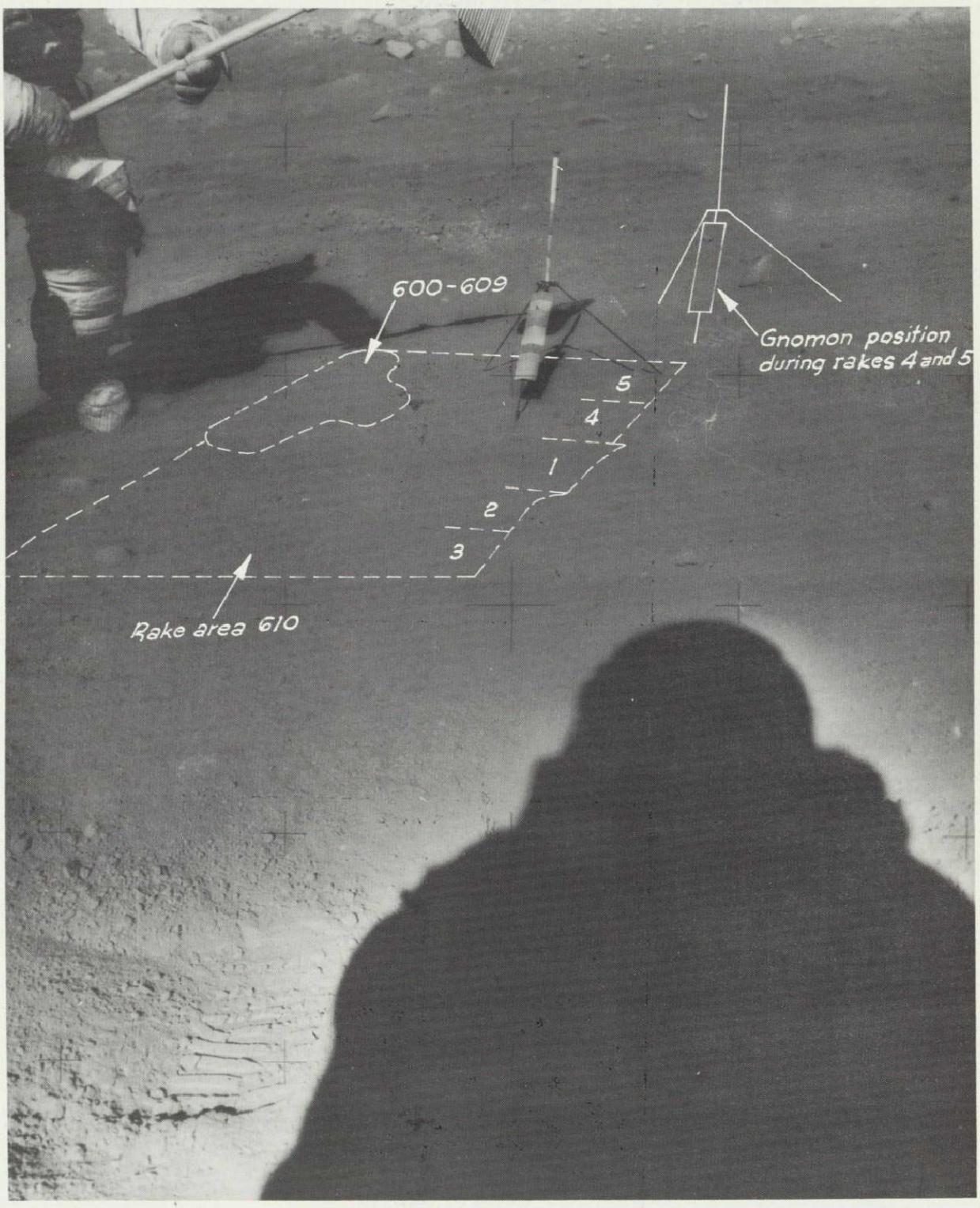
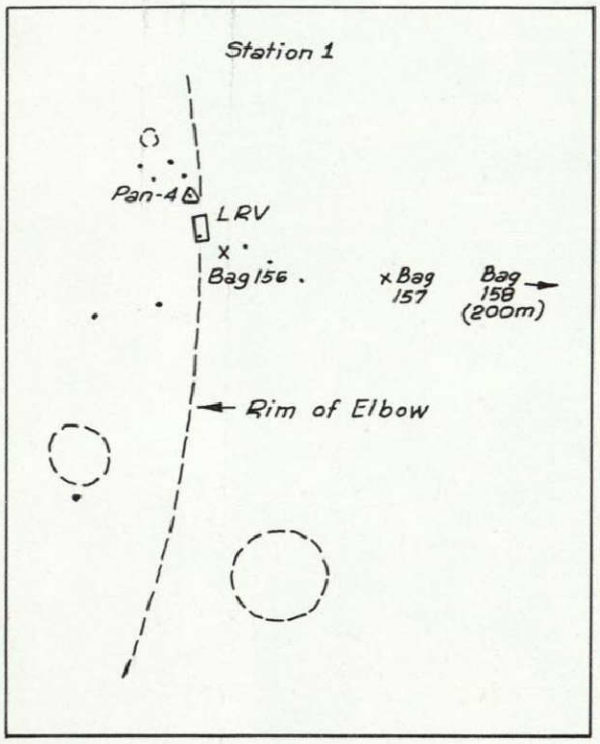
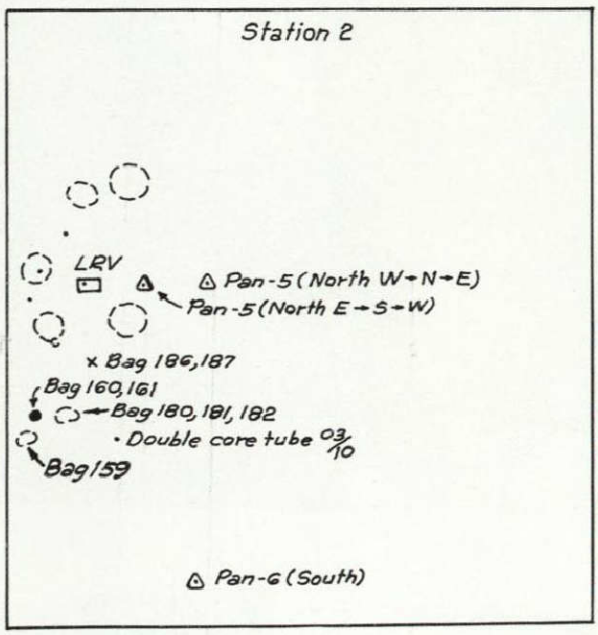
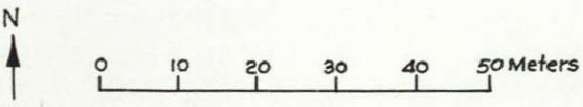


Fig. 55.--Samples 600-610 and 611- , from bags 283 and 282 (respectively), collected with rake at Station 9a near Hadley Rille. Bag number 282 contained raked fragments, and bag number 283 contained scooped fines and small fragments. Pre-sampling, down-sun photograph AS15-82-11153, looking west.

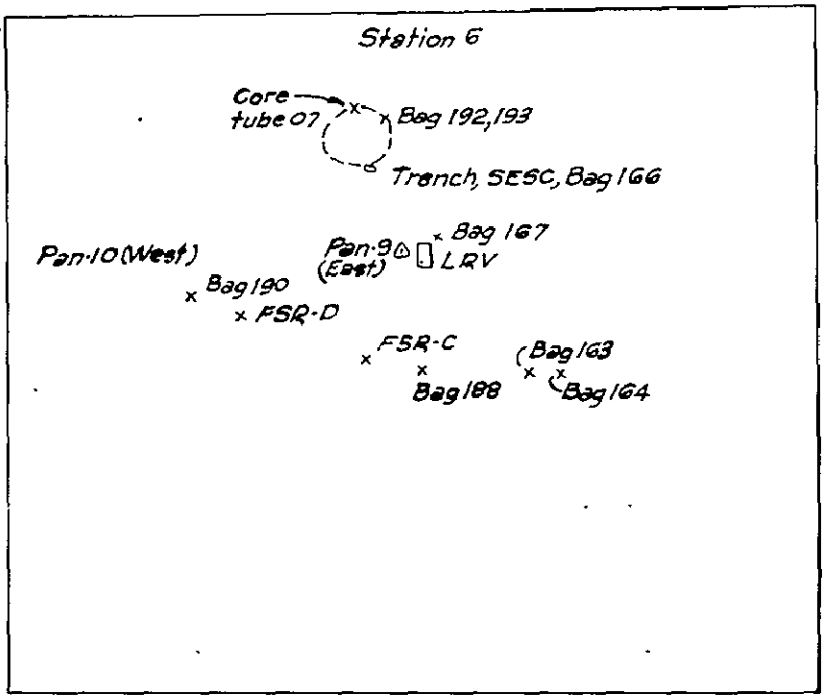
EVA-I

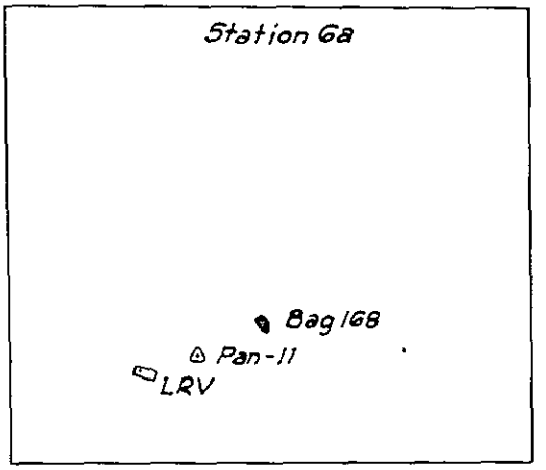

Station 1
Pan-4
LRV
Bag 156
Bag 157
Bag 158 (200m)
Rim of Elbow

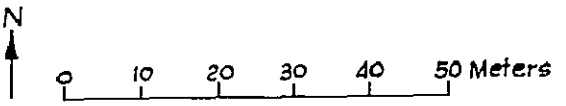

Station 2
LRV
Pan-5 (North W→N→E)
Pan-5 (North E→S→W)
Bag 186, 187
Bag 160, 161
Bag 180, 181, 182
Double core tube 03/10
Bag 159
Pan-6 (South)

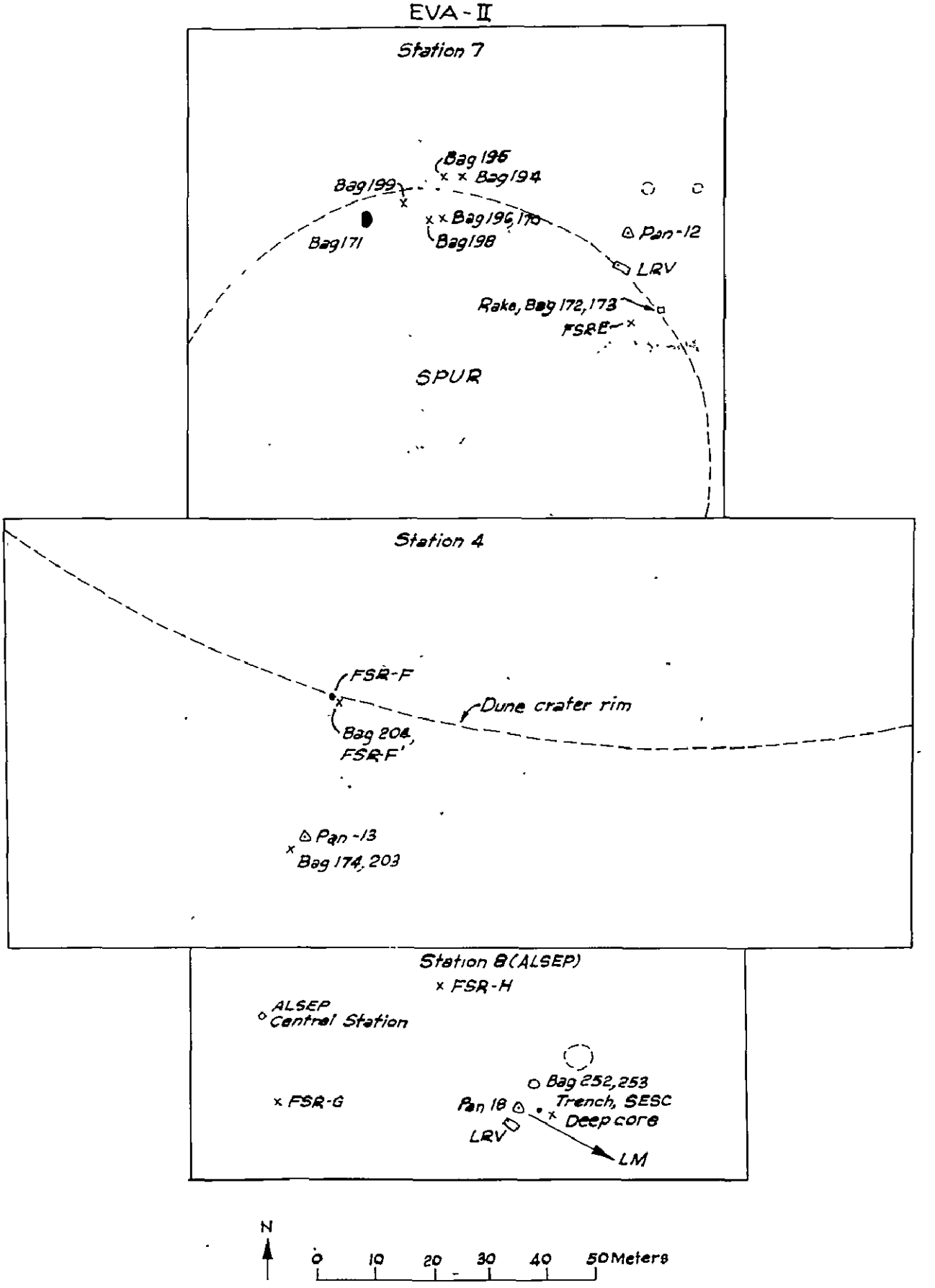

N
0
10
20
30
40
50 Meters

EVA-II


Station 6
Core tube 07
Bag 192,193
Trench, SESC, Bag 166
Pan-10 (West)
Pan-9 (East)
Bag 167
LRV
Bag 190
FSR-D
FSR-C
Bag 188
Bag 163
Bag 164


Station 6a
Bag 168
Pan-11
LRV


N
0
10
20
30
40
50 Meters


EVA - II
Station 7
Bag 195
Bag 194
Bag 199
Bag 196, 170
Bag 198
Bag 171
Pan - 12
LRV
Rake, Bag 172, 173
FSR-E
SPUR
Station 4
FSR-F
Dune crater rim
Bag 204, FSR-F'
Pan - 13
Bag 174, 203
Station 8 (ALSEP)
FSR-H
ALSEP Central Station
Bag 252, 253
Trench, SESC
Deep core
Pan 18
LRV
LM
FSR-G
N
0
10
20
30
40
50 Meters

EVA- III

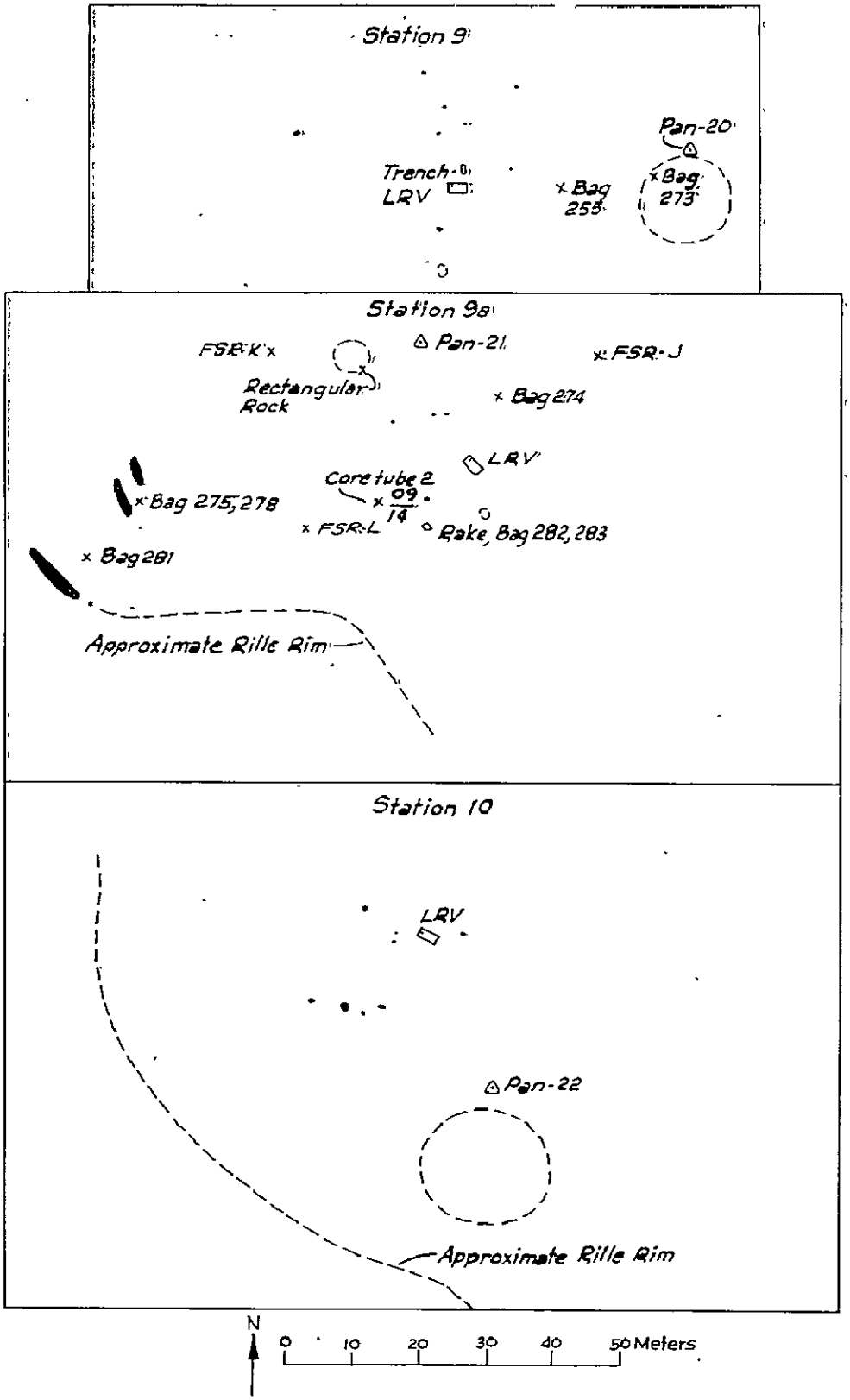

Station 9
Pan-20
Trench-0
LRV
Bag 255
Bag 273
Station 9a
FSR-K
Pan-21
FSR-J
Rectangular Rock
Bag 274
LRV
Core tube 2
09/14
Bag 275, 278
FSR-L
Rake, Bag 282, 283
Bag 281
Approximate Rille Rim
Station 10
LRV
Pan-22
Approximate Rille Rim
N
0
10
20
30
40
50 Meters

Table 1 . Correlation of lunar documented sample containers with LRL sample numbers, given in order of ascending documentation numbers, showing sample stations and sample types. Rock samples with last three digits of LRL numbers (in parentheses) in Sample Type column weigh more than 25 g.

Doc. bag no.	LRL number	Station	Sample type
156	15065	1	1 basalt (065)
157	15070-15076	1	2 basalt (075, 076); soil
158	15080-15088	1	1 basalt (085); 1 breccia (086);soil
159	15090-15095	2	1 glass coated breccia (095); soil
160	15200-15204, 15206	2	1 glassy breccia (206); soil
161	15205	2	1 glass coated breccia (205)
162	15017-15019, 15027, 15028	LM	broken glass "aggie"; 2 breccias (027, 028); small fragments
163	15240-	6	glassy soil from center of small crater
164	15250-15254	6	soil from rim of small crater
166	15260-15264	6	soil, bottom of trench
167	15270-15274	6	soil, surface near Rover
168	15400-15405	6a	1 breccia (405); soil
170	15430-	7	broken clod
171	15445	7	breccia (445)
172	15310-	7	comprehensive rake fragments
173	15300-15308	7	comprehensive soil; breccia (306); glass
174	15495	4	basalt (495) with coarse crystals, vugs
180	15210-15214	2	soil, fillet
181	15220-15224	2	soil, non-fillet
182	15230-15234	2	soil, beneath boulder
186	15110-	2	comprehensive rake fragments
187	15100-15105	2	comprehensive soil; small rock
188	15290-15295	6	1 breccia (295); soil
190	15255-15257	6	3 breccia fragments(255,256)
192	15258, 15259, 15268, 15269, 15285-15289	6	9 rock fragments(285, 286, 288)
193	15265-15267	6	2 breccias (265, 266); fragment
194	15410-15414, 15417-15419	7	basalt? (418)
195	15425-15426	7	7 friable green rocks; broken from at least 2 samples (425, 426); soil
196	15415	7	1 anorthosite (415)
198	15455	7	black and white rock (455) breccia
199	15465-15469	7	2 glass coated breccia (465, 466); glass
203	15470-15478	4	basalt (475); 3 other fragments; soil
204	15485-15487	4	2 rocks (485, 486); 1 fragment
252	15030-15034	8	soil, bottom of trench
253	15040-15044	8	soil, top of trench
255	15500-15508	9	glass with soil (505); fragments

Table 1 . (continued)

Doc. bag no.	LRL number	Station	Sample type
273	15510	9	2 "caked clasts" from soft crater rim
274	15528, 15529	9a	vesicular basalt(529); breccia fragment
275	15530-15538	9a	2 basalt chips from boulder (535,536) 2 other fragments; soil
278	15540-15548	9a	4 rock fragments (545, 546); soil
281	15595-15598	9a	2 basalts reported bedrock (595,596); 2 rounded basalt fragments
282	15610-	9a	comprehensive rake
283	15600-	9a	comprehensive soil

Large rocks put directly into Sample Collection Bags (FSR-"football size rock")

FSR	SCB no.	LRL number	Station	Sample type
A	4	15016	3	vesicular basalt
B	4	15015	LM	glass covered breccia
C	3	15298	6	breccia, incoherent
D	3	15299	6	breccia, incoherent
E	6	15459	7	breccia, blocky, freshly fractured
F	5	15499	4	vesicular basalt
F'	6	15498	4	dark grey vuggy rock
G	6	15058	ALSEP site	basalt; "Jim's pink rock"
H	6	15059	ALSEP site	glass coated breccia
J	2	15556	9a	vesicular basalt
K	2	15557	9a	basalt
L	BSLSS	15555	9a	basalt
M	2*	15558	9? LM?	breccia
(?)N	2*	15565-15569) 15575-15579) 15585-15587)	9? LM?	breccia fragments may be derived from a larger rock

*lunar locations of these samples have not been identified, if collected during EVA III, Station 9 and the LM site are the most probable locations

Drive tubes

U-03 / L-10	15008 / 15010	2
U-07	15009	6
U-09	15011	9a
L-14	15010	9a

Table 1 . (continued)

	LRL number	Station	Sample type
Contingency sample			
	15020-15026	LM	soil, breccia (025)
Deep core			
(bottom)	15001-		
(top)	15006	ALSEP site	
Special Environmental Samples (scooped soil and fragments)			
SESC no.			
1	15012	6	bottom of trench, Station 6
Blank	15013	8	bottom of trench, Station 8, ALSEP
2	15014	LM	surface, near DPS engine bell

Table 2 . Correlation of LRL sample numbers with lunar documented sample containers, given in order of ascending LRL numbers, showing sample station

15001-15006	Deep core (6 sections, bottom to top) ALSEP site
15007	L-10 Drive tube, lower of double, Station 2
15008	U-03 Drive tube, upper of double, Station 2
15009	U-07 Drive tube, single, Station 6
15010	L-14 Drive tube, lower of double, Station 9a
15011	U-09 Drive tube, upper of double, Station 9a
15012	SESC 1, Station 6, Apennine Front
15013	SESC (blank), Station 8, ALSEP site
15014	SESC 2, LM DPS contaminated sample

	Large rocks	Documented container	Station	EVA
15015	FSR B	SCB-4	LM	1
15016	FSR A	SCB-4	3	1
15017-15019		162	LM	2
15020-15026		Contingency sample	LM	1
15027-15028		162	LM	L
15030-15034		252	8	2
15040-15044		253	8	2
15058	FSR G	SCB-6	ALSEP	2
15059	FSR H	SCB-6	ALSEP	2
15065		156	1	1
15070-15076		157	1	1
15080-15088		158	1	1
15090-15095		159	2	1
15100-15105		187	2	1
15110-		186	2	1
15200-15204, 15206		160	2	1
15205		161	2	1
15210-		180	2	1
15220-15224		181	2	1
15230-15234		182	2	1
15240-		163	6	2
15250-15254		164	6	2
15255-15257		190	6	2
15258-15259		192	6	2
15260-15264		166	6	2
15265-15267		193	6	2
15268-15269		192	6	2
15270-15274		167	6	2
15285-15289		192	6	2
15290-15295		188	6	2
15298	FSR C	SCB-3	6	2

Table 2 . (continued)

LRL number	Large rocks	Documented container	Station	EVA	
15299	FSR D	SCB-3	6	2	
15300-15308		173	7	2	
15310-		172	7	2	
15400-15405		168	6a	2	
15410-15414		194	7	2	
15415		196	7	2	
15417-15419		194	7	2	
15425-15426		195	7	2	
15430-		170	7	2	
15445		171	7	2	
15455		198	7	2	
15459	FSR E	SCB-6	7	2	
15465-15469		199	7	2	
15470-15478		203	4	2	
15480-15487		204	4	2	
15495		174	4	2	
15498	FSR F'	SCB-6	4	2	
15499	FSR F	SCB-5	4	2	
15500-15508		255	9	3	
15510-		273	9	3	
(15515?)		273	9	3	
(15516?)		273	9	3	
15528-15529		274	9a	3	
15530-15538		275	9a	3	
15540-15548		278	9a	3	
15555	FSR L	BSLSS	9a	3	
15556	FSR J	SCB-2	9a	3	
15557	FSR K	SCB-2	9a	3	
15558	FSR M	SCB-2	9?	3	location not known
15565-15569)				3)	
15575-15579)	?FSR N?	SCB-2	9?	3)	broken breccia?
15585-15587)				3)	location not known
15600-		283	9a	3	
15610-		282	9a	3	

Table 3. Apollo 15 rock samples weighing more than 25 g (list as of August 24, 1971, from LRL daily reports)

LRL	weight g	Bag	Station	Basalt/Breccia		Glassy	Located
15015	4515	FSR A	LM		x	x	
15016	923.7	FSR B	3	x			x
15025	77.3	Cont.	LM		x		
15027	51.0	162	LM		x	x	x
15028	59.4	162	LM		x	x	x
15058	2672.5	FSR G	ALSEP	x			x
15059	1149.2	FSR H	ALSEP		x	x	x
15065	1475.5	156	1	x			x
15075	809.3	157	1	x			x
15076	400.5	157	1	x			x
15085	471.3	158	1	x			x
15086	216.5	158	1		x		x
15095	25.5	159	2		x		x
15205	337.3	161	2		x	x	?
15206	92.0	160	2		x	x	x
15255	240.4	190	6		x		x
15256	201.0	190	6		x		x
15265	314.2	193	6		x		x
15266	271.4	193	6		x		x
15285	264.2	192	6		x		?
15286	34.6	192	6		x		?
15287	44.9	192	6		x		?
15288	62.6	192	6		x		?
15295	947.3	188	6		x		x
15298	1731.4	FSR C	6		x		x
15299	1691.7	FSR D	6		x		x
15306	134.2	173	7		x		
15405	513.1	168	6a		x		x
15415	269.4	196	7	anorthosite			x
15418	1140.7	194	7	x?			x
15425	126.3	195	7		x		x
15426	223.6	195	7		x		x
15445	287.2	171	7		x	black and white	x
15455,0	885.4	198	7		x	black and white	x
15459	4828.3	FSR E	7		x		x
15465	374.8	199	7		x	x	x
15466	119.2	199	7		x	x	x
15475	298.2	203	4	x			x
15476	266.3	203	4	x			x
15477	85.2	203	4	x			?
15485	102.2	204	4	x			?
15486	46.8	204	4	x			?
15495	908.9	174	4	x			x

Table 3 . (continued)

LRL	weight g	Bag	Station	Basalt/Breccia		Glassy	Located
498	2339.8	FSR F'	4		?	x	x
499	2024.0	FSR F	4	x			x
505	1147.4	255	9		x	x	x
515?		273	9				?
516?		273	9				?
529	1531.9	274	9a	x			x
535	404.4	275	9a	x			x
536	317.2	275	9a	x			x
545	746.6	278	9a	x			?
546	27.8	278	9a	x			?
555	9613.7	FSR L	9a	x			x
556	1538.0	FSR J	9a	x			x
557	2518.0	FSR K	9a	x			x
558	1333.3	FSR M	?9?		x		
565							
566							
567							
568							
569							
575							
576	735.2	FSR N?	?9?		x		
577							
578							
579							
585							
586							
587							
595	237.6	281	9a	x			?
596	224.8	281	9a	x			?
597	145.7	281	9a	x			?
598	135.7	281	9a	x			?

LRL numbers 15510-15519 are reserved for samples in documentary bag 273. This bag has not been processed at the time of this report; however, numbers 15515 and 15516 will apply to rocks of fragments from the bag. Lunar surface photographs indicate that two fragments were sampled.

Table 4. Photographic documentation of Apollo 15 lunar samples.

Doc. no.	LRL no*	Station	type sample	pre-sample x-sun st.	down sun	post sample x-sun	loc	loc in pan
156	065	1	1 rock	86-11530, 31	85-11416	86-11532	85-11417	85-11411
157	070-076	1	2 rocks; soil	86-11533, 34	85-11418	86-11535	85-11419	85-11406, 07, 08
158	080-088	1	4 rocks; soil	86-11536, 37	85-11420	86-11538, 39	85-11421	85-11406, 07, 08
159	090-095	2	1 rock; soil	86-11549, 50		86-11551		85-11435, 36, 47, 48
160	200-204	2	soil	86-11546, 47	86-11560	86-11558, 59	85-11440	85-11435, 36, 85-11447, 48
160	206	2	1 rock	86-11546, 47	86-11560	86-11558, 59	85-11440	85-11435, 36 85-11447, 48
161	205	2	1 rock	86-11546, 47 86-11552, 53	85-11439 86-11560	86-11558, 59	85-11440	
162	017-019	LM	glass, frags	86-11604-06	86-11607	86-11608		
162	027-028	LM	2 breccia	86-11604-06	86-11607	86-11608		
163	240-	6	glass and soil	86-11609-11	85-11498, 99	86-11612-15	85-11500	85-11493, 94
164	250-254	6	soil	86-11609-11	85-11498, 99	86-11612-15	85-11500	85-11493, 94
166	260-264	6	soil(trench)	86-11641, 42	86-11644 85-11525, 26	86-11643, 45, 46	85-11525	85-11482, 83, 513
167	270-274	6	soil	86-11656		86-11657		85-11487, 88
168	400-405	6a	rock, soil	86-11658, 59	90-12199, 200	86-11660, 61		90-12188
170	430-	7	clod	86-11670-73	90-12227, 28	86-11674	90-12228	90-12201, 02
171	445	7	1 rock	86-11690, 91		86-11692-94		90-12201, 02, 22
172	310-	7	rake		90-12231, 32	90-12233, 34	90-12232	90-12216, 17
173	300-308	7	4 rocks; soil		90-12231, 32	90-12233, 34	90-12232	90-12216, 17
174	495	4	1 rock	87-11759, 60, 62	87-11761, 63	87-11764	87-11763	?
180	210-214	2	soil	86-11544, 45, 48	85-11439	86-11556, 57	85-11440	85-11435, 36, 47, 48
181	220-224	2	soil	86-11544, 45	85-11439	86-11556, 57	85-11440	85-11435, 36, 47, 48
182	230-234	2	soil	86-11561, 62, 63, 64	86-11569	86-11565, 66	86-11569	85-11435, 36, 47, 48
186	110-	2	rake	86-11567, 68	85-11441	86-11572, 73	85-11442	85-11435, 36, 47, 48
187	100-105	2	1 rock; soil	86-11567, 68	85-11441	86-11572, 73	85-11442	85-11435, 36, 47, 48
188	290-295	6	1 rock; soil	86-11616, 17	85-11501, 02		86-11618-20	85-11495
190	255-257	6	3 rocks	86-11629, 30	86-11631	86-11632		85-11514, 15
192	258, 259, 268, 269, 285-289	6	9 rocks	86-11635, 36	85-11523, 24	86-11637		85-11484, 85, 511,512

Table 4. (continued)

Doc. no.	LRL no*	Station	type sample	pre-sample x-sun st.	down sun	post sample x-sun	loc	loc in pan
193	265-267	6	3 rocks	86-11638, 39	85-11523, 24	86-11640		85-11484, 85, 511, 512
194	410-414	7	soil	86-11662, 63	90-12223	86-11664, 65	90-12224	90-12201, 02
194	417-419	7	3 rocks	86-11662, 63	90-12223	86-11664, 65	90-12224	90-12201, 02
195	425-426	7	2 rocks, broken	86-11666, 67	90-12225, 26	86-11668, 69	90-12226	90-12201
196	415	7	1 rock	86-11670, 71	90-12227, 28	86-11672	90-12228	90-12201
198	455	7	1 rock	86-11675, 76	90-12229	86-11677	90-12229	90-12201, 02, 22
199	465-469	7	5 rocks & glass	86-11678 - 80	90-12230	86-11681	90-12230	90-12201, 02, 22
203	470-478	4	4 rocks; soil	87-11759, 60,	87-11761	87-11762, 64	87-11763	?
204	485-487	4	3 rocks	87-11765, 66	87-11767, 68	87-11769, 70	87-11768	90-12242, 43
252	030-034	8	soil (trench)	92-12417, 18	92-12419, 41-43	92-12439, 40	92-12443	92-12423, 24
253	040-044	8	soil (trench)	92-12417, 18	92-12419, 41-43	92-12439, 40	92-12443	92-12423, 24
255	500-508	9	4 rocks; soil	82-11105, 06	82-11107	82-11109	82-11108	82-11090, 91, 92
273	510-	9	2 rocks	82-11093, 94, 98, 99		82-11100		82-11089, 90
274	528, 529	9a	2 rocks	82-11129	82-11128			82-11126
275	530-538	9a	4 rocks; soil	82-11139, 40	82-11138	82-11141		82-11126
278	540-548	9a	4 rocks; soil	82-11139, 40	82-11138	82-11141		82-11126
281	595-598	9a	4 rocks	82-11143, 44	82-11142	82-11145, 46		82-11126
282	610-	9a	rake	82-11151, 52	82-11153	82-11154, 55		82-11125, 26, 27
283	600-	9a	soil	82-11151, 52	82-11153	82-11154, 55		82-11125, 26, 27
SCB-4	016	3	1 rock "A"	86-11579-81		86-11582		
SCB-4	015	LM	1 rock "B"					
SCB-3	298	6	1 rock "C"	86-11621, 22	85-11503, 04	86-11623		85-11515, 16, 17
SCB-3	299	6	1 rock "D"	86-11624, 25	85-11506	86-11628	85-11505	85-11516, 17, 18
SCB-6	459	7	1 rock "E"	90-12235, 36				
SCB-5	499	4	1 rock "F"		87-11767, 68	87-11779	87-11768	90-12242, 43
SCB-6	498	4	1 rock "F-prime"	87-11765		87-11769		90-12242, 43
SCB-6	058	ALSEP	1 rock "G"	92-12415	92-12413, 14			92-12437, 38
SCB-6	059	ALSEP	1 rock "H"	92-12410, 11	92-12412			92-12422
SCB-2	556	9a	1 rock "J"	82-11135	82-11133, 34			?
SCB-2	557	9a	1 rock "K"	82-11137	82-11136			82-11110, 11127
BSLSS	555	9a	1 rock "L"	82-11164				?
SCB-2	558	9? LM?	1 rock "M"					
SCB-2	565-569	9?LM?	1 rock "N"?					
SCB-2	575-579	9?LM?						
SCB-2	585-587	9?LM?						

Table 4. (continued)

Doc. no.	LRL no*	Station	type sample	pre-sample x-sun st.	down sun	post sample x-sun	loc	loc in pan
U-03 } L-10 }	008 007	2	double-core	86-11574-78	85-11443-45		85-11443, 44	85-11435, 36, 47, 48
U-07	009	6	core	86-11647-50	85-11527-29	86-11651	85-11527-29	85-11482, 83 11513
U-09 } L-14 }	011 010	9a	double-core	82-11156, 57, 60-62	82-11158	82-11163	82-11159	85-11125, 26, 27
SESC 1	012	6	soil	86-11641, 42	86-11644	86-11643, 45, 46	85-11525	85-11482, 83, 513
SESC -	013	8	soil	92-12417, 18	92-12419, 41-43	92-12439, 40	92-12443	92-12423, 24
SESC 2	014	LM	soil	88-11884, 85	88-11886	88-11887		
Contingency sample	020-026	LM	2 rocks, soil					
Deep core	001-006	ALSEP	soil					

*The prefix 15---, is omitted from the LRL numbers

Table 5. Cross reference of lunar samples with locations, photographs, ground elapsed times, and air-to-ground transcript (p. 73-150).

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CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
Traverse to Elbow crater, St. George crater/Apennine Front, and return						
Contingency		Contingency Sample	Near LM	No doc.	05:00:04 to 05:00:06	LMP - Okay. I'm going to move out and get the contingency sample.
15020	88.7	Reserve fines		LM Win. Pan: 85-11383 to 85-11397		- - -
15021	500.2	< 1 mm fines				I think I can get a - a rock here. It's about 2 inches subrounded in the contingency sample, along with the soil.
15022	10.0	1-2 mm				- - -
15023	5.0	2-4 mm				Okay, I have the contingency sample. I'm taking it back to the ladder. - - - No wonder we slipped, Dave. Boy, that's really soft dirt there around the - the front footpads.
15024	3.6	4-10 mm				
15025*	77.3	breccia				
15026	1.1	glass				
						CDR - Sure is, isn't it?
						LMP - Like about 6 inches deep of soft material.
Bag 156		Radial sample	Station 1	XSB 86-11530	05:02:15	LMP - Okay. A quick radial sample here.
		Single rock fragment	East rim/ Elbow Crater	XSB 86-11531 XSA 86-11532	to 05:02:16	CDR - Yes. Let me find you one. Here, Jimmer. Right over here's one. I kick dust all over them so easy. How about that one right there? Think we can get that in the bag?
15065*	1475.5	basalt		DSB 85-11416 Loc 85-11417		
				Pan at 1: 85-11398 to 85-11415		LMP - Yes.
						- - -
						LMP - Number 156.
				Stereo pairs at 1?: 86-11540 to 86-11543		- - -
						LMP - It's very friable.
						CDR - Looks like a breccia all right, quite friable. But, I see a lot of sparklies in there. No glass. Subangular, with lots of dust on it.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
Bag 157		Radial sample 2 rock frags	Station 1 East rim/ Elbow Crater	XSB 86-11533 XSB 86-11534 XSA 86-11535	05:02:17 to 05:02:20	CDR - Okay, here's one about the same size. You're a little too big. Take this one right here, Jimmer. Oh, I see a large chunk in there.
15070	51.3	Reserve fines		DSB 85-11418		LMP - Get a little - get a little soil on this one, huh?
15071	100.7	<1 mm		Loc. 85-11419		- - -
15072	3.0	1-2 mm				CDR - Okay, Joe. These are buried about - an inch or so. The one I have is subangular; it's covered with dust, but beneath the dust - by golly it's a - It's quite friable and - I see olivine. Look at this, Jim. In the sunlight, would you call that olivine? And, there is a big lath in there. Look at the big lath about a centimeter long and a millimeter wide.
15073	1.4	2-4 mm				
15074	1.3	4-10 mm				
15075*	809.3	Basalt				LMP - Yes.
15076*	400.5	Basalt				CDR - Plag.
						LMP - Yes, let me put this in your bag.
						CDR - It's light gray - millimeter-size grains, with - like 2 - millimeter-size phenocrysts in it. Gosh. That one is really something. Look at that - look at that ... there.
						- - -
						Bag number 157.
						CDR - Let me get you another one. My goodness! Let's get another one out of here.
						- - -
						Yes. There's a little one. Okay, let me just stick it in.
						LMP - Going to put any soil in there?
						CDR - Yes, give me the bag. I'll fill it up, too. Dig a little light trench in there, and ... I got a feeling that Dr Schmitt's going to win his bet. Not that part, get another part. Not where we picked the rock up, - right in front of it. Okay, that's good. Just - hit the - spot, too.
						- - -

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
Bag 157 Cont.						CDR - Okay, ... just try it again. Get another one and just pour real smooth, and I'll catch. LMP - Okay. CDR - That a boy. That a boy. Good show. Okay. That ought to be enough for them to take a look at. Okay, 157.
Bag 158		Radial Sample	Station 1 Elbow Crater	XSB 86-11536 XSB 86-11537	05:02:20 to	CDR - ... Okay, let's hop on out and get one more. Yes, it's pretty sparse out here. Gosh, we're only - not very far at all. I'm not sure that the ones out here aren't thrown up from ...
15080	73.0	Reserve fines		XSB (frags) 86-11538 XSA (soil) 86-11539 DSB 85-11420 Loc 85-11421	05:02:24	LMP - I don't know that this is representative too much of Elbow.
15081	106.9	<1 mm				CDR - I don't think so, either. But, let's pick up a couple - one more anyway, since we're out here. I see a little one. Got to be careful not to kick the dust all over them when you get there. Jim, I see sort of a miniature raindrop here, it looks like.
15082	2.0	1-2 mm				
15083	1.8	2-4 mm				LMP - Yes, just behind you is one of those fresh craters, too, with a lot of glass in it.
15084	1.1	4-10 mm				
15085*	471.3	basalt				CDR - Okay, Joe. I've got another subangular fragment here. Rough surface texture. And, knock a little dust off of it, and it looks like a very fine-grained, gray - rather solid frag. I don't see any significant pits or any significant-size crystals in there. It might just be because the surface covering; but just a smooth, fairly hard rock. So far, I haven't seen any pits - pits on any of these. And, most of them are about 1/5th buried. Okay, here's another one that's got - Oh, on - on the underneath side of that - I hope I don't lose these tongs - On the underneath side of this frag, Joe, I can see some soil that is caked on the bottom, about 1 millimeter thick, and maybe down in the place from which I got it, we could sample. Why don't we get it - I'll take a picture and you can scoop that. And there's another one that has a large - -
15086*	216.5	breccia				
15087	5.7	basalt				
15088	1.8	breccia				

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
Bag 158 Cont.						CC - Okay, Dave. We copy. Good description. We'd like a bag number from that, and like for you to move out at your next opportunity, please. CDR - Okay, 158. LMP - Okay, Dave.
						CDR - Got that sample scooped up? LMP - Yes. CDR - Okay. Good boy. Good shot. Okay; if your yoyo's working, can you roll the bag up? LMP - Yes. - - - Okay, I'll put this in your bag.
			Station 1 Elbow crater		05:09:06 to 05:09:09	Post EVA 1 debriefing comments: CC - ... Could you give us - just a rough guess, a quick rundown as to where the samples at station 1 were taken with respect to the rim of Elbow, and we're interested in distance and direction from the rim. Just a rough guess. CDR - Okay, Joe, 709, Bravo Echo 5, and we moved out about 200 feet to the east of that point in picking up the C radial sample. CC - Roger, Dave. Copy that. And coming back to station 1, Elbow crater, could you give us a quick rundown on the changes in rock distribution around Elbow crater and, if possible, maybe even the changes in rock types there. Over. CDR - Stand by 1.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
			Station 1 Cont.			LMP - Joe, our clocks were running pretty fast when we were there, and I guess - we didn't get a chance to look at the distribution very well. As I remember it, there - there were more blocks - not really blocks, but large fragments, on the order of 6 inches to a foot, more on the southern rim, although it wasn't really heavily concentrated; I'd say 10 percent of the surface at most. There was more on the southern rim than on the northern rim. And the ones we sampled all looked pretty much the same. As I remember, the radial sample didn't show a great difference in rock type. Although, as you know, we just didn't - a chance to do much - looking and thinking then.
					05:09:10	CC - But, once again, regarding Elbow crater, Jim, you called out to us a bench around the east side of Elbow and you were looking down into Elbow from higher up on the front. We wonder if you could compare that bench with breaks in the slope of the rille wall. Over.
						LMP - Joe, when I commented on bench there, I would estimate two or three different levels that are very - were very subdued possible benches in Elbow, and I did not see any immediate relation between those subdued benches in Elbow and the - the rille.
					05:09:07	CC - ... Near Elbow crater, Dave, you mentioned that your footprints exposed white soil. We wonder if this was a common occurrence. Did you observe similar white soil in footprints elsewhere? Over.

CROSS-REFERENCL OF LUNAR SAMPLES WITH LOCATIONS , PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
			Station 1 Cont.			CDR - Joe, I sort of kicked through a rim of a small, 1-meter subdued crater; and, as I did that, I kicked up the white soil. And so I kicked a couple of more times and it spread out; and whether I was - breaking up a very friable rock or not, I don't know. But there was a couple of kickfuls of dirt that was white, and as we came back past it on the return trip to the LM, why I pointed it out to Jim and he saw it too. And I'm not sure whether that was just at that one small crater, or whether that was typical of that particular area. We just didn't have time to look at it.
			Station 2 St. George Crater/ Apennine Front	Pan at 2: 85-11422 to 85-11438	05:02:34	LMP - There's a large block - looks like about a 5-footer out at 1 o'clock - angular block.
						CDR - Yes, you're right. Why don't we go there? It's - We're - you can tell we're going uphill - - -
				2nd half of stereo pan 85-11446 to 85-11465		LMP - Okay; we're going to a big rock here, Joe. It's one we just can't afford to miss. What it is to look at a big block; we're going to look at a big block.
						CDR - It's the only big block I see anywhere. - - -
					05:02:39 to 05:02:41	CDR - There is one boulder! Very angular , very rough surface texture. Looks like it's partially - Well, it's got glass on one side of it with lots of bubbles, and they're about a centimeter across. And one corner of it has got all this glass covering on it; seems like there's a linear fracture through one side. It almost looks like that might be a contact; it is, within the rock. It looks like we have a - maybe a breccia on top of a - a crystalline rock. It's sort of covered with glass; can't really tell, but I can see a - a definite linear feature through one side of it which is about a fifth, and the glass covers both sides of what I guess I'm calling a contact.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
			Station 2 Cont.			CDR - And there's also, parallel to that contact, one surface, which is quite flat, only for about 8 inches or so. Looks like it's been chipped off. The boulder itself is on the order of about a meter across and maybe a - Gee, it looks like a half meter thick or so. It's got a fillet up one side, and the Earth side is a shadow. I can't really tell whether - It doesn't look like it's filled. It's got a fillet on the downslope side, and - the upslope side is - is open and free. As a matter of fact, it looks like it's almost excavated beneath it.
						LMP - It looks fairly recent, doesn't it, Dave?
						CDR - Yes, it sure does. It sure does, and I can see underneath the upslope side; whereas, on the downslope side, it's piled up. Boy, that is really something.
Bag 180		Fillet soil	Station 2 St. George Crater/ Apennine Front	XSB 86-11544 XSB 86-11545 XSA 86-11556 XSA 86-11557 DSB 85-11439 Loc 85-11440	05:02:42 to 05:02:43	CDR - Okay. Now, I think to not disturb things too much, let's try the fillet first. I'll get you a bag. And then we'll corner the rock.
						LMP - I'm stepping on a piece of glass, right by the tongs. I'll remember that.
						CDR - Watch your boot.
				86-11548 shows scoop near fillet (XSD)		LMP - Yes. See if I can get a bag out. Okay; 180. - - For the fillet material. I'll get the fillet right here.
						CDR - Wait, wait. Before you do, let me poke a picture at it. Okay; go ahead.
						LMP - Little beads of glass in there in some places.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
Bag 181		Soil	Station 2 St. George Crater/ Apennine Front	XSB 86-11544 XSB 86-11545 XSA 86-11556 XSA 86-11557 DSB 85-11439	05:02:44 to 05:02:46	CDR - Okay, Now, let's get some typical soil, couple of feet away.
15220	160.5	Reserve fines		Loc 85-11440		LMP - Okay. - - - Yes, I'll take it right out here by the gnomon.
15221	290.0	<1 mm				
15222	2.4	1-2 mm				CDR - Yes; good idea. It hasn't been disturbed.
15223	5.8	2-4 mm				- - -
15224	7.0	4-10 mm				LMP - Okay; I got it.
						CDR - Okay; 181.
Bag 159		Glass piece + soil	Station 2 St. George Crater/ Apennine Front		05:02:45 to 05:02:46	CDR - Okay. Now we got the fillet, we got the soil; now we need to sample the rock.
						LMP - Yes.
15090	39.3	Reserve fines				CDR - Let me get - Give me your hammer.
15091	162.9	<1 mm				LMP - Okay. I got it. Look at the vesicles in
15092	2.7	1-2 mm		(Tongs)		that rock.
15093	0.6	2-4 mm		XSB 86-11549		
15095*	25.5	glass-coated fragment		XSB 86-11550 XSA 86-11551		CDR - Those are glass bubbles.
						LMP - Glass bubbles; yes.
						CDR - Okay. Hey, listen; I want to get a closeup of that - that contact. Hold on to this a second, okay? Let me get my trusty tongs. As a matter of fact, if you'll pull the bag out, Jim, I'm going to get a quick selected sample here.
						- - -
						I've got a little piece of glass right there. I can get up the hill to it. Think I can put that in there? See that beauty? Oh, I'll hold the hammer. Okay; don't want to drop that one. But not - Put in some soil. Grab some soil right there with the tongs; it'll stay. It seems to be fairly cohesive here.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
Bag 160		1 fragment	Station 2 St. George	XSB 86-11546 XSB 86-11547	05:02:49 to	LMP - Dave, I - I think, up on top here, if you hit it, it will break.
15200	7.7	Reserve fines	Crater/ Apennine	XSA 86-11558 XSA 86-11559	05:02:52	CDR - Right here?
15201	18.3	<1 mm	Front	DSA 86-11560		
15202	0.4	1-2 mm	top,	Loc 85-11440		LMP - Yes, right there. Yes. Yes, it's coming loose
15203	0.2	2-4 mm	uphill			
15204	0.1	4-10 mm	corner of			CDR - Yes. There it is. I got it. Oh - oops.
15206*	92.0	basalt	boulder			That's it, right there. - - - ...160 is for the rock that's on the - or the chip off the corner uphill. I hope that makes some sense to you, but when you get the pictures back and it's the one that doesn't appear to have any phenos in it. It just looked like a fine-grained basalt, nonvesicular. Now the other one that Jim - Are you getting it? Here, let me hold the bag for you.
Bag 161		1 fragment	Station 2 St. George	XSB 86-11546 XSB 86-11547	05:02:52 to	LMP - How about doing a dumbbell - dumbbell fragment there beside it? You didn't knock that off, did you?
15205*	337.3	breccia	Crater/ Apennine	XSB 86-11552 XSB 86-11553	05:02:53	
15205,1	1.6		Front	XSA 86-11558 XSA 86-11559		CDR - The dumbbell frag beside it?
				DS 85-11439 DSA 86-11560		LMP - Yes, hold the bag here. I'll show you what I mean.
				Loc 85-11440		CDR - Okay. No, I think that fell off, Jim. That looks like the same kind of stuff.
						LMP - This one right here?
						CDR - Yes, it fell off when I hit, I guess.
						LMP - But I didn't see it fall off, though.
						CDR - I didn't either, but I don't think - -

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
Bag 161 Cont.						LMP - It looks like a different type of rock. CDR - It sure does. I'm sure it was there when we started. LMP - Okay; let me just look at that one. - - - Lots of glass on it, but can't tell the inside too well. LMP - Okay; what number is that? CDR - 161. - - - Frag on the top of the rock.
Bag 182		Soil	Station 2 St. George Crater/ Apennine Front	XSB 86-11561 XSB 86-11562 XSB 86-11563 XSB 86-11564 XSA 86-11565 XSA 86-11566 DS - Loc 86-11569	05:02:55 to 05:02:57	CDR - Okay; roll it over. - - - Oh, me. It looks like a breccia. LMP - It sure is. The top layer is a breccia. You can see it. There, that baby's over. - - - A couple of pictures, and we'll get some of that material underneath the rock. CDR - Oh, there's a great big glass bubble on that rock. - - - ... Jim, get a scoop of that underneath. Let me go around to the other side and get a picture. - - - LMP - The bag? CDR - Okay, let me get it; 182. LMP - Looks like pristine material, all right. - - -
15230	99.1	Reserve fines				
15231	233.9	<1 mm				
15232	5.2	1-2 mm				
15233	3.8	2-4 mm				
15234	1.8	4-10 mm				

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
			Station 2 St. George Crater/ Apennine Front Big Block	 86-11569 86-11570 86-11571	05:03:08	CDR - On the bottom of the rock, Joe, it seems to be gray where there's no surface alteration, but there is a surface covering. And in one portion, there's some glass and almost looks like slickenside across the glass, and it's about - 4 inches by 4 inches. And then there's - Oh my, one whole corner of that thing that's loaded with glass. That's just an unreal rock - - - - - CDR - Hey, Joe, the boulder we just sampled is the only one of its size anywhere to be seen.
Bag 186 15110+	 131.9	Comprehensive Fragments Gross weight	Station 2 St. George Crater/ Apennine Front	XSB 86-11567 XSB 86-11568 XSA 86-11572 XSA 86-11573 DSB 85-11441 Loc 85-11442	05:03:00 to 05:03:04	LMP - Okay; I'm going to start to rake, Dave. - - - CDR - Okay. There's one swath - about a meter long. - - - CDR - ... You've got two little frags - Well, that's better than nothing. Got a bag? It's number 186. - - - LMP - Try another couple swaths here - - - - - CDR - Joe, the soil is dark gray, and it's fine grain, and I haven't seen any difference in granularity between the LM and our position at all. It all looks about the same. It's fairly cohesive with very few fragments in it. Jim's getting about three or four with each scoopful - well, two or three. - - - CDR - Well, we don't have much for all that raking. LMP - Okay; why don't - Do you want another swath? CDR - Yes, let's take one more. That's about, I think, all we can do then. There's just not much in there. Boots go in about an inch or so when you press on them. Packs it down nice and smooth. Guess you can see the dust jumping as we walk ...

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
Bag 186 Cont.						LMP - Not a thing, Dave. - - - Let me take one more. - - - Okay, Dave. That one was a little more fruitful - -
						CDR - Okay.
						LMP - - - Looks like about five or six.
						CDR - Okay; let's call it quits there - -
						LMP - Yes.
Bag 187		Comprehensive fines	Station 2 St. George Crater/ Apennine Front	XSB 86-11567 XSB 86-11568 XSA 86-11572 XSA 86-11573 DSB 85-11441 LOC 85-11442	05:03:04 to 05:03:05	- - - LMP - Do you want soil with that comprehensive?
15100	281.0	Reserve fines				CC - Roger. One bag soil with the comprehensive, and then double core.
15101	637.6	<1 mm				
15102	12.2	1-2 mm				CDR - Okay. Let me picture this here where my big foot went. - - -
15103	4.1	2-4 mm				
15104	1.5	4-10 mm				
15105	5.6	basalt				LMP - ... I've got 187 for the soil.
					(05:03:01)	CDR - Joe, the soil is dark gray, and it's fine grain, and I haven't seen any difference in granularity between the LM and our position at all. It all looks about the same. It's fairly cohesive with very few fragments in it. ...

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
U-03/ L-10		Double Core	Station 2 St. George Crater/ Apennine Front	XSB 86-11574 XSB 86-11575 XS During 86-11576 86-11577 86-11578	05:03:05 to 05:03:16	CDR - Okay; the next thing on the agenda is a double core. LMP - Yes. Okay; I'm going to go over and configure for it. - - -
15008	510.1	upper				
15007	768.7	lower		DS 85-11445 Loc 85-11443 Loc 85-11444		CDR - Oh, we've got a good place here. We've got a fairly deep crater; it must be about 10 meters across, and a meter and a half or so deep, and we'll pick the rim of that - There's a fresh impact crater in - in the rim anyway, which looks like it pulled out some - - CDR - Is that as far as you can push it, Jim? LMP - That's as far as I can push it. I got the picture; go ahead. CDR - Okay. It's a - We've got one full core, second core is going in about 2 inches per hammer stroke. - - - CDR - And we've got almost a second core. Got another couple of inches to go, Jim. Doing good. - - - CDR - Okay; that's good, man. All the way in. Good show. - - - CDR - Okay. Pull it out very gently. Nice. Nice. Easy does it. That's nice. Coming out very clean. Looks clean. Hold it steady. Got a good one. Okay. Come on over this way a little. Cap for it. ... LMP - Give me the cap. I'll put it on, Dave. CDR - Okay. Good idea. - - - CDR - Okay. Rammer went in about 6 inches.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN.	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
U-03/ L-10 Cont.						CC - And, Dave, we're standing by for a number on the core. CDR - Yes, the top one is 03, Joe. - - - LMP - Know what the other one was? - - - LMP - It's the middle one in ... Dave's sample bag.
FSR "A" 15016*	923.7	Vesicular basalt	Station 3	XSB 86-11579 XSB 86-11580 XSB 86-11581 XSA 86-11582 Partial pan: 86-11583 to 86-11587	05:03:43 to 05:03:47	CDR - Oh, there's some vesicular basalt right there, boy. Oh, man! Hey, how about it, let's - just hold on 1 second, we've got to have - - LMP - Okay; we're stopping.
FSR "B" 15015*	4515	Glass coated breccia	Near LM		05:06:02 to 05:06:04	CDR - And I'm going to - - pick up a couple of rocks. Yes, sir. Oh, my! I couldn't resist this one, Jim. LMP - That the glass one? CDR - Oh, look at what I got! You wouldn't believe it! Okay, pick up the ETB. - - - Okay, here's the ETB. How about handling that with care; there's a piece of fragile in there. I'll get it to you.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
						Crew Comments during Post EVA 1 debriefing:
					05:09:17	CDR - ... We've got a couple of surprises for you. We have one fragment on the order of 6 inches which is a - a fairly well rounded, highly vesicular basalt with vesicles on the order of 3 millimeters all over it, apparently quite old and rounded, and it's a brownish gray. We also have a - a large piece of glass, just sheer glass, apparently, which is about a foot long and about 6 inches wide and very rough-textured surface; and that was the one that was right out the front window here that I described yesterday. And the basalt we picked up halfway back when I had to change my seatbelt; I saw it on the ground, and I just couldn't resist it. And it's unlike anything you've seen from the Moon before as is the large piece of glass.
FSR "A" 15016*						
FSR "B" 15015*						
FSR "B" 15015 Cont.			Near LM		04:11:38	Crew Comments pre EVA 1 LM window description
						CDR - ... I got to tell you about a rock that's right out at 12 o'clock, right - almost at the radar antenna shadow, and it's going to be gone pretty soon. There's a - a dark, black, angular fragment which is on the order of probably - I'd say 6 to 8 inches across. It's got some light-colored apparent dust on it. It's unique on the surface. All the other fragments appear to be white. And this one really looks like a jewel. You can think about that for awhile.
						- - -
					04:12:27 to 04:12:29	CC - Dave, while you're sipping your - cold tomato soup there, was the black rock that you called out to us on a crater rim?

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
FSR "B" 15015* Cont.						CDR - Yes, it is, Joe. It sure is. And it's a typical crater to see. It's quite a subtle crater, but it's out - well, LM shadow being like 30, maybe 28 meters now. It's probably about 40 meters away, the rim of the crater. And that black rock is sitting right on the rim. CC - Roger. CDR - Hey, Joe. Jim's just pointed out another black one now that must be 300 meters out. And it's so dark that it looks like a shadow. It's just coal black, and it looks like it might be about the same size. CC - Roger, Dave. Incredible. While you're peeking out there, do you have any further observations on the abundance, size, and distribution of the frags in the nearby field of view? CDR - Yes. That's what we found here. Yes. I'd say that, in the - in the near field, the surface is covered by - probably less than 1 percent of fragmental debris. And, of that debris, I'd say 70 percent of it is on the order of an inch to 2 inches, or less. And maybe the other 30 percent seems to be in a range of maybe 4 or 5 inches, something like that; no large frags anywhere. They mostly -- Okay. Most the fragments are light colored, except for the two that we - we mentioned to you. In fact, they all look - they look white. I can see some that are just stark white and some that are a lighter gray.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 1						
Post EVA 1		Weight Report			05:07:45	CDR - Okay. I've got some weights for you, if you're ready to copy. CC - Go ahead, Dave. We're ready. CDR - Okay. SRC number 1 is stowed. It weighed 36 pounds. And collection bag number 4 weighs 15 pounds.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2 Traverse to the Apennine Front, Spur Crater and return.						
Bag 162		Glass sphere and other fragments	Near LM - "Aggie"	XSB 86-11604 XSB 86-11605 XSB 86-11606	05:22:57	CDR - Joe, bag number 162 has that little glass Aggie in it. - - -
15017,0	9.8	Broken glass		XSA 86-11608		Plus a - another couple little samples
15017,1	2.7	sphere "aggie"		DSB 86-11607		that were sitting there. Okay, we'll get
15017,2	2.1					you - up. Okay, hand me the hammer.
15017,3	2.4					
15018	5.7				(04:12:31)	Crew Comments from pre EVA 1 LM Window Description:
15019	1.2					CDR - ... I'm just looking down right in front of the LM here to try and get your relative abundance, and I was about ready to say that maybe, of these inch frags, there might be five or six in a square meter. And I see what appears to be a round glassy ball. It's shiny, it casts a rounded shadow, and it looks about the size - oh, maybe an - an inch or so. - - -
15027*	51.0					CC - Roger, Dave. And, for the benefit of our fine Flight Director, maybe the name of that should be called an Aggie.
15028*	58.9					
15028,1	0.5					CDR - Okay, Joe. We'll call that one our first Aggie.
Bag 163		Glass	Station 6 Apennine Front; foor of small fresh crater with glass in center	Partial pan: 85-11481 through 85-11497 Pan: 85-11507 through 85-11522 XSB 86-11609 XSB 86-11610 XSB 86-11611 XSA 86-11612 XSA 86-11613 XSA 86-11614 XSA 86-11615 DSB 85-11498 DSB 85-11499 Loc 85-11500	05:23:58 to 06:00:01	CDR - Okay. Let's go up first, so we can come downhill. And, there's one of those fresh little craters. LMP - Yes. CDR - Let's go sample that one. LMP - Got glass in the bottom. - - - And we're going to sample the glass in the middle of it. CDR - Yes. Start with the middle, and we'll pick up the rim, too. 163. CC - Copy 163.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 163 Cont.						LMP - It all felt kind of welded together. - - - I hope it stays together for us. - - - Like fragments all glued together. What an intricate pattern. - - -
						CC - Okay, Dave. And is that still bag number 163?
						CDR - Yes.
Bag 164		Soil	Rim of same crater where sample Bag 163 was taken	XSB 86-11609 XSB 86-11610 XSB 86-11611 XSA 86-11612 XSA 86-11613 XSA 86-11614 XSA 86-11615 DSB 85-11498 DSB 85-11499 LOC 85-11500	06:00:01	CDR - Yes. Yes, the next one coming up is 164. And, why don't you skip the rim there,
15250	207.0	Reserve fines				LMP - A little more?
15251	380.9	<1 mm				
15252	8.3	1-2 mm				CDR - Yes, let's get a good bag full.
15253	4.0	2-4 mm				
15254	1.2	4-10 mm				CDR - Okay, Joe. It's very fine light gray - the rim is. Very fine.
Bag 188		Rock microbreccia	Station 6 Apennine Front	XSB 86-11616 XSB 86-11617 DSB 85-11501 DSB 85-11502 Loc 86-11618 Loc 86-11619 Loc 86-11620	06:00:02 to 06:00:06	CDR - Okay, Jim. Let's find ourselves a couple of frags down here. Here's a - there are three within easy range over here. - - - Right there in front of you, Jim. That big one. Get - get that one.
15290	55.0	Reserve fines				
15291	169.0	<1 mm				
15292	5.4	1-2 mm				
15293	6.7	2-4 mm				CC - Okay, Jim. And are you still scooping samples?
15294	10.2	4-10 mm				
15295*	947.3	Rock				LMP - ... - we're sampling a rock right now. - - - The number on this bag is 188.
						CC - Roger, Jim. Copy 188. And have you noticed a variety of rock types or just one general kind?
						CDR - Okay. Let us go through them, Joe, as we pick them up, because we can't tell any difference as they sit on the surface. They're all covered with dust. And, the first one here is a fine-grained breccia - a microbreccia. And, it's got - it looks like a third order with white clasts in it. The matrix is dark black, and it has glass within a fracture on the side. Not unlike some of the 14's. - - -

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 188 Cont.						- - - LMP - I'll put some soil in. CDR - Get that other frag right next to it, Jim. Here let me - I'll - I'll get it. Okay, good boy. CDR - And, Joe, the - the soil is very powdery here. LMP - It just looks the same - just the ... here. CDR - Okay. Same thing. Same kind of fragment. Okay. You give me the bag, and why don't you take a little scoop right there by the side of the - - - - - - - where those two were. - - - LMP - I - I got to get back uphill. I've got most of it, I think. CDR - That's good. That's fine. Okay, 188, to confirm again.
FSR "C" 15298*	1731.4	Breccia fractured	Station 6 Apennine Front 20% buried subangular	XSB 86-11621 XSB 86-11622 XSA 86-11623 DSB 85-11503 DSB 85-11504	06:00:07 to 06:00:09	CDR - Okay. Okay; this is a fairly large subangular fragment, which is about 20 percent buried. I'm not sure we'll get that in the bag. LMP - I don't think we will, Dave. CDR - Well, we've got it anyway. See what it looks like here. - - - On the bottom - See, it looks like - a light gray microbreccia with some white clasts of millimeter size in it, and that's about all. And, the bottom side has slickensides. And I do see some glass spattered on one side. And I also see - one little - looks like an orange crystal in there - like it might be a little piece of olivine. It's got definite reddish-orange color to it. - - -

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
FSR "C" 15298* Cont.						CDR - This is definitely a different kind of breccia, Joe. It - it's only got light-gray millimeter-size clasts in it, with a fine-grained gray matrix. In the clasts, there are about - gee, I'd say 10 percent of the total frag. So it's - it's somewhat different. Here, I can hold it with both hands, if you can stick it in. Let me hold the bag. - - - Okay. That's going in your collection bag as a single. And, I think you can remember it, Joe. Sorry about the bag; it just fell. I let it go. It's got slickensides on it.
FSR "D" 15299*	1691.7	Breccia fractured	Station 6 Apennine Front Fragment made small secondary crater - travelling east to west	XSB 86-11624 XSB 86-11625 XSA 86-11628 LOC 85-11505 DSB 85-11506 Impact site 86-11626 86-11627	06:00:11 to 06:00:14	CDR - Jim, I would say that this - that this fragment here hit right before its position. You see that little spot? See that little spot right there in front? LMP - Yes. CDR - I think that rock hit there. LMP - Yes. You can convince me of that. CDR - ... We'll just have to take a look at it. We can get the pictures here. Wonder from whence it came. If it - if it did hit there it was traveling - - LMP - Traveling west. CDR - Yes. East to west, and it left a little mark about a foot from its present position. And its present position is on the surface, to about 4 inches, subangular. And we'll pick it up and take a look at it. As a matter of fact, I'll see if I can't get a closeup of the little spot that it hit here. Now, if I can lean down. Okay. Did you get the down-sun, Jim?

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
FSR "D" 15299* Cont.						- - - CDR - Man, it's really covered. But it's a very rough surface, very sharp, basically a subangular rock, but with quite a jagged, craggy surface on it. And I can see some spots in there. I guess I'd just have to call it a breccia. It'll never fit in there. Just let me put it in your bag. LMP - Okay. CDR - And Ithink we have it fairly well documented. It's in collection bag number 3, which will help you keep track of it.
Bag 190			Station 6	XSB 86-11629	06:00:15	CC - Dave, ... Do you think this is a good area for a rake sample?
15255*	240.4	breccia		XSB 86-11630	to	
15256*	201.0	breccia		XSA 86-11632	06:00:17	
15257	22.5	breccia		DSB 86-11631		CDR - No, Joe. Definitely not. - - - CDR - Okay, Joe. Okay; another little microbreccia. Bag number is 190. - - - CDR - You can take another. Get this other one here. CDR - Oh, boy. Look at the bottom of that, Jim. LMP - All glassy, isn't it? CDR - Yes, I hope. Glass all over the bottom of that one. And it looks like another microbreccia. And I don't see any pits in any of these, at all. I do see a couple of glass - yes, there, this one's got a couple of very small glass-filled pits, but most of them are pitless. Okay; 190.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 192		9 frags breccia	Station 6	XSB 86-11635 XSB 86-11636 XSA 86-11637	06:00:19 to 06:00:23	CDR - Okay. Okay; let's move down here. Downhill, with care. Now, it looks like the same - Look down at the bottom of that crater - another little crater with a bunch of debris in it. - - -
15258	7.6	rock		DSB 85-11523		
15259	0.7	rock		DSB 85-11524		
15268	11.0	rock				
15269	7.6	rock		Area photos:		CDR - Hey, look at the little bench on this one.
15285*	264.2	rock		86-11633		
15286*	34.6	rock		86-11634		LMP - Yes, I was going to remark about that on the - the downslope side. - - -
15287		rock				CDR - Jim, I'd suggest we go down to that little bench.
15288*	62.6	rock				
15289	24.1	rock				LMP - Yes. We could actually walk in. We could do a radial sample.
						CDR - Yes. Boy, look at how this zero phase just wipes everything out. Man. We can get this here easy - because we don't want to go too far downhill, because we don't have ... climb back up to our Rover friend. Jeeper, this - they're all too big.
						LMP - Notice you're kicking up some white material there, Dave?
						CDR - No, I didn't notice. Hey, you're right.
						LMP - We ought to trench it.
						CDR - You're right. Sure should. - - -
						LMP - Trench or a core? - - -
						CDR - Why don't we go to the upper rim up there and pick up the core, Joe - Jim, on the way back up?
						LMP - Oay.
						CDR - Let's get this - this fragment here - or a bunch of these little ones I guess.
						CDR - So much dust - on the camera, it's hard to read the settings.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 192 Cont.						CDR - Okay. I think the big one is too big to put in, as usual. Of course, we'll never be satisfied with that, but I'll take some of these others. LMP - Okay. CDR - I think they're the same. Dust off a little bit. Another breccia. LMP - Bag number is 192. CDR - Hold it and I'll get a bunch of these frags right here. - - - LMP - Not much glass. CDR - Okay. That ought to do it. Why don't you close it up, and I'll - put it ... here. Dying to look at that big rock. LMP - Put this in your bag.
Bag 193		Breccia knocked off with hammer	Station 6	XSB 86-11638 XSB 86-11639 XSA 86-11640	06:00:23 to 06:00:24	CDR - ... Dying to look at that big rock. - - - Let me borrow your hammer just a - I'll take one whack and see if it will come open. - - - The visibility - Hold my tongs, please. Let's see if we - it's got any variety up here. - - -
15265*	314.2	Rock		DSB 85-11523		
15266*	271.4	Rock		DSB 85-11524		
15267	1.9	Rock		Area photos: 86-11633 86-11634		LMP - - - ... friable to what you're trying to get. CDR - Sure is. Not bad for a beginner. Okay. Give me the tongs, and let's just get another bag and pick up those two little frags there. What do you say? - - -

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 193 Cont.						CDR - Okay. A microbreccia with millimeter white clasts, and there's a gray clast in there that's about 3 millimeters. It looks a little different. Let me go down and get this other one that came up. LMP - And 193 is the number on the bag.
			Trench site, Station 6	XSB 86-11641 XSB 86-11642 XSA 86-11643 XSA 86-11645 XSA 86-11646 DSA 86-11644 DSB - Loc 85-11525 DSB 85-11526	06:00:24 to 06:00:25	CDR - Okay. Well, would you like a trench or a core, Joe? We'll give you your choice today. CC - We'd like one of each, if we could, Dave. CDR - A trench and a core? CC - Yes, sir. CDR - Okay. We'll go up and trench it first and see if it's worth coring. CC - Okay. CDR - Let's go up on the up - the upper rim up there, and work our way back up to our Rover friend. CDR - Right up here where it's nice and fresh. CDR - Hey, Jimmy - Dig me a little trench when you get up here. - - -
Bag 166		Soil from bottom of trench	Trench site	XSB 86-11641 XSB 86-11642 XSA 86-11643 XSA 86-11645 XSA 86-11646 DSA 86-11644 DSB - Loc 85-11525 DSB 85-11526	06:00:27 to 06:00:30	CDR - ... Okay, Jim's trenching. Hey, the other side, Jim, I can't see you. - - -
15260	172.2	Reserve fines				LMP - I can trench it here.
15261	1173.4	<1 mm				CDR - *** just right, right like you got it. Keep digging. Except you'll have to - That's right - Okay, I can see it. That's fine. Boy, when you put your scoop in, it smooths it out flat just like plaster.
15262	9.1	1-2 mm				
15263	6.7	2-4 mm				
15264	5.9	4-10 mm				LMP - I was going to say like cement.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 166 Cont.						CDR - Yes. I can't - ....see any layering because the - the scoop just - - LMP - Yes. It's all - very similar in color. CDR - Can't tell whether - Nice and cohesive, it holds a straight wall very well. It's very fine powder, just like - graphite. - - - Let me get this - Move to your left - and let me get over here. A little farther, Jim. CC - Okay, troops. And we'll be asking for an SESC from the bottom of the trench when you get it built. - - - LMP - Get the pictures? CDR - Yes. I think so. The rim, as all rims around are - very soft. LMP - Did you hear him, Dave, he wants the SESC from the - the bottom of that. CDR - Okay. LMP - Let me get a bag; I'll sample the bottom. CDR - Okay. I'll get your bag. LMP - First scoop? CDR - Yes. LMP - Just one. CDR - Okay; that's good. LMP - Okay; I'll get the SESC now - - - - - CC - Dave, ... Copy, you've gotten the SESC out of the bottom of the trench now. CDR - No - ... We haven't, Joe, you missed it. 166 the bag. We didn't get the SESC - -

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & CONTENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
SESC #1 15012	 637.0 (net)	SESC	Station 6 Trench Site Bottom of trench	Same as trench site, Station 6	06:00:30 to 06:00:33	CDR - - - we just got a sample from the bottom of the trench. And since we - since we have to walk back uphill to the lover to get the SESC - - LMP - No, it's on your back. CDR - Oh, just do it. - - - Why don'tcha scoop out the bottom on this side a little bit, Jim. LMP - *** out the bottom, you say? CDR - Yes, dig it a little deep - deeper, I think you can probably - get the thing deeper and - LMP - You want me to hit bedrock, I know. CDR - Yes. Okay; I can't see in the bottom of it, but go ahead. Dig her. Have a - have a scoop load. I think the wall collapsed on you. - - - Get your scoop up. That - that's it. That's it. That's good, Jim. That's about half - can you get another one? Hey, don't slide down in there, that - that's really slippery. LMP - Yes. I noticed. - - - LMP - Let's see, we probably ought to put that SESC in your bag. CDR - Yes. CC - And, Jim, did you get an after picture of that? CDR - I'll get it. I'll - I'll get it, Joe.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Single Core U07 15009	622.0 (net)	Core	Station 6	XSB 86-11647 XSB 86-11648 XS during 86-11649 86-11650 XSA 86-11651 DSB - Loc 85-11527 85-11528 85-11529	06:00:34 to 06:00:39	CC - And, Dave, while you're taking that picture, we'll be asking for a core tube after that. We want you to use an upper core, because we only have one lower in the bag right now. CDR - Very well, Joe, we'll get you a core right here. - - - One - core; upper core. LMP - You know, it's unfortunate, Dave, that we didn't take that down at the lower rim where the white was exposed. Here I don't see the white. CDR - Yes, I didn't either. Maybe we ought to go back down there and do that. - - - CDR - Oh! Easy. Neat, ... Hey, all the - all the way in very easily with a push, Joe. - - - LMP - Okay; I have it. CDR - Just don't step backward any farther. Wait, let me get the picture - I'll just walk over there, Jim. Okay. - - - Good core, Joe. LMP - I like those cores like that. CDR - Never know. Put that in my bag. Don't step backwards. LMP - Hear you talking. - - - CC - Jim, we've got that double left. Do you suppose you could drive a single core down where it's white?

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Single Core U-07 Cont.						LMP - Yes, sure, I'm sure we could. CDR - Yes, we could. Let's go do that. Yes, let's go take advantage of what we know down there on the albedo. - - - By the fresh spot down there. CDR - Okay; you sure see the change. *** up on the high place here. LMP - Above the bench. Let's try it right there. CDR - Yes, boy, the soil is more granular here, too. Quite a difference from one side of the rim to the other. - - - CDR - Okay. I don't think you'll need your hammer, but I'll get it anyway. LMP - Yes, and I'll get up on the uphill side here. - - - Okay; it's in position. CDR - Okay; I got the picture. 07's the number, Joe.
Bag 167		Soil	Typical soil by LRV	XSB 86-11656 XSA 86-11657	06:00:40 to 06:00:44	CC - A little something for the soil mechanics, sounds great. And we'd like for you to put several scoops of the soil in bag number 6 on the handtool carrier when you get back to the Rover. - - - CDR - Yes, but that's - Hey. Why don't we put them in a sample bag, Joe? Why - - - - - I'll get you a sample bag. - - -
15270	319.0	Reserve fines				
15271	798.3	<1 mm				
15272	20.7	1-2 mm				
15273	13.7	2-4 mm				
15274	4.4	4-10 mm				

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 167 Cont.						LMP - ... the sample, I guess, the typical soil by the Rover. - - - CC - And, Dave and Jim, we're after a large volume here, so shovel it in. CDR - All right. Bag number 167. Beginning to shovel large volume. LMP - About all we can put in there. CDR - Yes, that's a large volume. - - - CDR - Okay; and 167 goes in your bag.
			Station 6a Large boulder		06:01:04 to 06:01:12	CDR - Okay; let's attack that boulder. You got your hammer? - - - LMP - I'll walk down, Dave. Want me to carry some of those tools? - - - CDR - Hold on, Jim. Wait a minute, ... don't go yet. Let me drive the Rover down there. - - -
				Pan @ 6A: 90-12179 to 90-12198		CC - And, Dave, are you driving now? CDR - No, Joe. I'll give you a call, Joe. Stand by. LMP - Meantime, I'll be taking a pan from here, Dave. - - - Looks like it's going to be our high point. - - - CDR - Okay, Jim, you can come on down now. LMP - Yes. I estimated a what - 20-degree slope?

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS		GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2							
			Station 6a Cont.				CDR - I don't know. - - - Closer to 15, probably. LMP - Don't - Here. ... The Rover looks like - Although, see the back wheel's off the ground. - - -
Bag 168 15405*	 513.1	Breccia, light green	Station 6A 3m rock	XSB XSB XSA XSA DS DS	86-11658 86-11659 86-11660 86-11661 90-12199 90-12200	06:01:13 to 06:01:19	LMP - Are you really - let me hold that Rover and you come up and look at this, because this rock has got green in it, a light green - - - - - The first green rock I've seen - light green. - - - CDR - It's a big breccia - that's all it is. I - I don't see anything, Jim. LMP - About halfway up, maybe you have to look down-Sun to see it. It looks like a light green layer, not necessarily a thick layer. Light green. CDR - You mean on the surface? LMP - Yes, on the surface. CDR - Hey, you're right. - - - It seems to be a - surface material or else it's a very frangible clast in this big piece of breccia. Dig my tongs into it. LMP - Sure it's green and not just white albedo again? CDR - No, it's green.

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 168 Cont.						LMP - It looks green. And I - I noticed just downslope from the rock, you kicked up the surface and there's some more green there. - - - This rock is - about 3 meters long. - - - Subangular - very rough-textured surface. And the surface that's facing northwest - is the dark, typical breccia. And it looks like - what appeared to me - like there's a layer - there that might be a foot and a half, 2 feet thick, appears the - a light greenish color. Dave's sampling right now. - - - And on the side to the southeast is again the breccia. Isn't that right, Dave? CDR - Yes. And I got a little frag. Don't drop it. There. And I got some green, and I got a frag out of the breccia. It's fairly loose - breccia, as breccias go. Oh, and there's a great big white clast on the inside, but - man, like an inch or so. 168, Joe. Got a little bit of green, and I got a chunk about 3 inches of the rock itself.
			-Station 6A - 7 Traverse		06:01:23 to 06:01:27	CDR - Okay. Okay, Joe. We're moving now. - - - ... Okay. Let's see, do we want to hit the upper rim or the lower rim of Spur? LMP - You see that large block on the - - the northern rim. CDR - Yes, I think we should work down to the northern rim, right?

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
			Station 6A-7 Traverse Cont.			LMP - Yes, if we're going to sample any blocks there on the rim, that'd be the place to do it. - - - CDR - Okay. We're in good shape, Joe. That one wall there has quite a bit of debris, doesn't it? LMP - Yes, and it looks like it's - again has a linear pattern running north and south. CDR - Almost does. LMP - We're talking about the debris that's exposed on the north wall of Spur. And the slope here is - oh, 8 to 10 degrees. - - - CDR - We're at Spur crater, Joe.
			Station 7 Spur crater		06:01:30 to 06:01:33	LMP - We picked up some more green material here, Dave. CDR - Sure it isn't that light gray albedo stuff? LMP - No, it looks green. - - - ... I see white; I see a light green; and I see a brown. - - - CDR - Okay, Jimmy. Let's go to work. LMP - Roger. You don't think there's green here, huh? CDR - No, Jim, I don't know. I think it's a gray. ... gray in the albedo. At least, that would be my guess. LMP - Oh, it might be the EV visor that makes it look green. But, it's worth sampling. Notice that large rock on the northwest side, just on the inner edge there. - - - Clearly a breccia. Look at the clasts; you can see the clasts from here. CDR - You sure can. LMP - And, it looks like it's a different color rock. Well, it's a dark - CDR - Okay, let's go sample the rim over here.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
				Pan: 90-12201 through 90-12222		
Bag 194		Breccia, dark gray	Station 7 Spur crater North Rim	XSB 86-11662 XSB 86-11663 XSA 86-11664	06:01:34 to 06:01:37	CDR - Okay, Jim. There's a good pile of rocks right here.
15410	56.2	Reserve fines		XSA 86-11665 DS 90-12223 Loc 90-12224		LMP - Hey, look at that light colored rock with - - it almost looks like a white vein on top of the other rock.
15411	103.3	<1 mm				CDR - Yes, look at that. How about that, we'll get that one.
15412	7.1	1-2 mm				- - -
15413	6.7	2-3 mm				Yes. It's a breccia. It's a dark gray rock that looks like a - actually it looks like a big pinnacle with a small gray and white breccia on top of it. The pinnacle is about 6 inches across and 4 or 5 inches high. On top of it is about a 2- to 3-inch subangular frag with a light gray - or medium gray matrix, and about 20 percent white clast in it. Really unique. It stands out - it's amazing. Okay, Jimmy. Let's gather some data.
15414	4.0	4-10 mm				
15417	1.3					
15418*	1140.7	Basalt				LMP - You've got a sample there, right?
15419	17.7	Glass coated fragment				CDR - Yes.
						- - -
						Okay. Oh, there are sparklies and all kinds of breccia. ... soil. It's sort of caked on the top. Yes. Another black matrix, fine-grained with white clasts - millimeter size - and there are some very fine grained little sparkles in there, though.
						LMP - Okay. I even see some vesicles in it.
						- - -
						CC - Just standing by for the number, Dave.
						CDR - 194.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 194 Cont.						CDR - Yes. Let me get the other one that is sitting right next to it. Look how the upper layer of the soil here is caked. - - No, better yet, why don't you gather some soil? - - Yes. Let's get soil in this bag. LMP - Okay. CDR - Right there by the rock. LMP - Yes. CDR - Leave the rock whole. LMP - Yes. CDR - Is that a glass one, sitting right below it? LMP - It sure looks like it. It was under it, wasn't it? CDR - Yes. Yes. Let me take a picture. Just a minute, let me take a picture, and why don't you pick up that little piece of glass and put it in the bag, too. CDR - That must have been under the rock. LMP - Yes. CDR - Okay, I got the picture. LMP - Yes. CDR - Pick up that little rock. LMP - Okay. (TV shows CDR closing sample 194, into LMP SCB)

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 195		Soil and rocks	Station 7 Spur crater North Rim	XSB 86-11666 XSB 86-11667 XSA 86-11668	06:01:37 to 06:01:41	CDR - ... I think the next order of business is that neat one there.
15425*	126.3	Green breccia, friable		XSA 86-11669 DS 90-12225		LMP - Okay, well, there are two - just to the west of you, Dave, is some of that - what we've been calling green material - clearly visible? See what I mean?
15426*	223.6	Green breccia, friable		DS - Loc 90-12226		- - -
						CDR - Okay. I'd call it light gray but, we'll check it when we get home.
						LMP - Well, it's definitely different from the next rock, or the one we just picked up.
						- - -
						CDR - Okay. Sure is. That's awful big, but I think we ought to sample here anyway, all those little frags. I've got to admit it really looks green to me, too, Jim, but I can't believe it's green.
						CDR - Oh, my, it is green.
						- - -
						Man, that looks almost - now it's gray The visor makes it green, Jim.
						LMP - It's green.
						CDR - A different shade of gray.
						LMP - Yes, I know. I put my visor up, too.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 195 Cont.						CDR - But it's a very light grain, very fine grain, sure looks like a basalt with some very - less than millimeter-size vesicles in it, maybe 5 percent or so. It's a subangular rock. It's friable - I can - maybe it's not a basalt. It's friable - I can scrape it off with my glove and I put some streaks in it, in case anybody wonders what that is when we get back. But, it's definitely different from anything we've seen before. 195 - let me get another one here. - - - With the visor on, Joe, I was about ready to call it a dunite, but I opened up my visor, and I was wrong. I didn't get to call it what I wanted to. Here's another one of the same stuff, Jim. LMP - Okay, why don't - why don't you get a sample - let me take a picture, and you get a sample of the soil, okay. Why don't you just scoop in between them. CDR - Yes. I think this is a big frag here, but, it broke - - when it hit. All these pieces are roughly the same. LMP - Yes. Not much soil here, really. CDR - No, it really isn't. CC - Dave and Jim, is it your impression that you are sampling on the ejecta blanket of Spur crater, now? CDR - Yes, sir; probably from the deepest part, because we're right on the rim. LMP - Okay, 195.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & CONTENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 196 15415*	269.4	Anorthosite	Station 7 Spur crater North rim Very near sample 195 "Genesis"	XSB 86-11670 XSB 86-11671 XSA 86-11672 DSB 90-12227 DS - Loc 90-12228	06:01:41 to 06:01:44	CDR - Okay. Now let's go down and get that unusual one. - get that unusual - one. There's a dense - and there's another unusual one; look at the little crater here, and the one that's facing us. There is a little white corner to the thing. - - - - - Okay, there's a big boulder over there down-Sun of us, that I'm sure you can see - there is a boulder down in front of us I'm sure you can see, Joe, which is gray. And it has some very outstanding gray clasts and white clasts, and oh, boy - it's a beaut! We're going to get ahold of that one in a minute. LMP - Okay, I have my pictures, Dave. CDR - Okay, let's see. What do you think the best way to sample it would be? LMP - I think probably - could we break off a piece of the clod underneath it? Or - or I guess you could probably lift that top fragment right off. CDR - Yes. Let's - let me try. Yes. Sure can. And it's a - a white clast, and it's about - oh, boy! - - - LMP - Look at the - glint. Almost see twinning in there. CDR - Guess what we just found. Guess what we just found. LMP - I think we found what we came for.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 196 15415 Cont.						CDR - Crystalline rock, huh? Yes, sir. You better believe it. - - - Look at the plag in there. CDR - Almost all plag. ... As a matter of fact - Oh, boy, Ithink we might - ourselves something close to anorthosite, because its crystalline, and there's just a bunch - it's just almost all plag. What a beaut. LMP - That is really a beauty. And, I - there is - there's another one down there. CDR - Yes. We'll get some of these. - - - Ah, ah. Beautiful. Hey, let me get some of that clod there. No, let's don't mix them - let's make this a special one. I'll zip it up. - - - Make this bag 196, a special bag. Our first one.
Bag 170			Station 7 Spur crater	XSB 86-11670 XSB 86-11671 XSB 86-11672 XSB 86-11673 XSA 86-11674 DSB 90-12227 DS - Loc 90-12228	06:01:44 to 06:01:46	CDR - ... Oh, boy. Okay, let's get some of the other - maybe - let me take a picture first in here. I got it. No sweat. Now, we got to think of how to get that other piece there. Maybe if you could put your scoop in it, and break off a chip - do you think? LMP - I think I can just - I think it's just a clod. Don't you? CDR - I don't know. Try it. Put your scoop there in the middle and break off a chip. LMP - Yes. CDR - It's not a clod, is it?

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 170 Cont.		Clod	Station 7			CDR - Yes. It is a clod. LMP - Want to take this piece here? CDR - Yes. Let me get you a bag. Wait. Let me take a picture first, so you know which one we got. Okay. Go ahead. Number 170. - - - CDR - Boy, that's a beautiful rock - - CC - - - Are you working on the outside of the crater or are you - - over the lip right now? CDR - Oh, just a tad over the lip on a little bench, but it's - LMP - Dave, could you hold that one? CDR - Yes. LMP - I don't know whether it'll fit in the bag or not. Got it? CDR - No. It dropped. See if you can pick it up again. I think it'll fit in the bag, Joe - Jim. LMP - A little frangible. CDR - Yes. It really is. I think I can get it with the tongs. Here. - - - There's a contact sort of - on there. We ought to try and get the contact if we can. Okay, babe. Open the bag. LMP - Okay, I got. CDR - That a boy. Good show. Post-pick-up picture. Okay; roll that beauty up. Let's go get some more of that.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 198			Station 7 (1 rock)	XSB 86-11675 XSB 86-11676	06:01:48 to	CDR - Okay, I have - oh - look at this, Jim.
15455,0*	885.4	mixed rock	black and white rock	XSA 86-11677 DS - Loc 90-12229	06:01:50	LMP - Ha, what a contact!
15455,1	14.1					CDR - Look, what a contact!
15455,2	10.3					LMP - Yes, man!
15455,3	4.5					CDR - I've got - man, oh man. I got about a 4 incher, Joe. It's subrounded, and on one half of it, we have a very dark, black, fine-grained basalt with some - it looks like some very thin laths in it of plag - nothing else. And, in one region, there is some millimeter-type vesicles along a linear pattern very close to the contact. And, the other side of the contact, we have a pure, solid-white, fire-grained frag, which looks not unlike the white clasts in the 14 rock. But it's a beautiful contact in here. And, we'll call this one bag number - -
15455,4	5.8					
15455,5	2.7					
15455,6	1.7					
15455,7	1.8					
15455,8	1.7					
15455,9	1.4					
15455,10	2.5					
15455,11-27	6.6					LMP - 198. - - -
						CDR - ... Okay. You want to put that bag in my pocket?
						LMP - Yes, I will as soon as I zip it.
Bag 199			Station 7 Spur crater	XSB 86-11678 XSB 86-11679	06:01:49 to	CDR - Okay. We'll ease over to that big rock. Looking on the way for anything else unusual.
15465*	374.8	glass coated rock		XS (during) 86-11680	06:01:52	It's another clod that evidently hit. Let's sample it just to get the - distribution around the circumference of the rim here.
15466*	119.2	glass coated breccia		XSA 86-11681 DS - Loc 90-12230		- - -
15467	1.1	glass				LMP - I was going to - I was wondering why you wanted to use the scoop.
15468	1.3	glass				
15469	1.2	glass				

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 199 Cont.						CDR - Don't think we can get a scoop on this one. I think it's going to - Oh, look at this one. - - - Don't move out of that - your shadow. No. I got a big - is that glass, or is that basalt? Look at that frag there. Let me take a picture from where - it came from under that rock. LMP - Think so? CDR - Yes. It looks like a big piece of glass. It's got some bubbles in it. Oh, look at that. Isn't that pretty? LMP - That's a glass-coated breccia. - - - CDR - It's shiny. 199. - - - Let me get some more of this, Jim. - - - There's another piece of the frag that it went with.
Bag 171			Station 7 Spur crater	86-11682 through	06:01:55 to	CDR - I'll get the gnomon. And while you're putting the rake on I'll photograph this thing, (large block) anyway.
15445*	287.2	basalt	Large block of breccia inside the NW rim of Spur crater	86-11689 XSB 86-11690 XSB 86-11691 XSA 86-11692 XSA 86-11693 XSA 86-11694	06:01:59	LMP - Okay. CDR - I think it looks very much like the 14 rocks. - - - Though, it looks maybe a little darker gray. - - - There's a convenient piece broken off, right here. - - -

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 171 Cont.						CDR - All right, Joe. And, mark bag 171 for a frag off of that big boulder. I'm pretty sure it was exposed right on the surface, fairly clean - right next to the boulder and looked like the same material.
Bag 172		Rake sample fragments from Comprehensive sample	Station 7 Spur crater	DSB 90-12231 DS - Loc 90-12232 XSA 90-12233 XSA 90-12234	06:01:59 to 06:02:04	LMP - And, Joe, this looks like a pretty good place to rake. I've raked one swath here about 2 feet long and I've collected - oh, about 15 rocks. - - - CDR - Oh, yes. You did get a bunch. 172. - - - LMP - Okay. Got a little more swath. CDR - Yes. It's about 1 meter long and one rake-width wide. - - - CDR - Glass on some. Most of them are rounded; right size. Okay, do another one. - - - ... Oh, good! That's three swaths 1 meter long apiece. Damn bag isn't full yet. Let's shoot for a full bag. What do you say? Take it just a second to go one more sweep there. - - - Good, good, good. Shake anymore in the - Yes. That's too bad; we didn't get many out of that one. Why don't you take one over - Let me move the gnomon about 3 inches here, and take one on this side, Jim. Okay? Move the gnomon back about a foot. Why don't you take a swath here and I'll - -

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 172 Cont.						LMP - Yes, you know, because we're moving farther - a little farther from the rim - - - - - You get less and less each swath. - - -
						CDR - We got a whole bagful of those in the comp. And that's in 172.
Bag 173		Soil from comprehensive sample	Station 7 Spur crater	DSB 90-12231 DS - Loc 90-12232 XSA 90-12233 XSA 90-12234	06:02:04 to 06:02:07	CC - ... I guess all we need is a soil sample from this area and perhaps even larger rocks, if there's some grapefruit to football-size rocks there.
		1 fragment				
15300	390.7	Reserve fines				CDR - Yes. Yes, we'll just finish off Jim's collection bag here. I want to stow it anyway. Oh, look at that glass spherel - spherule down there. See that big one. I got to - Listen --
15301	810.2	<1 mm				
15302	23.2	1-2 mm				
15303	12.7	2-4 mm				
15304	7.3	4-10 mm				
15305	2.7	green soil concentrate				LMP - Oh, yes. I see it.
15306*	134.2	breccia				
15307	1.3	glass sphere				CDR - Why don't you back off and document the area. Let me get my tongs and pick that up. - - - - - Perfectly round, about - - - - -
15308	1.7	breccia				LMP - Keep an eye on the spherule.
						CDR - My toes are right on it. I got the tongs. My little paw. So I'll get you a bag; let you take a picture of that. I'll get a bag; then you can get the soil.
						LMP - Where you going to put that little spherule?
						CDR - In the bag.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 173 Cont.						LMP - Not with the soil, though, are you? CDR - Yes. - - - Came out of the soil. I just didn't want to miss it. We'll remember that. That goes in bag number 173, and, well, our friends in the back room are writing that down right now. - - - Little fat ball. Yes. Let's fill the bag. LMP - Is that a full bag there? CDP - Yes, sir. That's a full bag. That's a full bag. - - - Yes. Here, let me put this in your backpack. Stand there; that's good. I'll get it.
FSR "L"				XSB 90-12235 XSB 90-12236	06:02:07 to 06:02:09	CDR - Why don't you come over here and get your scoop and scoop me up one big rock? - - - CDR - Now - and get your camera on it, because I don't have it - any film. How about this one right here that looks like it has some layering in it? Maybe. LMP - Yes, that's the one I was talking about. - - - CDR - Too big. Get another one. - - - CDR - Get that one on the - on your side. - - - LMP - Yes. Man! I got it. CDR - Good. Okay; fill that square. Okay, Jim. Let's get on the Rover and head back.
15459*	4828.3	breccia				

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
			Station 4 Dune crater	Pan 90-12237 through 90-12248	06:02:28 to 06:02:29	CDR - This is a good spot right here. LMP - Oh, look at those large blocks on that west wall. CDR - Yes, man! Look at the large one right here. Gee, let me get this off. - - - LMP - Okay; we've stopped, Joe.
Bag 203			Station 4 Dune crater	XSB 87-11759 XSB 87-11760 DSB 87-11761 LOC 87-11763 XSA 87-11762 XSA 87-11764	06:02:30 to 06:02:36	LMP - For a 10-minute stop, Dave, I don't think the rake is - - very good. - - - There are a lot of large fragments here, Joe. - - - CDR - I think we can get a pretty good distribution. - - - These two right here, Jim. LMP - Okay, you've got to take the pictures. CDR - Yes, I'll take all the pictures, if you'll get the - Got a bag out? LMP - Yes. CDR - Yes, we need another one. LMP - I got her. CDR - Get a bag and you get some soil here. Watch that big one. I want to get that one, too. Okay; good. Why don't you zip the bag. - - -
15470	82.2	Reserve fines				
15471	153.0	<1 mm				
15472	6.2	1-2 mm				
15473	4.5	2-4 mm				
15474	4.7	4-10 mm				
15475*	298.2	basalt				
15476*	266.3	basalt				
15477*	85.2	basalt				
15478	23.4	rock				

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 203 Cont.						LMP - In your bag. CDR - I didn't notice. Oh, yes. Must be - what number was that, you remember? LMP - No, I don't. - - - CDR - Read the number on my bag. - - - There's 204 in there now. It must have been 203.
Bag 174			Station 4 Dune crater	XSB 87-11759 XSB 87-11760 XSB 87-11762 DSB 87-11761 DSB - Loc 87-11763 XSA 87-11764	06:02:30 to 06:02:36	CDR - Get a bag and you get some soil here (203). Watch that big one. I want to get that one, too. Okay; good. Why don't you zip the bag. And let me get that other big rock, that - - - - Okay, hold this bag, and it's number 174.
15495*	908.9	basalt				
FSR "F"		vesicular basalt	Station 4 Piece broken from the corner of a basalt boulder	DSB 87-11767 DSB - Loc 87-11768 XSA 87-11779	06:02:37 to 06:02:40	LMP - The large gray one to your right with large vesicles in it. CDR - Yes, that big boulder. Yes, man. - - - Huge vesicles. Oh, look at the plagioclase in there. Man, look at the laths, Jim; it's beautiful. Whooo! Vesicles in this must be about 2 to 3 inches - - in size. And it's a big boulder. CDR - Yes, sir. LMP - Boy, that's a real beauty. CDR - Really is, isn't it? LMP - Want to try and knock a piece off, here?
15499*	2024.0					

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
FSR "F" Cont.						CDR - Yes. LMP - Should come off pretty easy. CDR - Sure looks like it. Get all these. CDR - Okay, if you'll hold my tongs, here. Okay. Should be able to get it right here in the middle. - - - That one right there. - - - LMP - Now put that large one in my pack. (This may refer to FSR "F Prime") CDR - Put that in my pack; will you, Jim? Okay; this is a large corner of a vesicular rock that's the big boulder sitting here. LMP - Just about all we're going to be able to put in your bag. - - - CDR - ... the big chip off the top that's got the vesicles in it is in my pack, solo.
Bag 204				XSB 87-11765 XSB 87-11766 DS 87-11767 DS - Loc 87-11768 XSA 87-11769 XSA 87-11770	06:02:40 to 06:02:41	CDR - Okay. Hey, maybe - let me get those two frags there from the center. Give me - - those tongs. - - - CDR - 204 for the two frags in the center of the boulder. - - - And that's not much for Dune, but I think it's representative. - - - I hope it's representative because it -. Okay. Put that in my bag, Jim?
15485*	102.2	Rock				
15486*	46.8	Rock				
15487	2.7	Rock	2 frags on ground on east side of boulder missing in after photos			

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
FSR "F-Prime" 15498*	2339.8		Station 4 Dune crater Apparently collected without comment	XSB 87-11765 XSA 87-11769	206:02:39	
			Station 4 Dune crater	Additional photos of big boulder 87-11171 through 87-11178	06:02:37 to 06:02:41	
			Station 4 to LM Travel Description of rocks at Station 4		06:02:49 to 06:02:50	CDR - ... Okay, by the way, Joe, I guess we ought to tell you about what we saw at that last stop. We gathered a few quick samples that were covered with dust, which we didn't look at very carefully, just so we could get ahold of them. Then the very large boulder, which was probably about 6 feet, sticking up out of the ground, with a very large 3- to 4-inch vesicles, was a very fine-grained, dark, black, basalt, with maybe - Gee, I'd say 15-percent plag in it, wouldn't you, Jim? LMP - Yes, very fine lath. CDR - Yes, a very fine lath and on the top, it had some smaller millimeter-size vesicles, and adjacent to it was another - lighter gray vesicular basalt, which was uniform in vesicularity, in which we didn't have time to sample, but - the vesicles in that looked similar to that one rock that we got yesterday, Jim.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
			Station 4 to LM Cont.			CDR - The rounded one? Remember that was in the bag alone. Anyway, these vesicles were, gee I'd say 4 millimeters to - some of them were a centimeter all the way through it. And they seemed to - the two rocks seemed to be in contact with each other. Unfortunately, we didn't have time to sample the second one, but we did get a fairly good sample of the - corner of the first one (FSR "F") and the central part near one of the vesicles (Bag 204?).
			Station 8 ALSEP site and Deep drill core	Pans (2) 87-11843 through 87-11858 92-12420 through 92-12438	06:03:21 to 06:04:32	
FSR "H" 15059*	1149.2	Glass-coated breccia	ALSEP site: HFE drilling and Station 8 sampling	XSB 92-12410 XSB 92-12411 DSB 92-12412	06:03:53 to 06:03:56	LMP - Oh, I picked up a pink rock and a black rock. And they're documented. I'm just resting up for Station 8. - - - LMP - I picked up that black glassy rock, Dave.
FSR "G" 15058*	2672.5	Basalt		XSB 92-12415 DSB 92-12413 DSB 92-12414	06:03:56	LMP - And I picked up another pink one that looked like it had a lot of the plagioclase laths in it.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
SESC 15013		Trench	ALSEP site: Station 8 sampling	XSB 92-12417 XSB 92-12418 DSB 92-12419 XSA 92-12439 XSA 92-12440 DSA 92-12441 DSA 92-12442 DSLoc 92-12443 Additional photos from EVA 3: DSA 88-11872 DSA 88-11873 XSA to 88-11874 south 88-11875 XSA to 88-11876 north 88-11877	06:04:01 to 06:04:14	LMP - Joe, do you only want it 12 inches deep? CC - What ever you think's reasonable, Jim. LMP - I'm down that far already. - - - The wall that I'm - too bad the TV's there, Joe. You can't see the wall. Too bad; the wall is very smooth . - - - The wall is fine, yet very cohesive. - - - CC - Any sign of layering? LMP - No signs of layering. I do find some small fragments - white fragments, black fragments. I just exposed a very small fragment about 3 millimeters of a black clast. But the wall that I've got here is only - No signs of layering at all. - - - LMP - When I get down under the 12-inch layer, the surface is much harder to dig through. - - - Looks like more of that black glass fragments. Much more cohesive down about - Well, we ought to get a good sample at the bottom of this. - - - Boy, it's easy to make a flat bottom because it's - so hard. I can see why Dave had a hard time digging through it - going through it now. - - - Say, I think I've hit bedrock. I think I've hit the bedrock! - - - I really do think I'm almost down to bedrock. It really is hard. - - -

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN.	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
SESC Cont.						CDR - It looks like it has a little color change down there, too. LMP - Yea, maybe a slight. Seems to get a little darker, a lighter and a little darker. CDR - I have the photos. LMP - Walls are just about vertical on the trench, Joe. . CDR - Okay, we need an SESC. - - - CC - And while you're looking down in there, how deep do you think it is now? - - - CDR - Oh, I'd say it's 14 - 16 inches deep, Joe. - - - White clast in there. A little bit more; keep coming. Good job. LMP - Think we got enough. CDR - Yes, sir. We got 75 percent full. - - - CC - Dave, is the SESC stowed now? CDR - Oh, it's in a seat pan right now; we'll get to it later, Joe.
Bag 252			ALSEP site:	XSB 92-12417	06:04:15	LMP - Okay, Joe. The soil samples from the
15030	75.3	Reserve fines	Station 8	XSB 92-12418		bottom of the trench is in 252.
			Bottom of	DSB 92-12419		
15031	207.8	<1 mm	trench	XSA 92-12439		
15032	7.0	1-2 mm		XSA 92-12440		
15033	6.6	2-4 mm		DSA 92-12441		
15034	7.0	4-10 mm		DSA 92-12442		
				DS - Loc 92-12443		
				Additional photos from EVA 3:		
				DSA 88-11872		
				DSA 88-11873		
				XSA to south 88-11874		
				88-11875		
				XSA to north 88-11876		
				88-11877		

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 2						
Bag 253			ALSEP site:	XSB 92-12417	06:04:16	
15040	113.4	Reserve fines	Station 8	XSB 92-12418	to	LMP - Joe, I'm going to skip sampling the - side, I'm just going to sample the top over here.
			Top of	DSB 92-12419	06:04:17	
15041	269.6	<1 mm	trench	XSA 92-12439		
15042	5.1	1-2 mm		XSA 92-12440		CC - Okay, Jim. Sounds good, if you don't see layering.
15043	2.8	2-4 mm		DSA 92-12441		
15044	1.5	4-10 mm		DSA 92-12442		- - -
				DS - Loc 92-12443		LMP - Okay, Joe; on the top of the trench, 253.
				Additional photos from EVA 3:		
				DSA 88-11872		
				DSA 88-11873		
				XSA to 88-11874 south		
				88-11875		
				XSA to 88-11876 north		
				88-11877		
			ALSEP site: Deep drill Core		06:03:58	CC - Roger, get Jim started on the ditching experiment, if you would please, and then I've got another good one to lay on you here. Don't quite know how to explain it. We'd like for you to try to get the deep core for us with the drill.
					06:04:29	- - -
						CC - Dave, are you working on the last stem there?
						CDR - Yes.
						CC - You are one fast worker. Okay, Dave, and take a breather, and I've got one last instruction for you here. Using the drill, we want you to break it loose and then let the drill and stem sit there in the surface, and we'll pull it out later.
						CDR - Okay. Let me finish it off.
						CC - And just leave the drill on the stem handle away from the Sun as long as the loops pull free.

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EVA 2						
			ALSEP site: Deep core Cont.		06:04:31	CDR - Get pictures of the drill will you, Jim? Take notes. Hey, just south of the drill, I really need a - I already did a pan here. Get your trench and get a couple of pictures of the drill to show its position. LMP - Okay.
			Post EVA-2 Sample Weight Report		06:06:38	LMP - Houston, this is Hadley. I have a weight report for you. CC - Go ahead. LMP - Roger. SRC was 40, bag 3 was 30, bag 6 33 for a total of 103.

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EVA 3						
		Deep core	ALSEP site	XS 88-11867	06:20:22	CDR - Okay, Joe. On the drill top end goes Alpha.
			Retrieving	XS 88-11868	to	- - -
			deep core	XS 88-11869	06:20:36	On the bit goes Beta.
15001		bottom/core		XS 88-11870		- - -
15002		3 sections		XS 88-11871		Golly, there's some stuff in there.
15003		together				Coming. Okay, Joe. On the top section
15004	210.6			Partial pan		goes Charlie.
15005	239.1			at drill		- - -
15006	227.9			site:		Okay. Delta is the cap on top of the next
				88-11878		section.
				88-11879		- - -
				88-11880		CDR - Okay. Thank you. Okay. Cap number Echo.
				88-11881		... the next section. Okay. Now, old buddy, if you think you can have some luck taking that off - I'll tell you what, got to break it again.
						- - -
						Foxtrot on the next section.
			ALSEP site Cont.			CC - Dave and Jim, put that section on the ground, if you would, please. We'll pick it up on the way back. And we want you to continue on with the Grand Prix.
						CDR - All right. Good enough. Do that.

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EVA 3						
			ALSEP /LM Deep core activities post EVA 3 traverse		06:22:44 to 06:22:53	- - - CDR - Boy, I tell you - my hands - done. Well, Joe, I just decided it was time to take that drill apart, and I took it apart. - - - So, now we have a three-stem section and three one-stem sections. - - - Here's the cap - and - I know it is here. Hotel is the upper part of the three-stemmed section.
			LM to Station 9 Traverse Approach to Scarp crater		06:21:00 to 06:21:02	LMP - Okay; we're Heading, 087. Right now, we're Heading 2 - oh, about 250. Range, 1.5. Boy, look at the fresh blocks ahead of us. - - - CC - You must be very near Scarp crater. LMP - I was going to say, that's probably Scarp crater. CDR - Good fresh one. - - - LMP - It sure kicked up a lot of rocks. What are you going to do, go on the north side of it?

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
			LM to Station 9 Cont.			CDR - I want to take a look and see if that's it. Yes. Boy, it's really fresh with a lot of debris. Nice ejecta blanket. Nice ejecta blanket. Good typical one. That's Scarp. And we're 088 for 1.6. I'd say this is probably Scarp crater, wouldn't you? - - -
			Arrive at Station 9 Scarp crater	Pan at Station 9 82-11066 through 82-11092		LMP - I would because we can definitely see the far side of the rille now. - - - Probably see - oh, 10 to 15 percent of the far side.
Bag 273		Clod, caked	Station 9 Scarp crater	XSB 82-11093 XSB 82-11094	06:21:05 to	CDR - I'll get a pan from the rim of Scarp. And the rim is very, very soft. My boot
15510+			Rim of Scarp crater in	XSB 82-11098 XSB 82-11099 XSA 82-11100	06:21:10	sinks in a good - if I push on it, a good 4 inches. And the whole center part of the crater is just full of debris. Very angular, glass in the center. It's about - oh, - I guess, 40 meters across and maybe 5 or 6 meters - No, - not that much - 3 or 4 meters deep. And a slightly raised rim. And ejecta blanket that goes out about one crater diameter, quite uniform I don't see any rays. There are slickensides on some of the fragments. And we'll get the sample in a second here. - - - There's a little bench in the bottom of Scarp crater, halfway up - about a tenth the diameter of the crater. And it's only in - and it seems to be all the way around, somewhat irregularly. - - -

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EVA 3						
Bag 273 Cont.						CDR - Okay, I'm going to get a couple of samples from the rim here - on the surface. Oops, the first one I tried to pick up, just fell apart. Get a couple pieces of it. Won't be able to look at it for you, but I'll bring it home. It's a clod - it's just a caked clod. And it's in 273.
						- - -
				82-11101 through 82-11104 Boulder with slickensides		CDR - ... Look at that, there's slickenside on that one. Okay. Get some on the rim.
						LMP - Boy, this is - well, you've probably commented - sure is a unique crater. *** unique - that we've seen so far.
						CDR - Yes, you're right.
						LMP - Very soft on the rim. - - - Boy, you sink in about 6 inches.
						CDR - Look just like big pieces of mud, don't they? Okay, let's take a couple of steps out the rim here. I got one on the rim.
Bag 255			Station 9 Scarp crater	XSB 82-11105 XSB 82-11106 XSA 82-11109 DSB 82-11107 Loc 82-11108	06:21:10 to 06:21:13	CDR - Yes. Let's go down here - you know - a ways out in the ejecta, and see if we can get a couple more. Here's a nice big one. It's too big for the bag. There's so much sparklies in it, Jim. Think we can get that in the bag? I'll try.
15500	24.8	Reserve fines				
15501	103.0	<1 mm				
15502	4.4	1-2 mm				
15503	3.8	2-4 mm				
15504	4.1	4-10 mm				
15505*	1147.4	rock				LMP - You know, this has the appearance of those small ones that we sampled, with the exception, there's no concentration of glass in the very center, except every fragment has glass on it.
15506	22.9	rock				
15507	3.9	rock				
15508	1.4	rock				

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
Bag 255 Cont.						CDR - That's right. Well, not every fragment, many of these clods don't have any at all. Most of them don't have any glass. Get that one there. Get me a - oh, you got a bag, okay. Just a second here. - - - . . . Bag number 255 is covered with dirt, but it looks just like a big piece of glass. LMP - You want me to put some fines in with this, Dave? CC - Roger. Jim, throw in a little soil there, please. CDR - Here, let me have the bag. CDR - ... - Don't mess up where the rock was, but pick up that little glass ball next to you, too. See that little glass ball next to where you scooped up? LMP - To the left of it, you mean? CDR - Yes. LMP - That's an idea. CDR - Yes. That's all. That's it. Now we're about full. Bet you dropped it, Jim. LMP - Yes.
			Station 9 to Station 9A Traverse		06:21:17 to 06:21:21	LMP - Ready. Okay, we're moving west. - - - LMP - ... On the far side of the rille there, Dave, I sure see layering - over at 1 o'clock.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
			Station 9 to Station 9A Cont.			- - -
						LMP - Good places all along here to sample - large blocks on this side of the rille.
						- - -
						Look down there at 12:30. It looks like the block's there, almost in position.
						CDR - Sure do. That's a big outcrop.
						LMP - Yes.
			Arrive at Station 9A Edge of the Rille Terrace	Pan at 9A: 82-11110 through 82-11127		CDR - And we are on the terrace. And there is a terrace.
						- - -
						CDR - Certainly. We're off and stopped; and let me get on with this task here.
			Station 9A Hadley Rille Description of Hadley Rille		06:21:23 to 06:21:26	CDR - I can see from up at the top of the rille down, there's debris all the way. And, it looks like some outcrops directly at about 11 o'clock to the sun line. It looks like a layer. About 5 percent of the rille wall, with a vertical face on it. And, within the vertical face, I can see other small lineations - horizontal about maybe 10 percent of that unit. And that unit outcrops along the rille. It's about 10 percent from the top, and it's somewhat irregular; but it looks to be a continuous layer. It may be portions of flows, but they're generally at about the 10-percent level. I can see another one at about 12 o'clock to the sun line, which is somewhat thinner, maybe 5 percent of the total depth of the rille. However, it has a more well-defined interior - internal layering of about 10 percent of its thickness. I can see maybe 10 very well-defined layers within that unit.
						- - -

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
			Station 9A Cont.			CDR - As I go down the rille, below this - okay - below this upper layered - 10 percent - there seems to be mostly debris in the order of large angular fragments, maybe the largest being like 5 percent of the total depth of the rille. And then they gradually break on down to very small fragments and a talus slope. I see no significant collection of talus at any level. It seems to be fairly uniformly distributed in patches all the way down, to as far as I can see, to the bottom of the rille. In looking on to my - 12:30 to 1 o'clock - on up the rille - And, I guess we'll get a little closer, when we get down to sampling it down there. Why, it looks very much the same. Outcrops of this one unit, irregularly spaced, discontinuous, but along the general 10 percent of the top line; with the talus sliding down into the bottom of the rille. I see no differences in color. However, the vertical section of the unit, which is exposed, looks to be somewhat lighter in gray. The blocks, which have fallen down into the talus, seem to have a more tan - or different tone of gray or color to them. Sort of like the fresh vertical section was more recently exposed. Let me - let you digest that for a minute, and let me take a bunch of 500's. I'll get you the vertical and the horizontal and - boy, there's lots of things to shoot at over there. Jim, where'd you take the pan? Right over here?
				500 mm of Rille 89-12015 through 89-12096		

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
Bag 274 15528 15529*	 4.7 1531.0	 breccia basalt		XS 82-11129 DS 82-11128	06:21:27	LMP - Okay, Joe. I just sampled a fragment here with a great number of vesicles - vesicles about 2 millimeters in diameter. It's in 274.
			Description of angular basalt boulder	XS 82-11130 XS 82-11131 XS 82-11132 (also in 9A pan)	06:21:28	LMP - And down about - oh, 20 feet from where Dave's taking a picture, there's a - a block about 2 feet; it's almost rectangular. And, the top surface is covered with large vesicles. It almost looks like a contact there between a thin - that thin layer of vesicles and a more - a rock that's a little lighter in color with fewer vesicles. In fact, there's real - horizontal orientation of the vesicles in this one. I'll take a closeup on it.
			Station 9A Hadley Rille Terrace Geologic description		06:21:30 to 06:21:32	LMP - You are looking to the south along the rim, along the - this side of the rille. Dave, could you comment on that horizontal bedding that's probably - oh, at least 1 kilometer south us? And higher elevation. CDR - On the other side? LMP - No, this side. CDR - No, I didn't even look on this side, to tell you the truth, Jim. Oh, I can see a couple of outcrops on the far side, which look like they might be in place at about the 40-percent level - of the rille. Very large boulders with fractures in them, rounded.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:H I:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
			Station 9A Cont.			CDR - It's hard to tell whether they're really in place, but they may be in place covered by talus. And they're about 50 percent down. Let's see if there's any continuity to it. I can see some suggestions of continuity there. Jim, look at that. Well, it looks like the talus of fragments and fines is covering another layer. Or a suggestion of continuity of outcrops, which are rounded, at about the 40- to 50-percent level down. - - - I guess that'll do it for here. To summarize here, I think we see from the top to the bottom, one distinct layer about 10 percent, which has the multilayers layers within it. And, another at about 40 percent; which looks like a solid unit of a somewhat tanner hard rock, but it's covered with fines and talus. And, we haven't seen to the bottom; I think we'll get a chance to look further down on it.
FSR "J" 15556*	1538	Vesicular basalt (HW)	Station 9A Rille Terrace	XSB 82-11135 DSB 82-11133 DSB 82-11134	06:21:34	LMP - Joe, I'm documenting another rock - here that looks fairly - representative of what's - on the surface here.
FSR "K" 15557*	2518	Basalt (HW)	Station 9A	XSB 82-11137 DSB 82-11136	06:21:36	LMP - ... I think we ought to - ... move downslope - - to the large block. CDR - Yes. Let's go down there and sample. - - - LMP - Why don't you head down, I'll be right behind you. I've got one more here I want to gather.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
Bag 275		4 rock frags soil + chip from boulder	Station 9A Rille Terrace Includes 1 fragment	XSB 82-11139 XSB 82-11140 XSA 82-11141 DSB 82-11138	06:21:36 to 06:21:43	CDR - Right. Let's - We'll just ease down to this outcrop here in front of us. Good solid firm ground here, Joe. Good footing. As you could probably see. - - - Aha! Here's some - oh well, we got to get some of that. Gosh, big angular blocks. Vesicles. It looks like a basalt, and I see plag in it. To break a chip off from one of those. - - - Okay. Let's sample this out - see these frags right on the surface here? - - -
15530	138.0	Reserve fines	chipped from basalt boulder, with 3 others nearby (TV)			
15531	136.9	<1 mm				
15532	6.3	1-2 mm				
15533	5.4	2-4 mm				
15534	6.0	4-10 mm				
15535*	404.4	basalt				
15536*	317.2	basalt				
15537	1.4	rock				
15538	2.6	rock				LMP - Yes, they're all the same. - - - Pick one and I'll take the pictures. CDR - Okay. Right there. We'll do that one right there. - - - LMP - Get a fragment off it, you mean? CDR - Yes. Uh, huh. - - - CDR - Watch. Keep your eye on it. Did you see where that frag went? LMP - No, I didn't see that. CDR - Keep your eye on what I got here. There. LMP - Okay. CDR - Oh, oh, oh, oh, oh. Don't lose that one. LMP - I see it. CDR - Okay, I got the tongs. Get your bag out. - - - Joe, this is a tan, fine-grained crystalline rock. I've got to say that, because it's got - up to 2-millimeter laths of plag in it randomly oriented. And the matrix is a sort of light gray to tan.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
Bag 275 Cont						CDR - It's a very well- indurated rock. On the outside, I've got nice glass-filled tip, and some other pits in it. It's sure solid and - sure looks crystalline. It's a beauty. It came from this large block over here at 275. LMP -You want to put some of those other frag-ments that are - - - - - CDR - Why don't I just get some of the other frags right there. LMP - Yes. CDR - Bring your bag. - - - . CDR - - - That's true bedrock. LMP - Yes. CDR - It's just too massive not to be. Okay, that one's too much. Watch it! Here let me hold that frag. Get a scoop for the fines, and then put the other frag in the bag, too. Up - Yes. That one - right there - that a boy. Okay. Okay, now. CDR - Okay, Joe. That chip off the old boulder there was 275. Why don't you get this one. And I'll get - Oh, man - seven bags. Let me get a bag off of you there.
Bag 278		frags	Station 9A Small frag-	XSB 82-11139 XSB 82-11140	06:21:44	CDR - Little ones here. And 278.
15545*	746.6	basalt	ments picked	XSA 82-11141		
15546*	27.8	basalt	up with	DSB 82-11138		CC - Copy that. And out of sheer curiosity,
15547	20.1	basalt	tongs - same loc. as frags & soil in 275 (in LMP's bag)			how far back from what you would call the edge of the rille are the two of you standing now? CDR - All right. I don't know - well, from where the - about 50 meters from where I guess we'd say we see real outcrop.
15548	3.3	basalt				

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
Bag 281			Station 9A 4 fragments	XSB 82-11143 XSB 82-11144 DSB 82-11142 XSA 82-11145 XSA 82-11146	06:21:45 to 06:21:50	CDR - ... Let's go down and get a chunk of the bedrock here. LMP - Oh, you're getting the bedrock here, huh? CDR - Yes. LMP - Okay. I thought you were going to press on to the north. CDR - Well, he said go get the bedrock, and I think we ought to try and get it if we can. Because this sure looks like a bedrock to me. I looked at the rille and down the rille to the south, and it's just one great big massive layer of the same kind of fragmental debris on the order of meters. Quite well-rounded. LMP - Yes, but the thing that bothers me, Dave, is look to the north there. - - - there's a flat area there, it looks like it might be the top of the bedrock. And those blocks are - seem to be slightly different. CDR - Darker. - - - A little darker. LMP - - - almost have columnar jointing. Look to the north there. CDR - Yes, I see what you are talking about. Come on down here and let's get a frag off of one of these boulders and then we'll head on back to the Rover. - - - That's a good one. - - - Hey, Joe, these rounded fragments down here are on the order of meters in size; expose some very large - oh, 2 - 3 centimeter vesicles - rather than the finer stuff that Jim saw back there before.
15595*	237.6	rock				
15596*	224.8	rock				
15597*	145.7	rock				
15598*	135.7	rock				

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
Bag 281 Cont.						CDR - And I believe, when I take a chip out of this, we're going to find it's the same kind of crystalline basalt. And they're all - well, they're subangular - looks like they've been weathered. Fairly clean on the surface and all buried. And I can look down to the south, and it's just a whole mass of great big boulders along the terrace here. And there's another breakoff down into the rille. And I'm - I guess, we're just about at the lip. - - - Beautiful stuff. Okay; I got them all located - in bag - LMP - Okay; 281. CDR - Okay; this is a - looks like a darker, fine-grained, black, vesicular basalt, with vesicles on the order of millimeters. Nonuniformly distributed. There are a mass of plagioclase about 3 millimeters long, and it may be a half a millimeter wide, randomly oriented throughout. And that's about the only other mineral I see. And that - did you get the number on that, Jim? LMP - I gave it to them. CDR - There's one other frag down here that fell. About like that. Let me get a couple of rounded ones here, too, that are just on the surface. I can't tell what that is, but we'll put it in anyway, as representative of surface material - at least the fragmental surface. Okay; why don't you zip that one? Here let me zip it, and you can take the after picture, Jim. - - - LMP - Okay; I have it. CDR - Okay. Told them that was 281. - - - Boy, what a rock.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
			Station 9A Moving back uphill to the Rover Layered boulder		06:21:51	CDR - Okay, let's head back to the Rover. - - - Oooh! Oooh! You can see a boulder exposed to the surface here, which has got layering within it. It's been weathered away, apparently, and just the surface top is exposed but the boulder must be - oh, about a meter long with 2- to 3-inch layers in it. Would you get a picture of that where I stopped, Jim, just a quicky cross-Sun? See where that thing is exposed there? - - - See those little layers. - - -
		No sample	Station 9A Hadley Rille Terrace Layered Boulder	XS 82-11148 XS 82-11149 XS 82-11150		Here. As a matter of fact, I'll drop the gnomon; that'll tell them what it was - Just to get a real quick picture. Oh, you're kicking up white albedo. LMP - Yes. I know it. CDR - That's the only place I've seen it. Get a little closer, huh?
Bag 282 15610+		Rake sample fragments	Station 9A Near Rover, down hill a few feet	XSB 82-11151 XSB 82-11152 DSB 82-11153 XSA 82-11154 XSA 82-11155	06:21:54 to 06:21:59	LMP - Okay. Pick a spot. I'll rake. CDR - Why don't we take a few steps down, Jim? LMP - Okay. CDR - So we get where there's more frags down here, I think. LMP - Looks like they'll be large - too large down there. CDR - No. Right here. *** a good spot. - - - LMP - Okay. I need a bag.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
Bag 282 Cont.						CDR - Yes, sir. Okay. 282. Ooop, oh. Gee, I just walked right into your area. Sorry. Oh, you getting some. Looks like some laths, vesicular basalt, non-vesicular basalt. Do it again. LMP - Okay, I'll try to avoid that larger one there. CDR - Yes. And I think I kicked up some more light-colored albedo. I think, if we have some time when you get through, we ought to make a quick trench, here, maybe. It looks like maybe the upper couple of inches might be - the dark gray and below it the very light gray albedo. Okay; there's two swaths about a meter long and one rake-width wide. - - - He's getting about - oh, 8 to 10 in each one, and it seems like there's a fair variety in there. - - - Yes. Hey, do it once - Let me move the gnomon here. We'll - They can reconstruct that. Take another swath over here so - LMP - Do the ... so I can take two swaths, if you want. - - - CDR - Yes. It looks like you're getting a good - 2 to 3 inches down, as you rake through there. LMP - Must be hung up on a large one here. CDR - Yes, that's right. - - - LMP - I'll rake another one. Take one more. We'll fill the bag. - - -

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
Bag 282 Cont.						CDR - Okay. Get one more load. LMP - There's a big rock in there, huh? Okay, there you go. Okay. CDR - Okay, maybe one more. Let's get a - whole bag full. - - - CDR - Good. Good, comprehensive sample. Now we need some soil. I think that's probably the best one they'll see. - - - CDR - And, Joe, you can remember on this particular sample that I moved the gnomon about 2 feet, so Jim could get a 1, 2, 3, 4, - I guess we got 1, 2, 3, 4, 5 swaths there. --- about a meter each ...
Bag 283 15600+		Comprehensive soil	Station 9A Same location as rake sample	XSB 82-11151 XSB 82-11152 DSB 82-11153 XSA 82-11154 XSA 82-11155	06:21:59 to 06:22:00	CDR - 283 for the soil.
Double Core U-09 L-14 15011 (Upper) 15010 (lower)			Station 9A	XSB 82-11156 XSB 82-11157 DSB 82-11158 Loc.82-11159 XS during 82-11160 82-11161 82-11162 XSA (hole) 82-11163	06:21:58 to 06:22:08	CDR - Hey, Joe, how about a quick single core here. CC - Yes, sir, or maybe even a double core. We think you can probably drive two of them. CDR - Okay. I think we probably can, too. I was just giving you a little bait there. - - - ... But you know, I don't know, a double core - we may find ourselves driving into bedrock if we're not careful. - - -

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
Double Core Cont.						CDR - There's a nice crater here - on the edge. Maybe we hit the rim of that crater. - - - Cut the rim of the crater, Jim. I bet we can do a good one right there. - - - And, I see some white-colored albedo near the - - CC - - - bad information I gave to you. I guess we'd prefer it away from the rim. - - - CDR - Yes, sir. Okay. - - - And there's light-colored albedo ... by the lower side of the - - - - - Okay, this - right here, Jim. This ought to do - - - - - LMP - Yes. Okay, I have a number - - - 09. - - - You know, the - that light-colored albedo normally occurs on the lower - lower rim or the downhill rim. CDR - Yes. Go ahead, Jim. Get the other core. You're right. - - - LMP - Pushing - - - I'll push a little more. CDR - Yes. Got a half a tube - ooh. Good, nice. You got three-quarters? LMP - Yes. It feels like it's - hung up on a rock. CDR - Okay. I got the picture. Go ahead and hammer. Rock, huh? No, it's going in. You're getting it. There's a full core. Have at it. You're getting a couple inches a stroke. Very nice. Okay. There's one and a half. Good. Doing good.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
Double Core Cont.						- - - CDR - Notice when you hit it, the whole ground around it raises up - for about an inch away from the core. You've got about three more smacks, and you ought to have it all the way in. Hey, good. I'll give you a double core on that. - - - LMP - No wonder it was hard pounding. Got a rock right in the bottom of the - CDR - Might clean it off so you get a good seal on the cap, Jim. Get a good seal? LMP - I think we got a good seal. - - - Okay, 4. And that was - Let's see, 4 [L-14] was the lower and 60 [U-09] was the upper.
FSR "L" 15555*	9614		Station 9A Probable outcrop on Rille Terrace	XSB 82-11164 (only photo)	06:22:08 to 06:22:10	CC - Dave --- our next request is two undocumented 6-inch blocks, and then we'll want you on the Rover driving north. CDR - Okay, Joe. After a picture. We're all loaded up. LMP - Two undocumented 6-inch blocks. - - - CDR - You get one and I'll get one. - - - It's a vesicular one. Hey, here's a good vesicular one.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
			LMP may be referring back to the vesicular basalt (FSR "J") that he documented at 06:21:34		06:22:08 to 06:22:10	- - - CDR - You got one that's vesicular, or not? - - - LMP - Yes, I do. But - - I don't know if we want to be too selective here if we're supposed to move on. CDR - Yes. Right. Okay. - - - Got a good one. - - - A little better than 6 inches, but it was neat looking.
			Station 9A to Station 10 Traverse approaching Station 10		06:22:15 to 06:22:17	CDR - How much farther we got to go? I got to plan where we're heading here. - - - LMP - - - Oh, another click, Dave. Maybe up by that large block at 12:00 o'clock. - - - CDR - Gee, the one with the great big vesicles in it. LMP - Oh, notice that fresh one that's just this side of it? It looks like a light color, almost a yellow - ray that extends to the west of it? - - - CDR - Ooooh, look at this. This is one of the Twins. LMP - Yes. It probably is, yes. CDR - Man, we're right at it, and it's a deep fellow. LMP - Yes. There's a flat part over there to the left.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
			Station 9A to Station 10 Cont.			CDR - Yes. Look at that great vesicular one there. - - - Let me get to this level spot over here. Okay, up on the rim of the Twin there would be a great place to take a pan.
						LMP - Either that or over on those rocks over at 11 o'clock.
			Arrive Station 10			CDR - Yes, maybe, maybe. ... to the rim of the Twin there.
						CDR - Okay. We stopped, Joe.
			Station 10 Stop for photographs only	Pan: 82-11165 through 82-11184	06:22:17 to 06:22:28	CDR - ... The crater is very uniform. It has debris on the order of - oh, a foot or so - *almost throughout. No accumulation of talus* at the bottom, and it's got fines covering everything, nothing really sharply exposed. And most of the fragments are subangular and it looks like nonvesicular, although I do see one high vesicular one right in the bottom. And it's about 60 meters across and maybe - oh, 10 meters deep, smooth sides, and a very slightly raised rim. - - - And, as craters go around here, it's deep.
						LMP - Well, there's a large block there just to the north of that, Dave. It looks like it might have a contact in it - between a dark, very vesicular basalt and that light colored-tan. - - -

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
			Station 10 Cont.			
			4 x 5' rock with 2-3" vesicles	CU stereo XS 82-11185 XS 82-11186 DS 82-11187 XS loc 82-11190		LMP - I've got an angular fragment here - sub-angular, about 4 feet by 5 feet, and the vesicles on - that are facing to the southwest are very large vesicles, about 3 inches, 2 to 3 inches in diameter. ... - - - - then there's a gradual - - transition - Oh, I'd love to bring it back. I guess I'll just take some closeups here. - - -
			Low rock with fillet near 4 x 5' rock above	XS to south 82-11188 XS to north 82-11189 XS loc 82-11190		Just to the north of this - the large one. I just mentioned, there're two other large fragments. And there's a fracture right between them, and they also have the large vesicle pattern. CC - Roger, Jim. Copy. LMP - I've already sampled this one. And the material that has the large vesicles has long laths of probably plagioclase. - - - long lath's about - centimeter. - - -
			Station 10 to LM Traverse Comments and activities pertaining to the deep core are included following earlier comments at GET 06:20:22 through 06:20:36	82-11191 through 82-11195 enroute on LRV	06:22:29 to 06:22:44	

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
			At the LM, at end of EVA 3	Pan 300 feet East of LM 88-11895 to 88-11925	06:22:56 to 06:23:09	CC - ... We need a EMU status check from both of you, and we're 5 minutes from closeout. All we need is a few grab samples. - - - CC - Okay, troops, we're asking for the undocumented samples to go into - - the BSLSS bag, please. - - -
FSR "M" 15558*	1333.3	breccia			06:22:57 06:22:58	CDR - We'll do that. Just grab a bunch, huh? Hey, Joe, how about bag - oh, well, okay - BSLSS bag. - - -
FSR "N" 15565* through 15587*	735.2	breccia fragments (? single broken rock)				LMP - - - Do you want to get that descent engine sample? - - - Dave, we have everything in this bag that you're going to put in it, right? In this bag here?
						CDR - Yes. But how about the rocks under the seat? - - -
						LMP - Yes. I've already put those in there. That's why I wanted to get the right bag. - - -
						CDR - Okay, I'm working on the bag 2, right now, Joe. Taking the caps out of it that we have not used, we've got an SESC here that hasn't been used, and then I'm putting - the rocks and samples that are under my seat in bag 2.
						LMP - Did you document this large one, Dave?
						CDR - Sort of.
						LMP - Okay, I'll try to get it in this bag, then. It'll be a heavy bag. I think I'll wait and put that in the - BSLSS bag. - - -

/1 Lunar locations of these samples have not been identified. Station 9 and the LM site are the most probable sources if these samples were collected during EVA 3.

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SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
SESC #2 15014	665.1	Contaminated sample	Collected NE of DPS engine bell, between +Y and -Z struts	XSB 88-11884 XSB 88-11885 DSB 88-11886 XSA 88-11887	06:23:04 to 06:23:06	CDR - Okay. Let's get the descent engine sample, Jim. - - - LMP - I'll get the SLSC. CDR - - - yes, and a scoop. CDR - Okay. Let me get the pictures. Okay. Need to fill that little jewel. Fill it! LMP - Don't spill it, I want to get the top part. CDR - I won't LMP - Get some more in there? CDR - Yes, scoop up the top layer there right next to the one you just scooped. You can put the top half inch or so. CDR - That looked good, Jim. Okay, I can take care of the rest. LMP - Take that back - Or you can just put it in my bag; that's where it's supposed to go.
			LM closeout		06:23:13 to 06:23:54	LMP - Hey, I guess we might be able to consolidate the contents of both those bags into one. - - - But we can do that inside. - - - CDR - I put it on the handtool carrier - Give it to you and you can consolidate. I guess those undocumented ones we want to put in the BSLSS bag.

CROSS-REFERENCE OF LUNAR SAMPLES WITH LOCATIONS, PHOTOGRAPHS, GROUND-ELAPSED TIMES, AND THE AIR-TO-GROUND TRANSCRIPT

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
						LMP - You didn't put any rocks in the BSLSS bag.
			LM closeout Cont.			CDR - No, I didn't, because they're on the floor there. I just never had a chance to get it up to put in there. - - - LMP - I've got this one large rock in the beast.
			LM, Post EVA 3 Stowage & weight report		07:00:42	LMP - Houston, this is Hadley Base with a weight report for the day. - - - Okay, Ed, the BSLSS bag was 2 5, 25; bag number 7 was 24; and bag number 2 was 23 for a total of 72.
						CC - Okay, we copy. Do you have a bag 8 number?
						CDR - We do, but we don't - we're not - we don't have any rocks in it. - - - And, Ed, we shuffled - we took the contents out of bag 8 and consolidated into bag 7.