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UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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

INTERAGENCY REPORT: ASTROGEOLOGY 47

Documentation of Apollo 15 samples

by

R. L. Sutton, M. H. Hait, K. B. Larson,
G. A. Swann, V. S. Reed, and G. G. Schaber

April 1972

Prepared under NASA ~~Contract Number~~ T-65253-G

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INTRODUCTION

This is a sample catalog designed to show the documentation of Apollo 15 samples using photographs and verbal descriptions returned from the lunar surface by astronauts David R. Scott (Commander) and James B. Irwin (Lunar Module Pilot). Much of the material in this report was drawn from, and is intended to supersede, an earlier report by Sutton and others (1971)[1]. Where discrepancies occur between the location and numbering of samples in this report and an earlier report by Swann and others (1971)[2], this report should be considered as the more accurate.

Almost all of the Apollo 15 samples have been correlated with lunar surface photographs, descriptions, and traverse locations. Where possible, the lunar orientations of rock samples have been reconstructed in the Lunar Receiving Laboratory (LRL), using a collimated light source to reproduce illumination and shadow characteristics of the same samples shown in lunar photographs. In several cases samples have not been recognized in lunar surface photographs, and their approximate locations are known only by association with numbered sample bags used during their collection. Tables, photographs, and maps included in this report are designed to aid in the understanding of the lunar setting of the Apollo 15 samples.

[1]Sutton and others, 1971, Preliminary documentation of the Apollo 15 samples: U.S. Geological Survey Interagency Report 34, 150 p.

[2]Swann and others, 1971, Preliminary description of Apollo 15 sample environments, U.S. Geological Survey Interagency Report 36, 219 p.

Five tables are included which list samples in various ways. Table 1 shows sample types, locations, and documented container numbers. It also serves as an index which shows page numbers of documentation photographs in this report. Table 2 lists all samples that weigh more than 25 grams. Table 3 shows correlations between sample numbers that have been changed or combined since their initial number designations. Table 4 correlates samples with lunar surface photographs. Table 5 is a cross-reference between samples and weights, locations, documentation photographs, time sequence of sampling on the lunar surface, and comments by the crew pertaining to specific samples.

Sample numbers are shown in their complete form (i.e. 15016) in all tables except Table 4. In Table 4, in map sketches, and in photographs, sample numbers are shortened by dropping the prefix "15."

Photographic documentation of samples is presented in the following general way. The sequence of photographs is in order of ascending LRL numbers, as far as possible. Many of the samples are shown first by a down-sun lunar surface photograph that commmonly includes the general setting of the sample, followed by a cross-sun photograph (taken from closer range) that shows more details of the sample and its local environment. These two photographs suffice for most rake samples, scooped fines, and drive tubes. For oriented rock samples the photographic documentation is extended to include an enlargement of the cross-sun photograph with an insert that shows the laboratory reconstruction of the sample's lunar

orientation. This is followed by an orthogonal layout of documentary LRL "mugshots" (NASA photograph numbers are shown in the schematic diagram) of the sample that best portray its lunar top, bottom, and sides. The lunar top is indicated by direction symbols, which also show the lunar azimuthal orientation.

Where possible, the pages are arranged so that the photographs most relevant to one another are on facing pages. Thus there are a few blank pages throughout the report.

Selected photographic panoramas taken at the traverse stations are also included in this catalog, as fold-out pages at the end. Each panorama is accompanied by a small planimetric map that shows the relative locations of samples, significant blocks and craters, and the Rover. In addition, samples are identified in the panorama photographs.

ACKNOWLEDGMENTS

We wish to thank the crew of Apollo 15 for supplying the excellent lunar photographs and sample descriptions included here. Their comments concerning samples, after the mission, were an additional help in preparing this catalog.

We gratefully acknowledge the direct sample handling and photographic support given by personnel of Brown and Root-Northrop in the Lunar Receiving Laboratory, Manned Spacecraft Center, Houston, Texas.

We acknowledge with great appreciation the major contribution of the staff of the Technical Support Unit, Center of Astrogeology, in preparing the illustrations presented here.

Table 1. Apollo 15 samples correlated with types, locations, sample bag numbers and pages in report.

Sample Number		Station	SCB/DB	Pages
15001-15006	Drill Stem	8	2/-	12
15007-15008	Cores U-03/L-10 (008) (007)	2	1/-	13,14,65
15009	Core U-07	6	5/-	15,16
15010-15011	Cores U-09/L-14 (010) (011)	9a	7/-	17,18
15012	SESC-1	6	5/-	19-22
15013	SESC (blank)	LM	7/-	23,24
15014	SESC-2	8	5/-	25,26

	Fines	Basalt	Breccia	Glass			
15015			X	X	LM	4/-	27-30,40
15016		X			3	4/-	31-34
15017				X	LM	5/162	35-37,40
15018				X	LM	5/162	35,36
15019			X	X	LM	5/162	35,36
15020-15024	X				LM	CSB	40,41
15025			X		LM	CSB	40,41
15026			X	X	LM	CSB	40,41
15027			X		LM	5/162	35-38,40
15028			X	X	LM	5/162	35-37,39,40
15030-15034	X				8	6/252	25,26
15040-15044	X				8	6/253	25,26
15058		X			ALSEP	6/-	42-46
15059			X	X	ALSEP	6/-	47-50
15065		Gabbro			1	1/156	51-54
15070-15074	X				1	1/157	55,56
15075,15076		Gabbro			1	1/157	55-59
15080-15084	X				1	1/158	60,61
15085		X			1	1/158	60-63
15086			X		1	1/158	60-62,64
15087		Gabbro			1	1/158	60-61
15088			X		1	1/158	60,61
15090-15093	X				2	1/159	65,66
15095			X	X	2	1/159	65,66
15100-15104	X				2	1/187	65,67,68
15105		X			2	1/187	65,67,68
15115		X			2	1/186	65,67,68
15116		Gabbro			2	1/186	65,67,68
15117		X			2	1/186	65,67,68
15118		X			2	1/186	65,67,68
15119		X +	X		2	1/186	65,67,68
15125		X			2	1/186	65,67,68
15135			X	X	2	1/186	65,67,68
15145-15148			X		2	1/186	65,67,68

Table 1. (continued)

Sample Number	Fines	Basalt	Breccia	Glass	Station	SCB/DB	Pages
15200-15204	X				2	1/160	65,69,70,71
15205			X	X	2	1/161	65,69-73
15206			X	X	2	1/160	65,69-71,74
15210-15214	X				2	1/180	65,69,75-78
15220-15224	X				2	1/181	65,69,75-78
15230-15234	X				2	1/182	65,69,77,78
15240-15244	X				6	3/163	69,79,80
15245			X	X	6	3/163	79,80
15250-15254	X				6	3/164	79,80
15255			X	X	6	5/190	81-84
15256		X			6	5/190	81,82,85,86
15257			X		6	5/190	81,82
15259			X		6	5/192	87,88
15260-15264	X				6	3/166	19-22
15265-15267			X		6	5/193	87-93
15268			X		6	5/192	87-93
15269			X	X	6	5/192	87-93
15270-15274	X				6	3/167	95,96
15281-15284	X (SCB residue)				6	3/-	N/A
15285			X		6	5/192	87-94
15286		X +	X +	X	6	5/192	87-89
15287			X		6	5/192	87-89
15288			X	X	6	5/192	87-89,93
15289			X		6	5/192	87-89
15290-15294	X				6	3/188	97,98
15295			X		6	3/188	97,98
15297	(Chips)		X		6	3/-	N/A
15298-15299			X		6	3/-	99-102
15300-15305	X				7	3/173	103
15306			X		7	3/173	103
15307				X	7	3/173	103
15308			X		7	3/173	103
15310-15314	X				7	3/172	103
15315-15320		X in	X		7	3/172	103
15321-15360			X		7	3/172	103
15361	Pale green rock				7	3/172	103
15362-15364	Anorthosite				7	3/172	103
15365-15377			X +	X	7	3/172	103
15378-15384		X (non-mare)			7	3/172	103
15385-15388		X (mare)			7	3/172	103
15389-15392				X	7	3/172	103
15400-15404	X				6a	6/168	104-107
15405			X		6a	6/168	104-107
15410-15414	X				7	3/194	108-110
15415	Anorthosite				7	3/196	113-116,122
15417-15419			X		7	3/194	108-112,121
15421-15424	X				7	3/195	117,118,120
15425-15427	Green and gray clods				7	3/195	117-120
15431-15434	X				7	5/170	113,114,121-12
15435	Gray clods				7	5/170	113,114,121-12

Table 1. (continued)

Sample Number	Fines	Basalt	Breccia	Glass	Station	SCB/DB	Pages
15445			X		7	6/171	124-126
15455			X		7	7/198	127,128
15459			X		7	6/-	129-132
15465			X	X	7	5/199	133-136
15466				X	7	5/199	133,134,137,138
15467			X	X	7	5/199	133,134
15468			X +	X	7	5/199	133,134
15470-15474	X				4	5/203	139,140
15475,15476		X			4	5/203	139-142
15485,15486		X			4	5/204	145-146
15495		Gabbro			4	5/174	139-141,143
15498			X	X	4	6/-	144
15499		X			4	5/-	145-147
15500-15504	X				9	7/255	148,149
15505,15506			X	X	9	7/255	148-151
15507				X	9	7/255	148,149
15508			X	X	9	7/255	148,149
15510-15514	X				9	7/273	152,153
15515		Brownish gray clods			9	7/273	152,153
15528			X		9a	2/274	154,155
15529		X			9a	2/274	154-157
15530-15534	X				9a	7/275	158-162
15535-15537		X			9a	7/275	158-166
15538		Gabbro			9a	7/275	158-162
15545-15548		X			9a	7/278	158,161,162,167
15555		X			9a	BSLSS	168-170
15556,15557		X			9a	2/-	171-178
15558			X		9→LM	2/-	N/A
15561-15564	X (Bag residue)				9→LM	2/-	N/A
15565			X (Chips)		9→LM	2/-	N/A
15595-15598		X			9a	7/281	158,159,179-183
15600-15604	X				9a	7/283	184-186
15605-15610		X			9a	7/283	184-186
15612-15683		X			9a	7/282	184-186
15684-15689			X +	X	9a	7/282	184-186
15901	X (DB residue)				1	1/156	51-54
15902	X (DB residue)				1	1/157	55-59
15903	X (DB residue)				1	1/158	60-64
15904	X (DB residue)				2	1/159	65,66
15906	X (DB residue)				2	1/160	65,69-71
15907	X (DB residue)				2	1/181	65,69,75-78
15908	X (DB residue)				2	1/161	65,69-73
15909	X (DB residue)				2	1/182	65,69,77,78
15910	X (DB residue)				2	1/186	65,67,68
15911	X (DB residue)				2	1/187	65,67,68
15912	X (DB residue)				LM	5/162	35-40
15916	X (DB residue)				6	5/190	81-86
15917	X (DB residue)				6	5/192	87-93
15918	X (DB residue)				6	5/193	87-93

Table 1. (continued)

Sample Number	Fines	Basalt	Breccia	Glass	Station	SCB/DB	Pages
15924	X (DB residue)				7	3/196	113-116,122
15925	X (DB residue)				7	5/170	113,114,121-123
15926	X (DB residue)				7	5/198	127,128
15927	X (DB residue)				7	5/199	133-138
15931	X (DB residue)				4	5/203	139-142
15932	X (DB residue)				4	5/174	139-142
15933	X (DB residue)				4	5/204	145,146
15936	X (DB residue)				9	7/273	152-153
15937	X (DB residue)				9	7/255	149-151
15938	X (DB residue)				9a	2/274	154-157
15939	X (DB residue)				9a	7/275	158-162
15940	X (DB residue)				9a	7/278	158,161,162,167
15941	X (DB residue)				9a	7/281	158,159,179-183
15942	X (DB residue)				9a	7/282	184-186
15943	X (DB residue)				9a	7/283	184-186
15951	X (SCB residue)				EVA 1	1/-	N/A
15954	X (SCB residue)				EVA 1	4/-	N/A
15955	X (SCB residue)				EVA 2	5/-	N/A
15956	X (SCB residue)				EVA 2	6/-	N/A
15957	X (SCB residue)				EVA 3	7/-	N/A

Table 2. Apollo 15 rock samples weighing more than 25 g.

Sample Number	Weight (g)	Bag	Station	Basalt/Breccia/Glassy	Status of Recovering Orientation
15015	4770.2	SCB-4	LM	X X	Tentative
15016	923.7	SCB-4	3	X	Yes
15025	77.3	Contin.	LM	X	No
15027	51.0	162	LM	X X	Yes
15028	59.4	162	LM	X X	Yes
15058	2672.5	SCB-6	ALSEP	X	Yes
15059	1149.2	SCB-6	ALSEP	X X	Yes
15065	1475.5	156	1	Gabbro	Yes
15075	809.3	157	1	Gabbro	Yes
15076	400.5	157	1	X	Yes
15085	471.3	158	1	X	Yes
15086	216.5	158	1	X	Yes
15095	25.5	159	2	X	No
15118	27.6	186	2	X	Rake No
15205	337.3	161	2	X X	Yes
15206	92.0	160	2	X X	Yes
15255	240.4	190	6	X X	Yes
15256	201.0	190	6	X	Yes
15265	314.1	193	6	X	Yes after
15266	271.4	193	6	X	Yes splitting
15285	264.2	192	6	X	Yes
15286	34.6	192	6	X	No
15287	44.9	192	6	X	No
15288	70.5	192	6	X	No
15295	947.3	188	6	X	No
15298	1731.4	SCB-3	6	X	No
15299	1691.7	SCB-3	6	X	No
15306	134.2	173	7	X	No
15315	35.6	172	7	X	Rake No
15324	32.3	172	7	X	Rake No
15325	57.8	172	7	X	Rake No
15330	57.8	172	7	X	Rake No
15379	64.3	172	7	X	Rake No
15405	513.1	168	6a	X	No
15415	269.4	196	7	Anorthosite	Yes
15418	1140.7	194	7	X	Yes
15425	136.3	195	7	Green gray clods	Broken No
15426	223.6	195	7	Green gray clods	Broken No
15427	115.9		7	Green gray clods	Broken No
15435	206.8	170	7	Gray clods	No
15445	287.2	171	7	X	Yes
15455	885.4	198	7	X	Broken
15459	5854.0	SCB-6	7	X	Tentative
15465	376.0	199	7	X	Tentative
15466	119.2	199	7	Dark glass with clasts	Tentative
15475	406.8	203	4	X	Yes

Table 2. (continued)

Sample Number	Weight (g)	Bag	Station	Basalt/Breccia/Glassy	Status of Recovering Orientation
15476	266.3	203	4	X	Yes
15485	104.9	204	4	X	Partial
15486	46.8	204	4	X	Partial
15495	908.9	174	4	X	Yes
15498	2339.8	SCB-6	4	X	Tentative
15499	2024.0	SCB-6	4	X	Yes
15505	1147.4	255	9	X	Yes
15515	144.7	273	9	Brownish gray clods	Broken No
15529	1531.0	274	9a	X	Yes
15535	404.4	275	9a	X	Yes
15536	317.2	275	9a	X	Yes
15545	746.6	278	9a	X	No
15546	27.8	278	9a	X	No
15555	9613.7	BSLSS	9a	X	Yes
15556	1542.3	SCB-2	9a	X	Yes
15557	2518.0	SCB-2	9a	X	Yes
15558	1333.3	SCB-2	9 LM	X	No
15565	822.6	SCB-2	9 LM	X	No
15595	237.6	281	9a	X	Yes
15596	224.8	281	9a	X	Yes
15597	145.7	281	9a	X	No
15598	135.7	281	9a	X	
15622	29.5	282	9a	X	Rake No
15636	336.7	282	9a	X	Rake No
15647	48.1	282	9a	X	Rake No
15674	35.7	282	9a	X	Rake No
15675	34.5	282	9a	X	Rake No
15676	25.3	282	9a	X	Rake No
15682	50.6	282	9a	X	Rake No

⌈⌊ Samples collected from the same boulder.

Table 3. Summary of renumbered samples.

Present Number	Initial Number*
15288,1	15258
15475,1	15477
15475,2	15478
15485,1	15487
15515,1-48	15515 + 15516
15421-15424, 15427	15923
15465,1	15469
	15565-15569
15565,1-38	15575-15579
	15585-15587

*As listed in USGS Interagency Report 34.

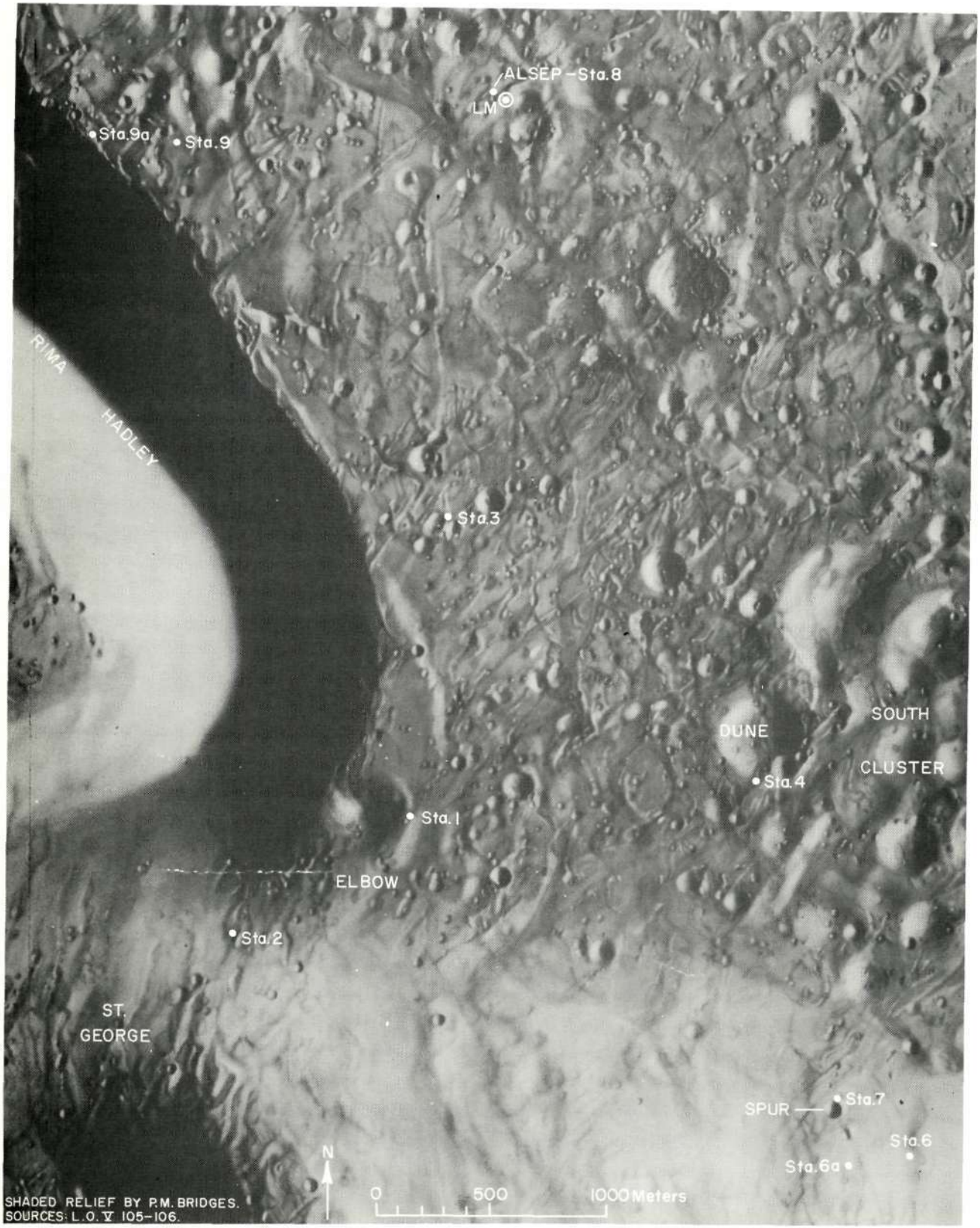

Figure 1. Map of sampling stations in the Apollo 15 landing site.

Figure 2. Samples 001-006 collected at station 8 with deep drill. Pre-sampling, up-sun photograph AS15-92-12428, looking east.

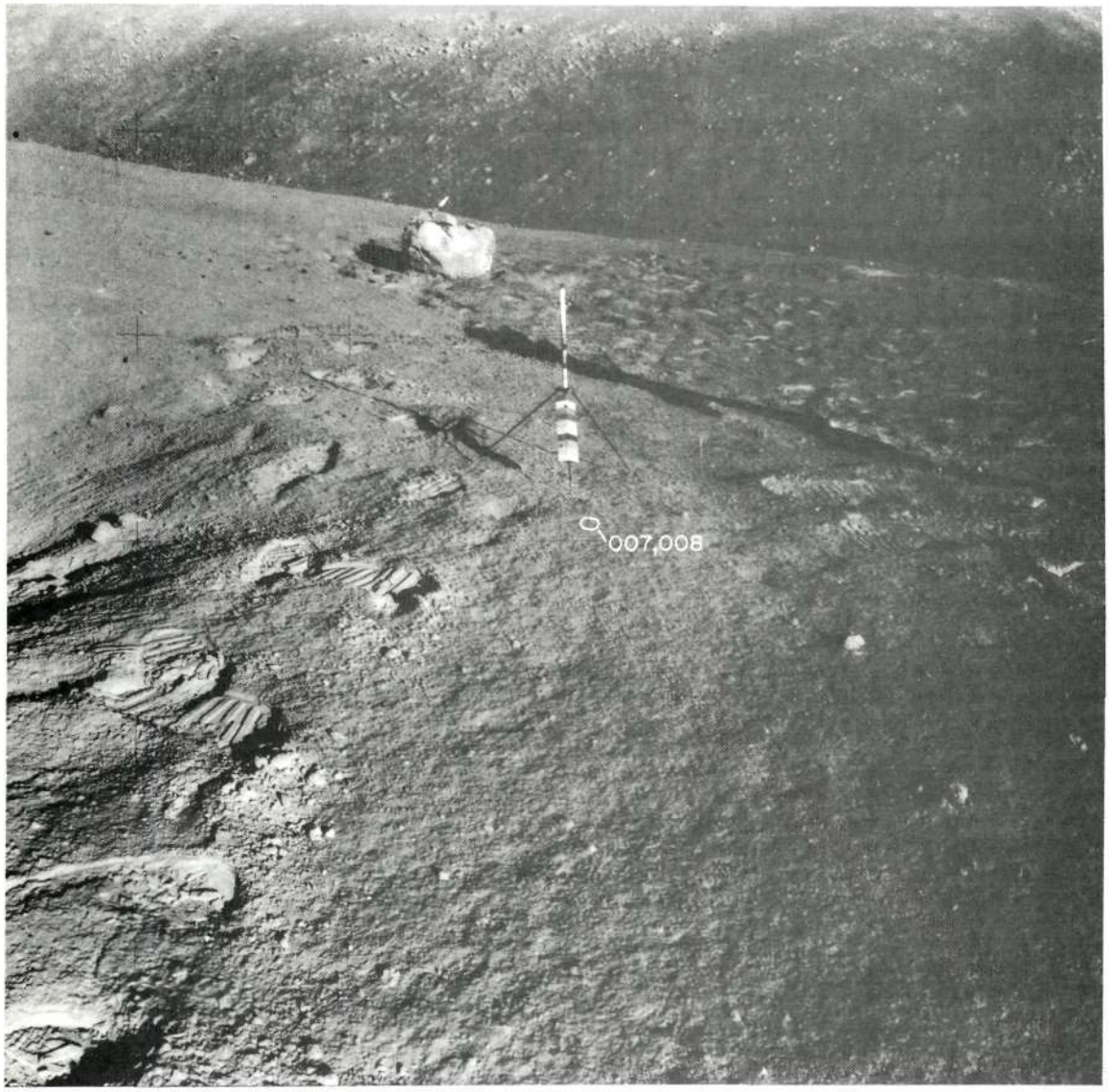

Figure 3. Samples 007 and 008 collected at station 2 in the double core tube. Pre-sampling, cross-sun photograph AS15-85-11443, looking northwest.

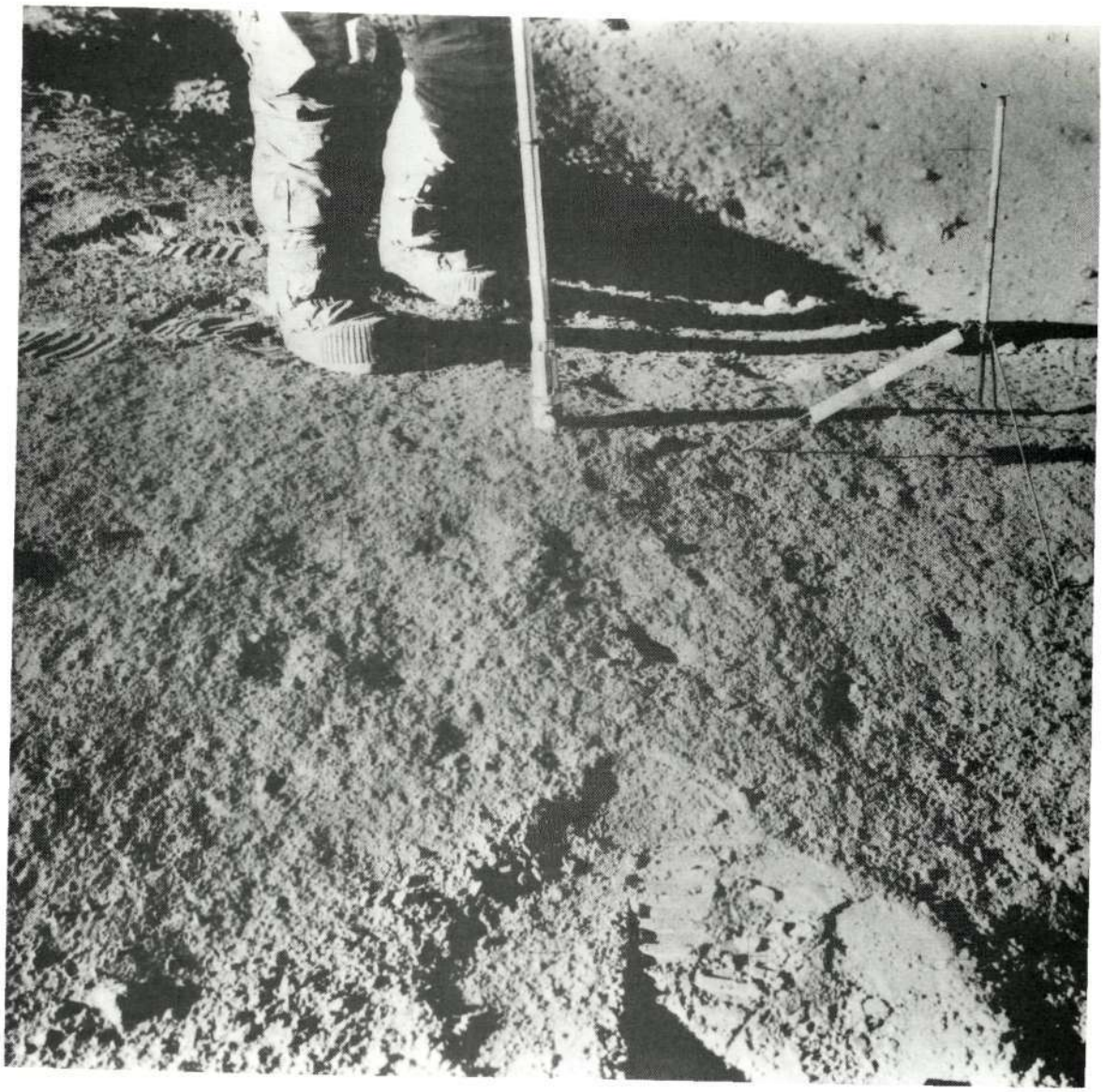

Figure 4. Samples 007 and 008 (008 over 007) collected in a double core at station 2. Post-driving of core, cross-sun photograph AS15-86-11578, looking south.

Figure 5. Area of sample 009 collected at station 6 in a single core. Pre-sampling, down-sun photograph AS15-85-11527, looking west.

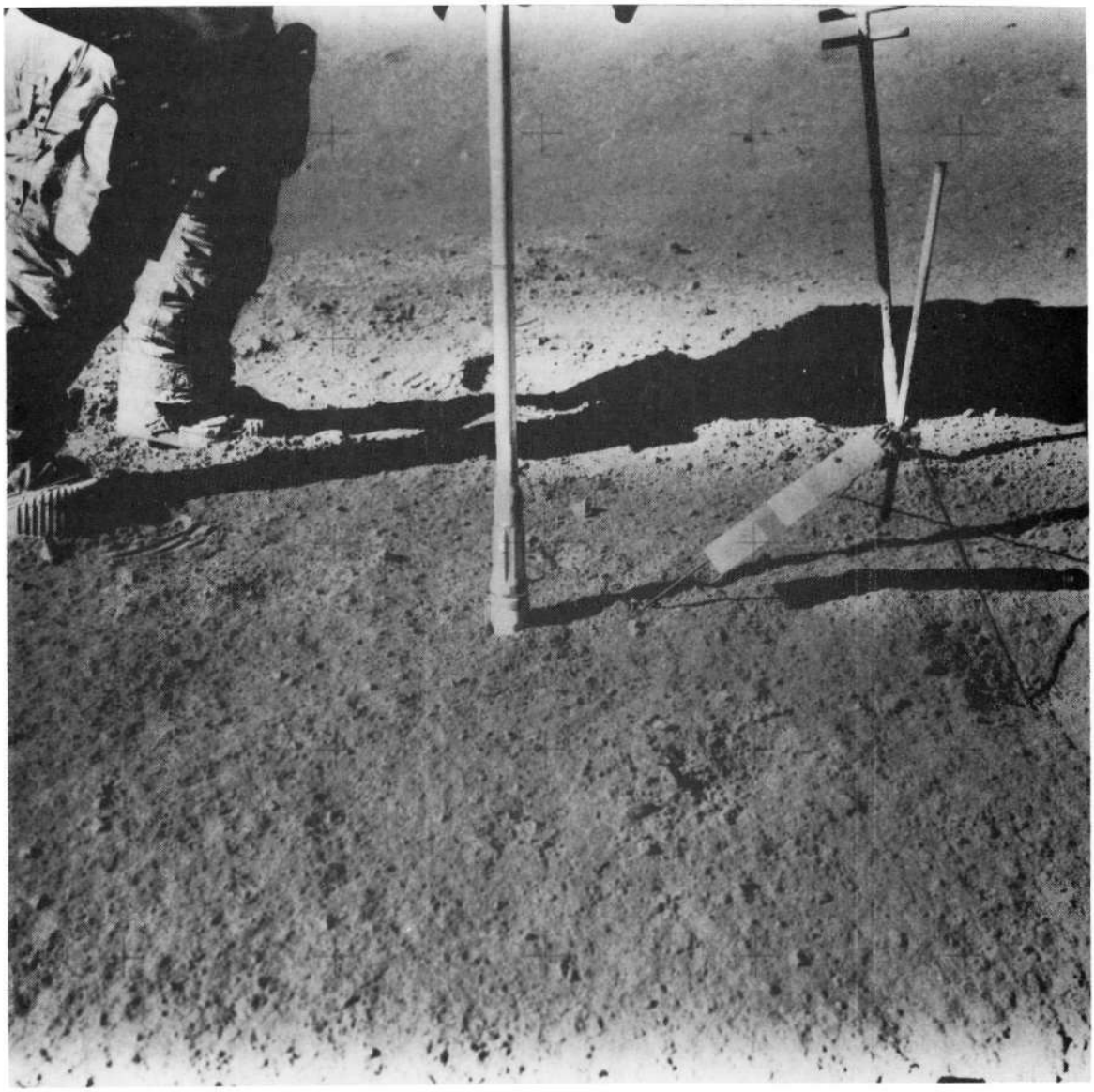

Figure 6. Sample 009. Post-driving, cross-sun photograph AS15-86-11659, looking south.

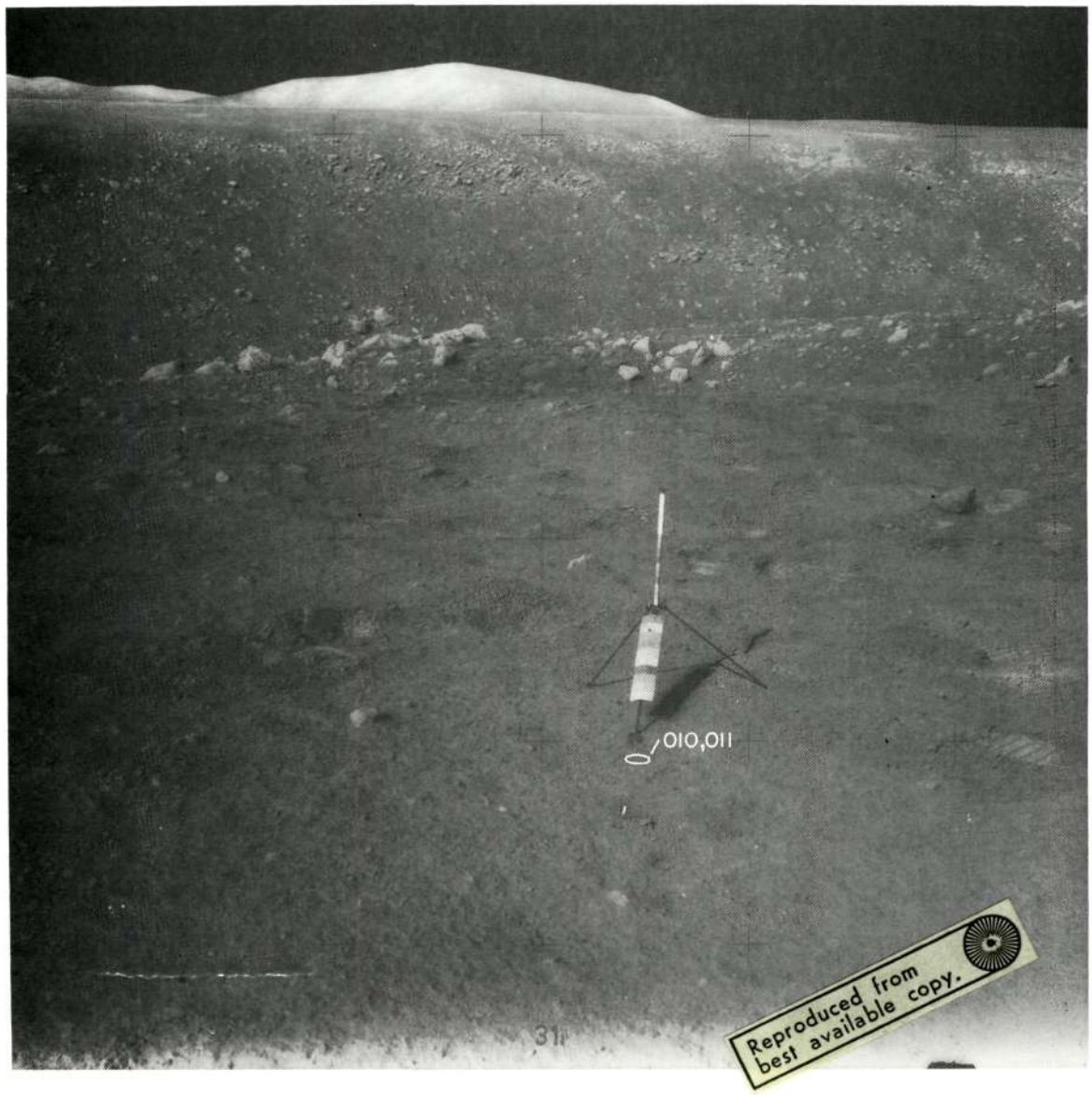

Figure 7. Area of samples 010 and 011 collected in a double core (011 over 010) at station 9a. Pre-sampling, down-sun photograph AS15-82-11159, looking west.

Figure 8. Samples 010 and 011. Post-driving, cross-sun photograph AS15-82-11162, looking north.

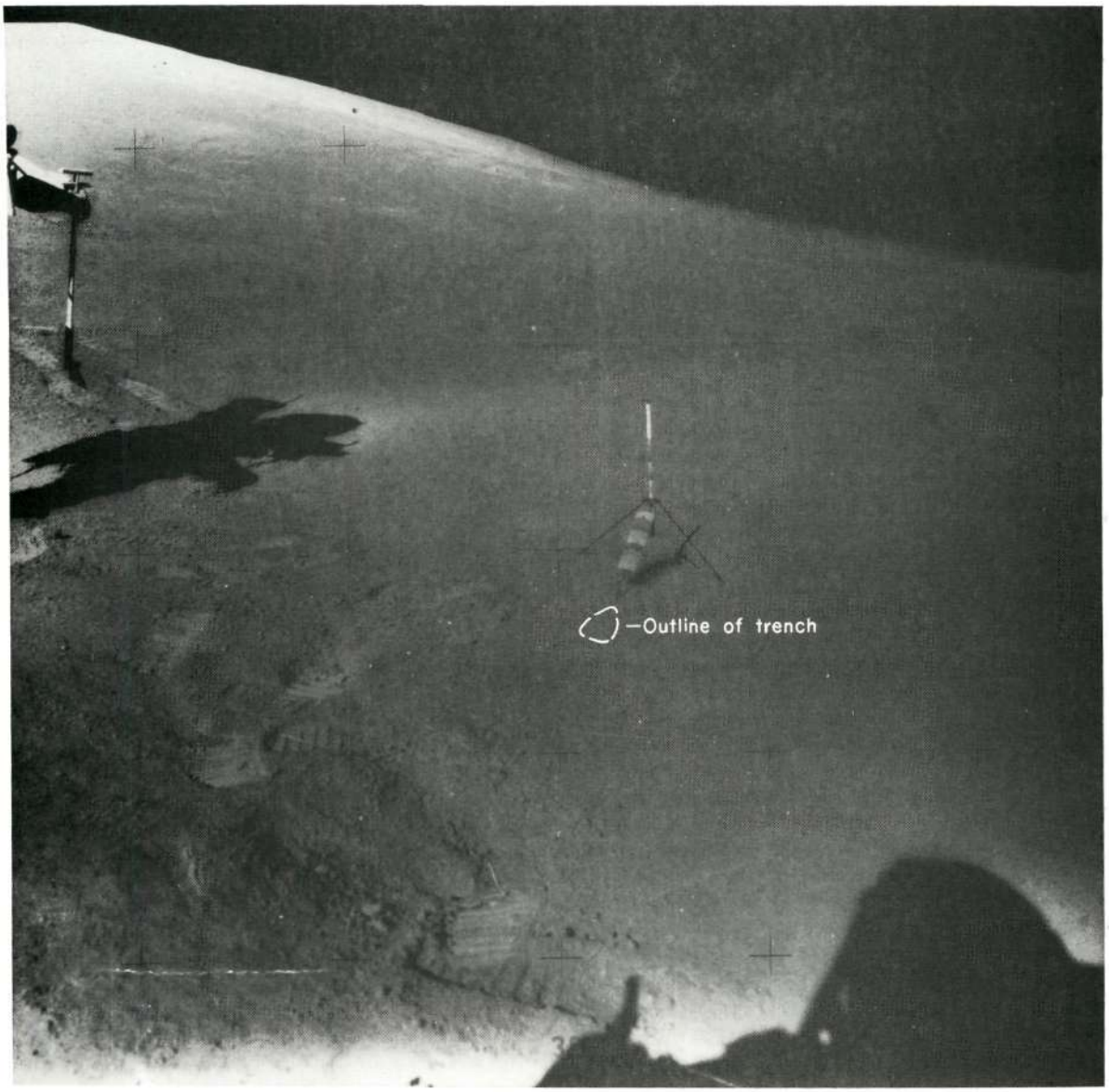

Figure 9. Samples 012, 260-264 collected at station 6 from base of Hadley delta. Pre-sampling, down-sun photograph AS15-85-11526, looking west.

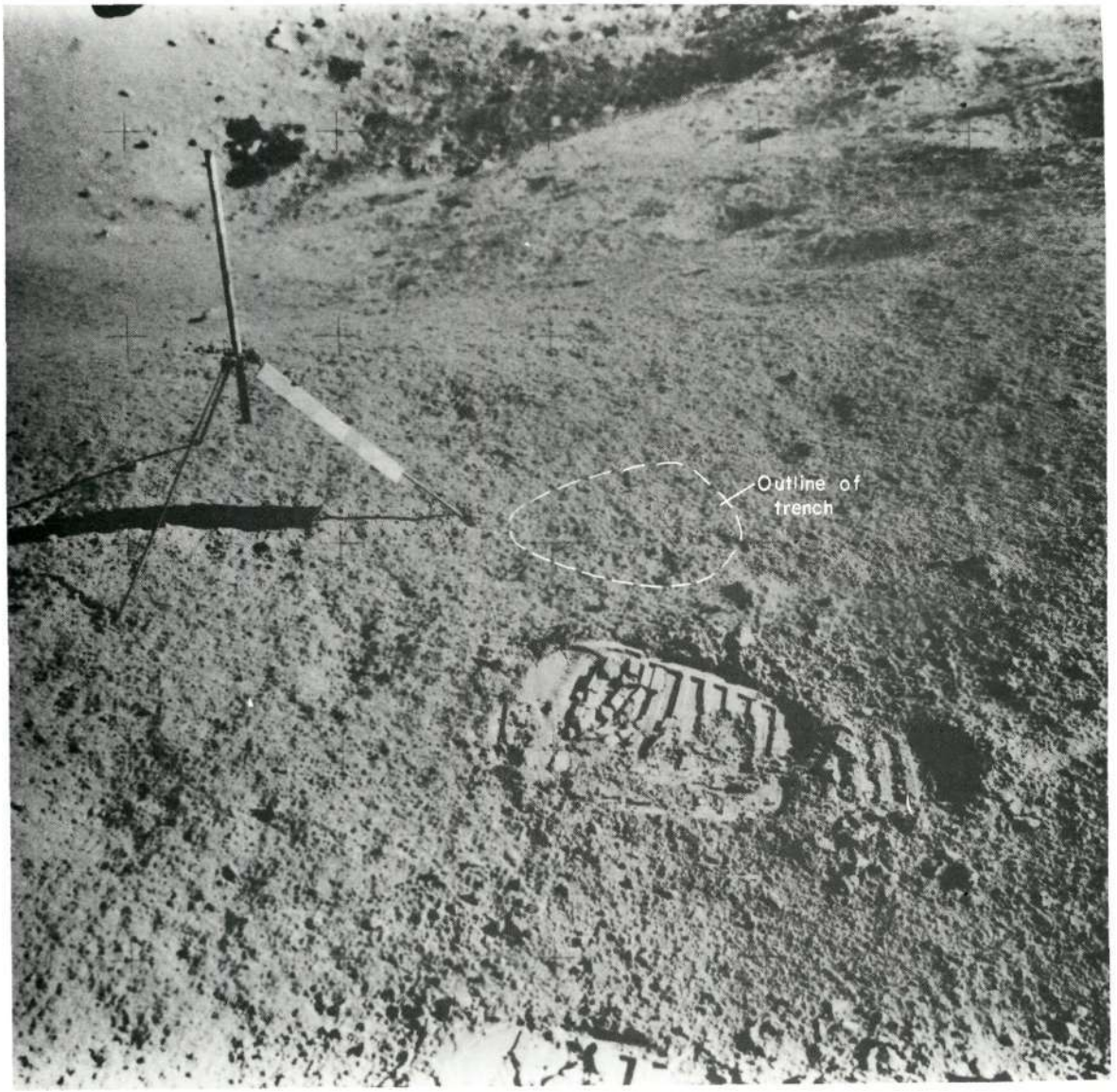

Figure 10. Area of samples 012, 260-264 collected at station 6 from base of Hadley delta. Pre-sampling, cross-sun photograph AS15-86-11641, looking north.

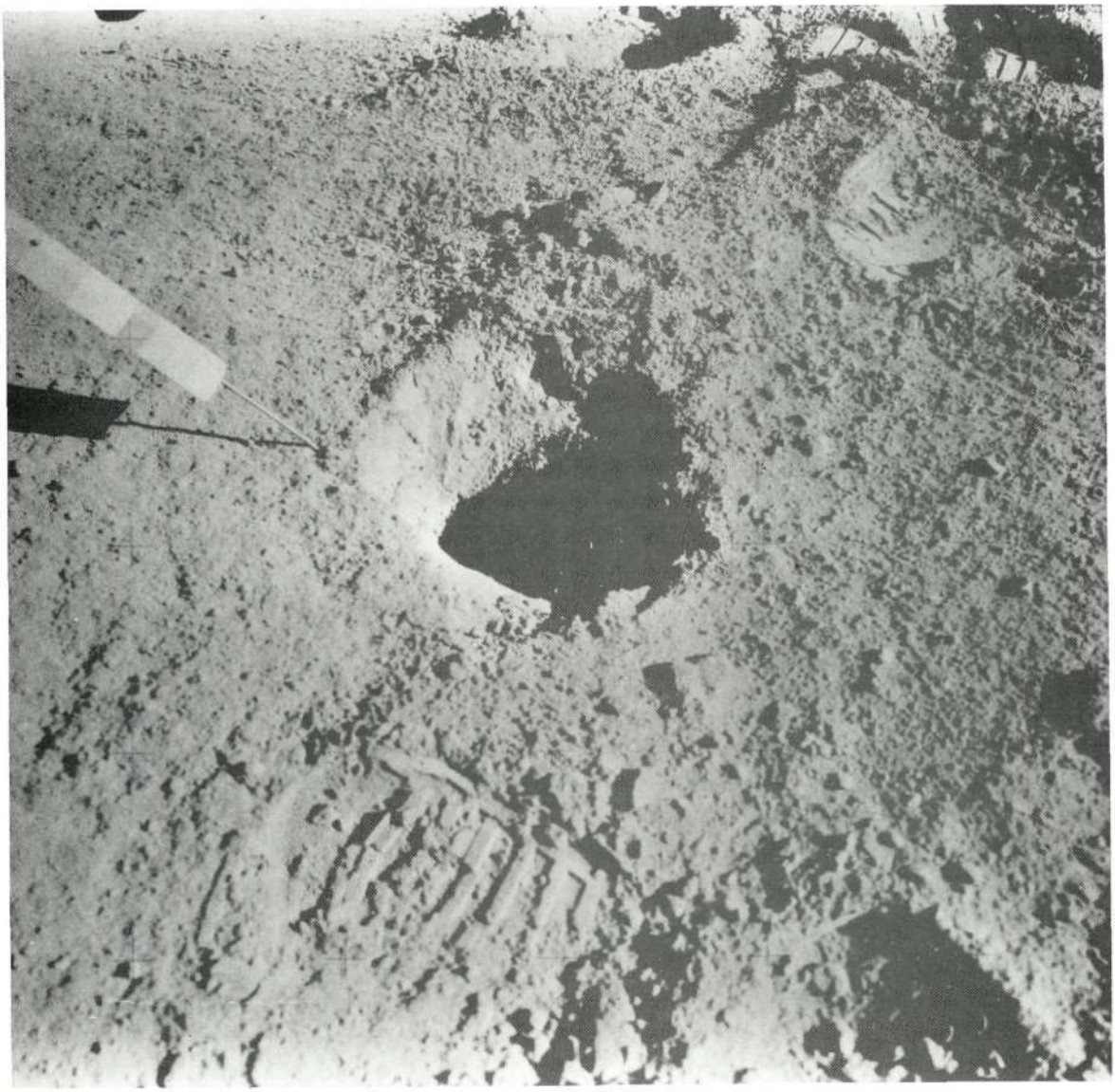

Figure 11. Samples 012, 260-264. Post-sampling, cross-sun photograph AS15-86-11645, looking north.

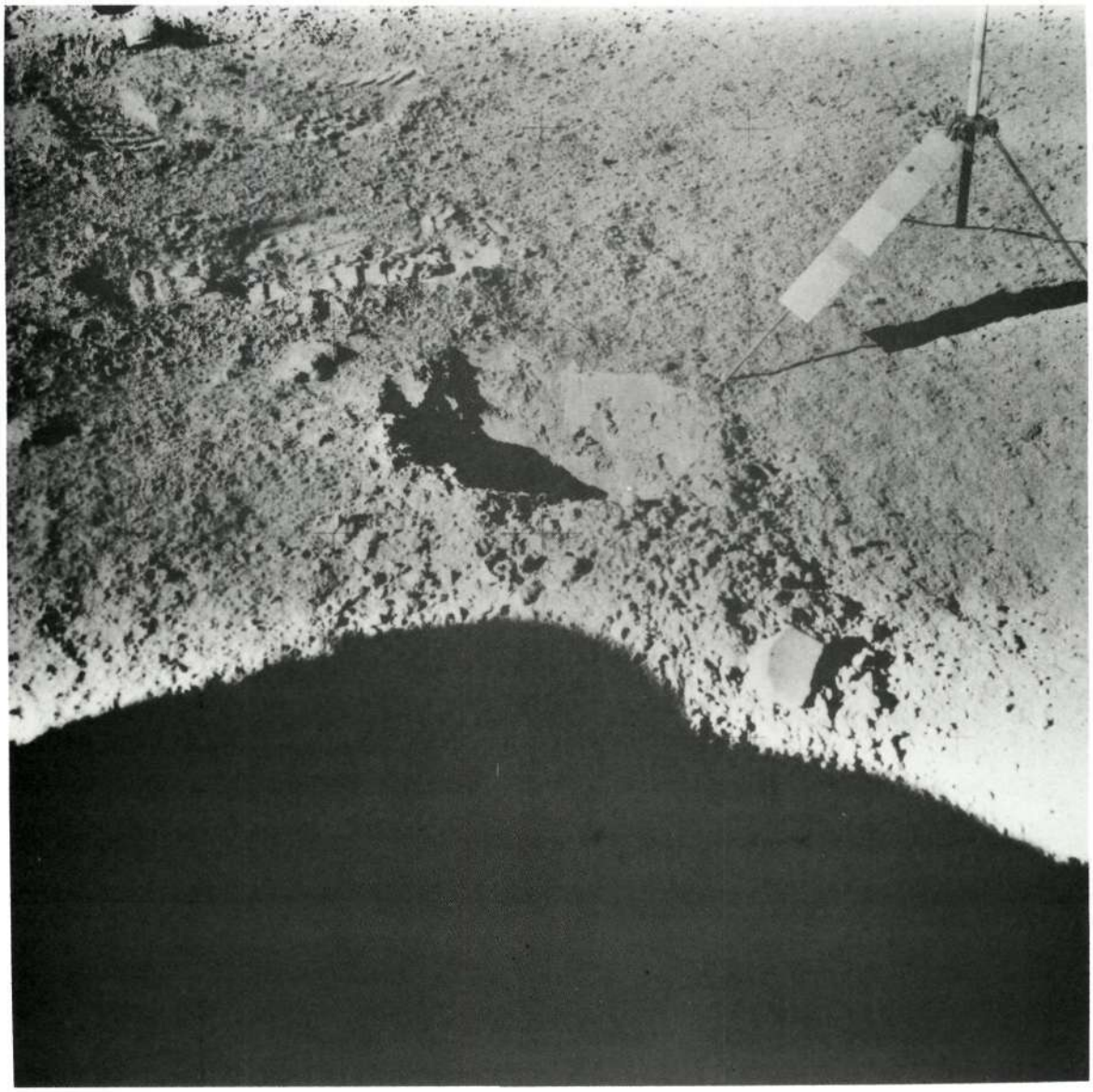

Figure 12. Sample 012, 260-264. Post-sampling, cross-sun photograph AS15-86-11643, looking south.

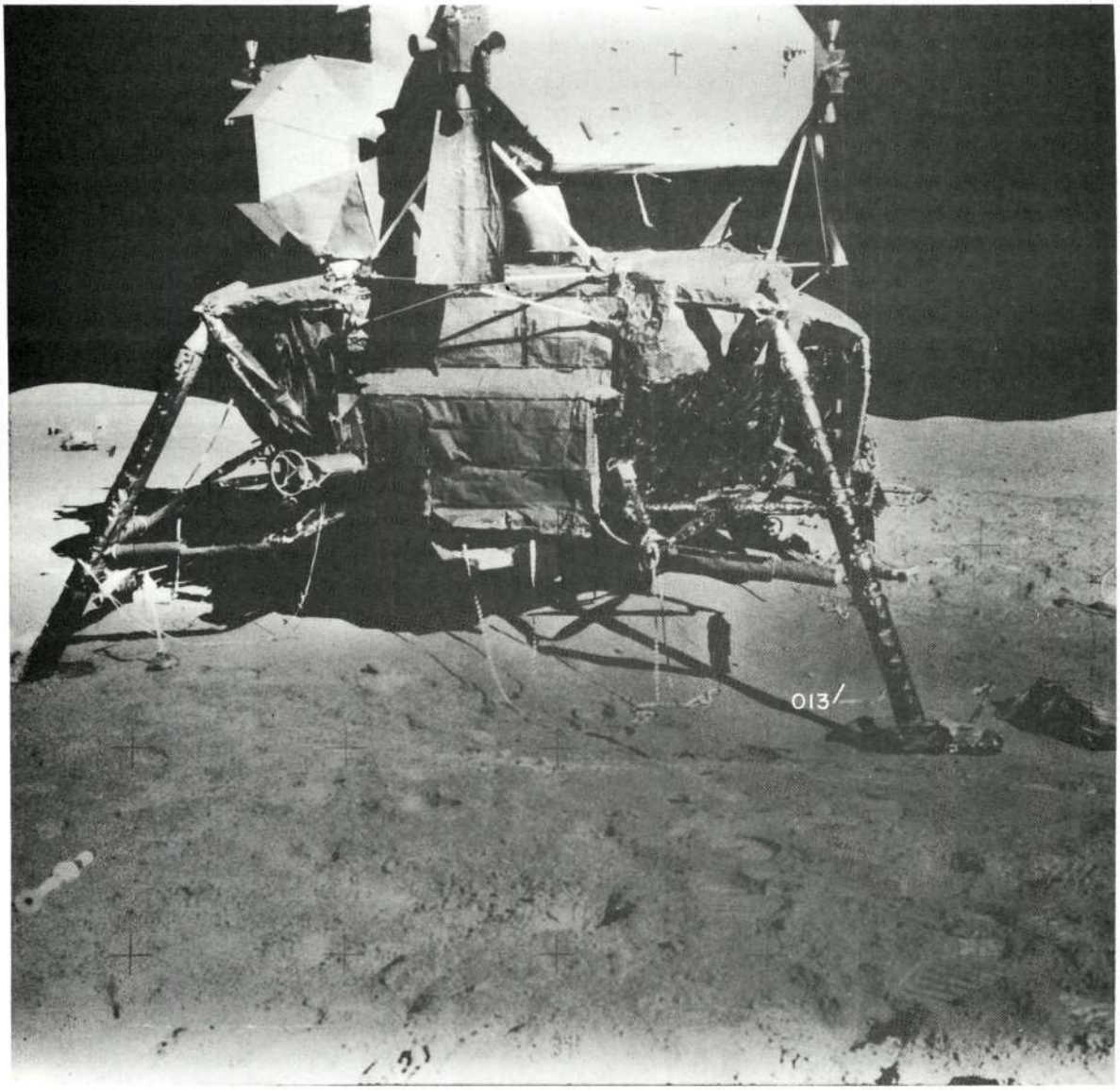

Figure 13. Sample 013 collected at the LM. Pre-sampling, cross-sun photograph AS15-88-11939, looking northwest.

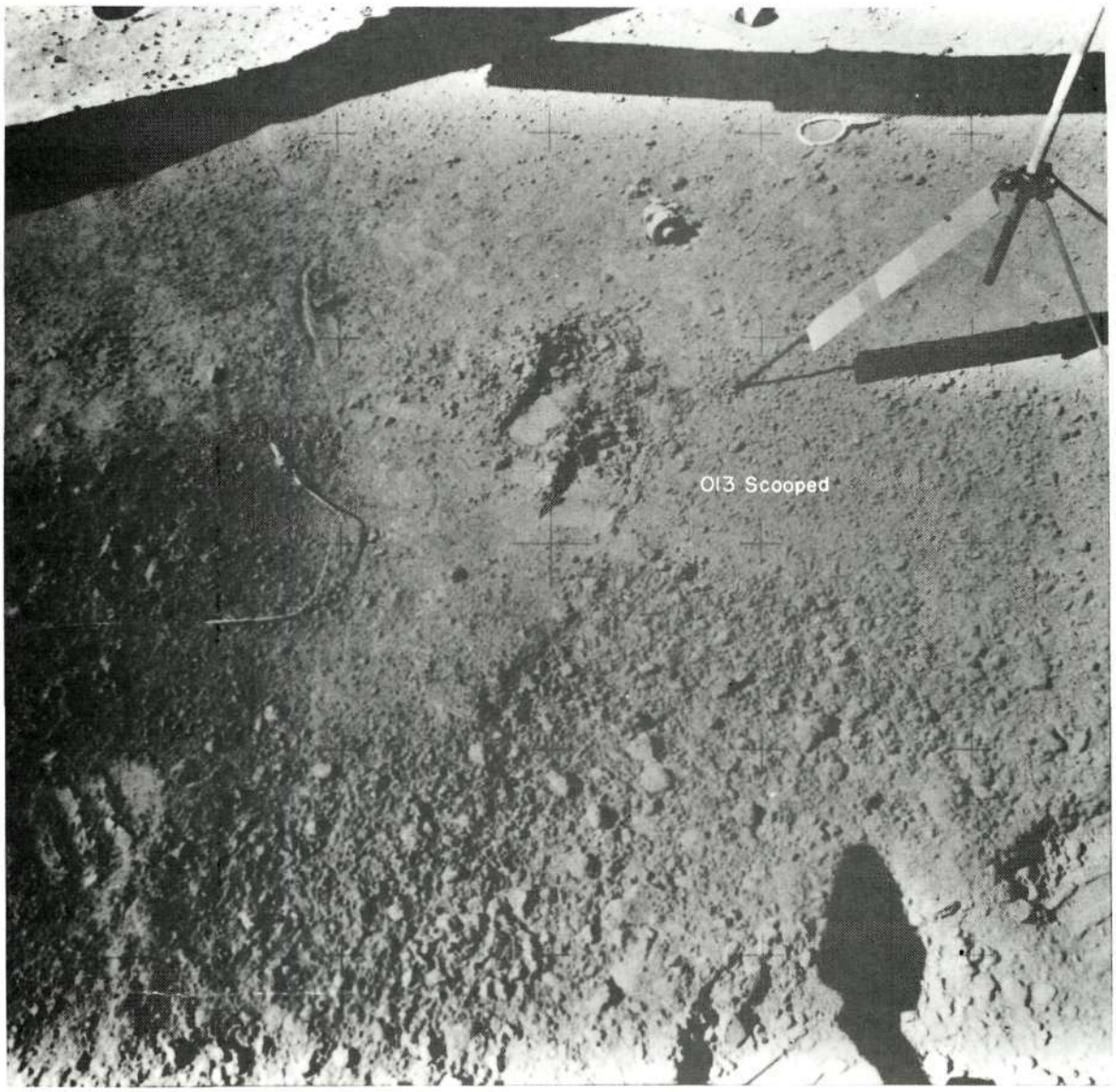

Figure 14. Sample 013. Post-sampling, cross-sun photograph AS15-88-11887, looking south.

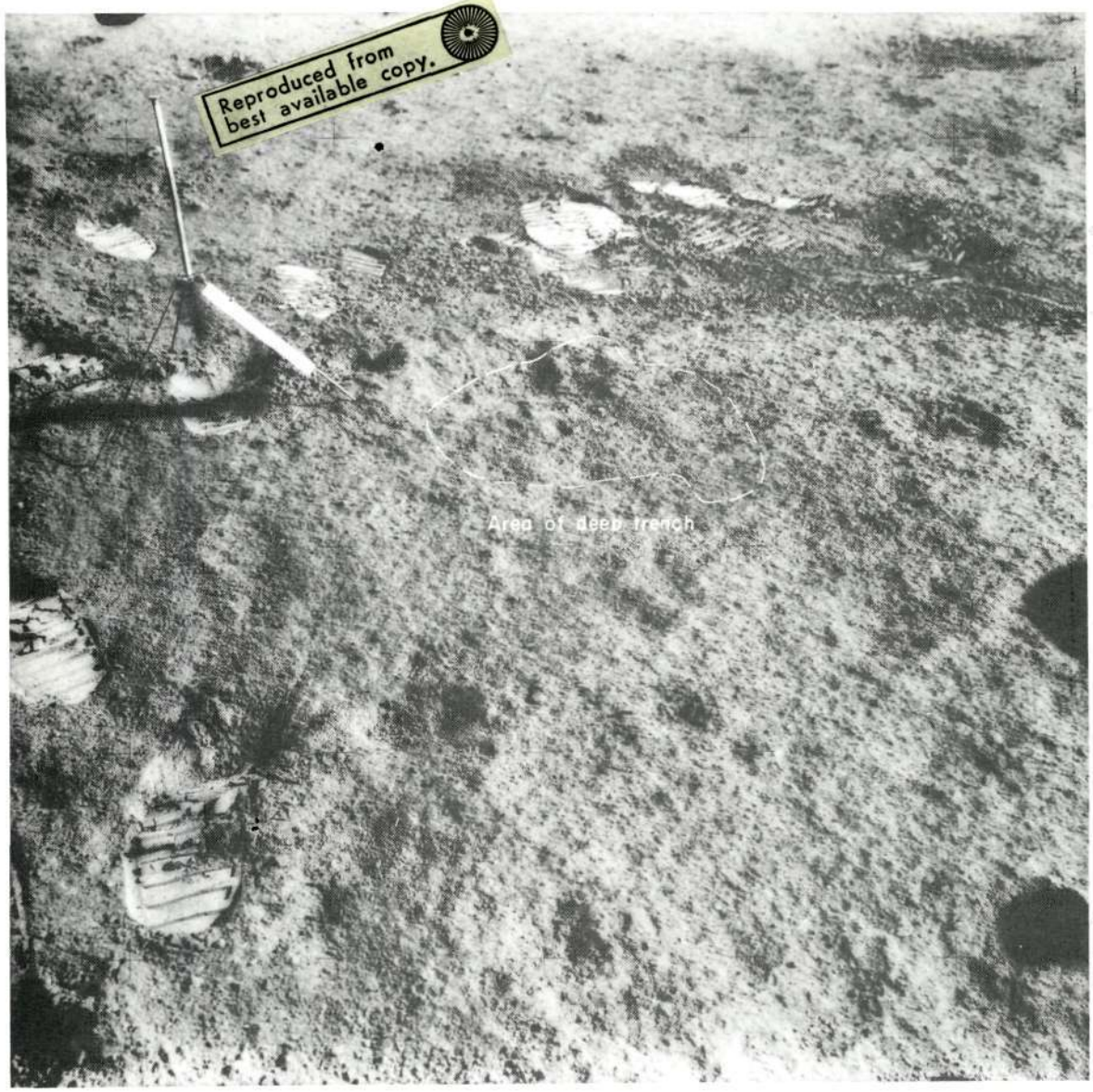

Figure 15. Area of samples 014, 030-034 and 040-044 collected at station 8 from the deep trench. Pre-sampling, cross-sun photograph AS15-92-12417, looking north.

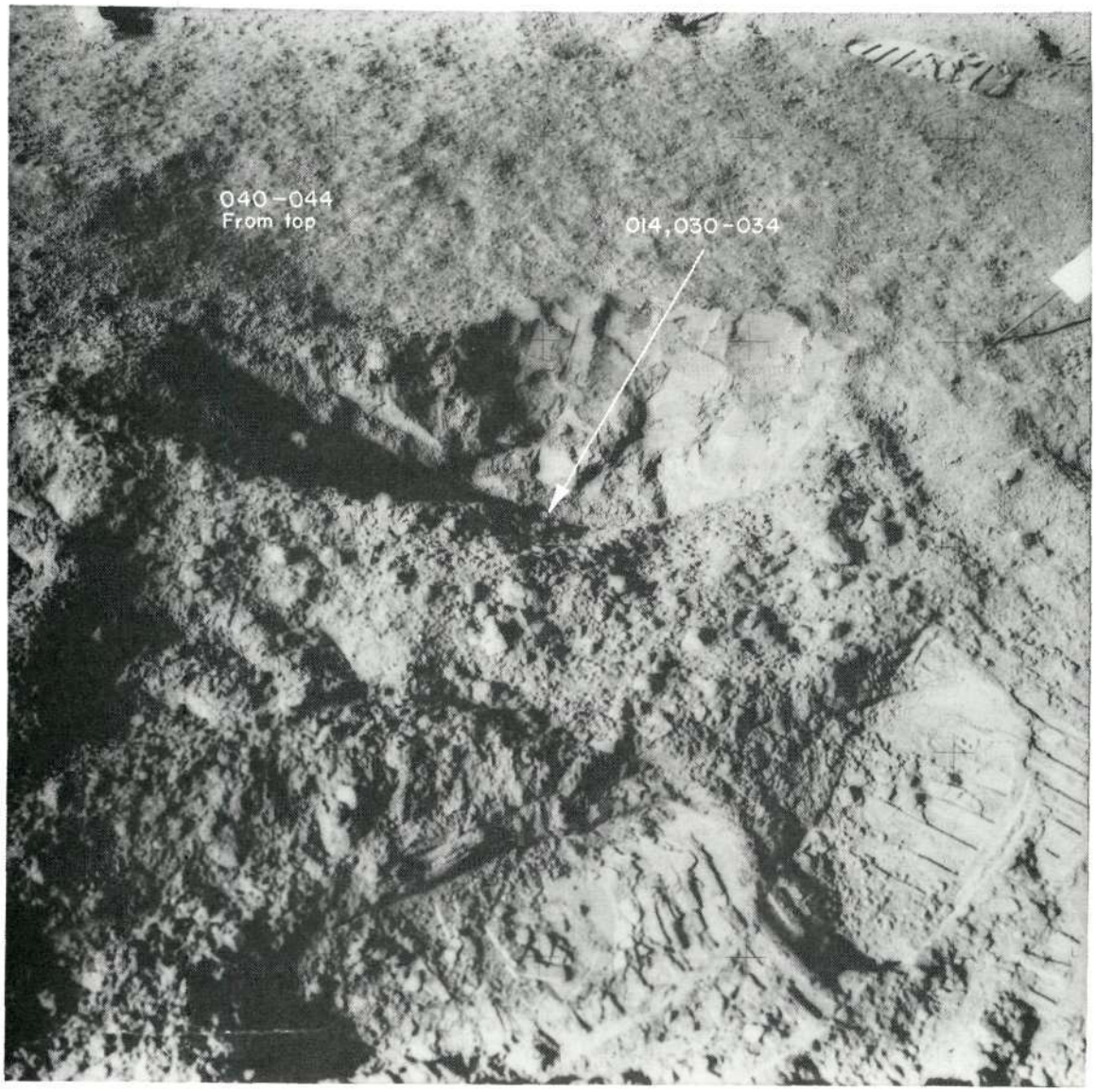

Figure 16. Samples 014, 030-034, 040-044. Post-sampling, cross-sun photograph AS15-92-12439, looking south.

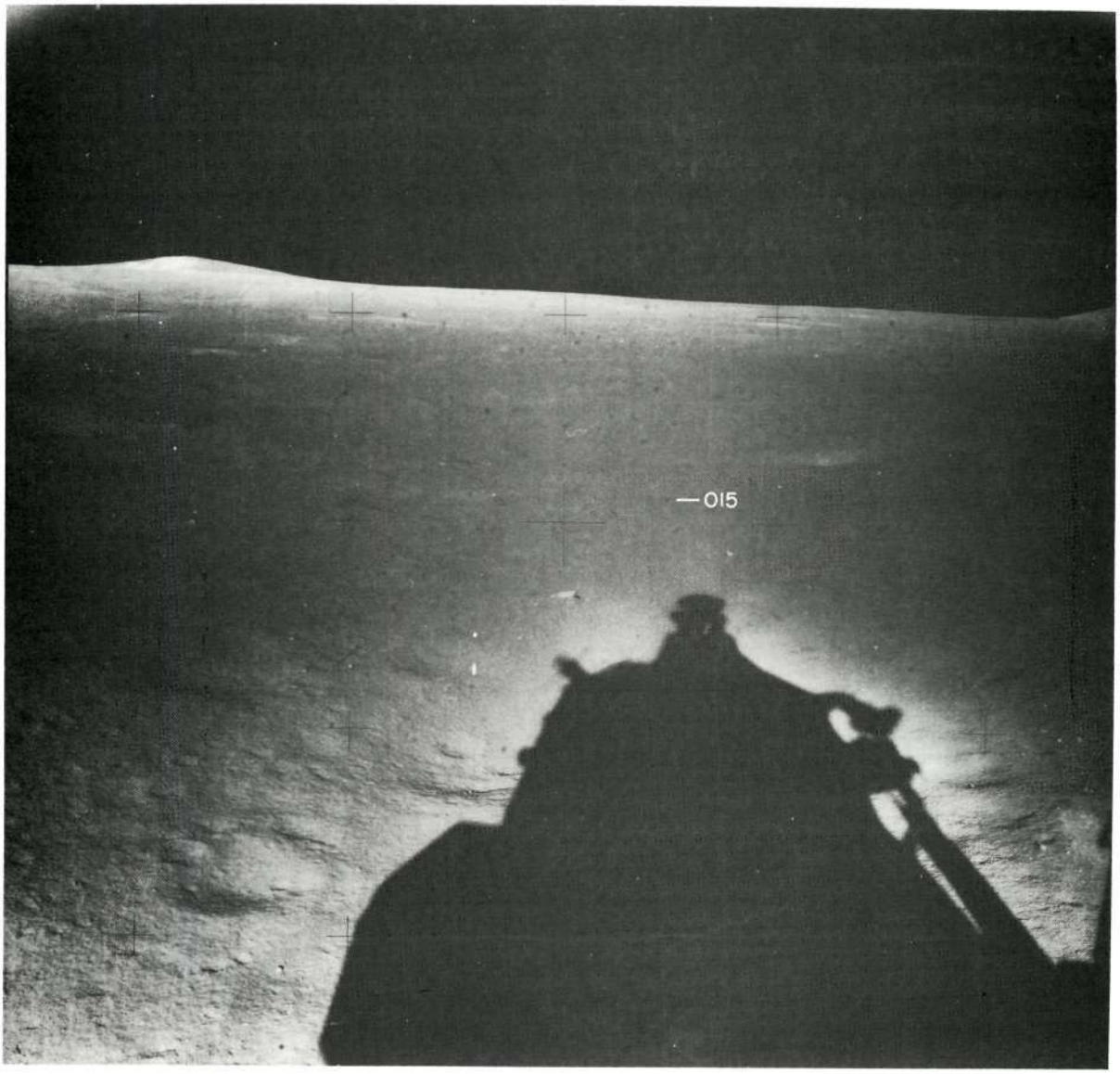

Figure 17. Sample 015 collected at the LM. Pre-sampling, down-sun photograph AS15-85-11386, looking west.

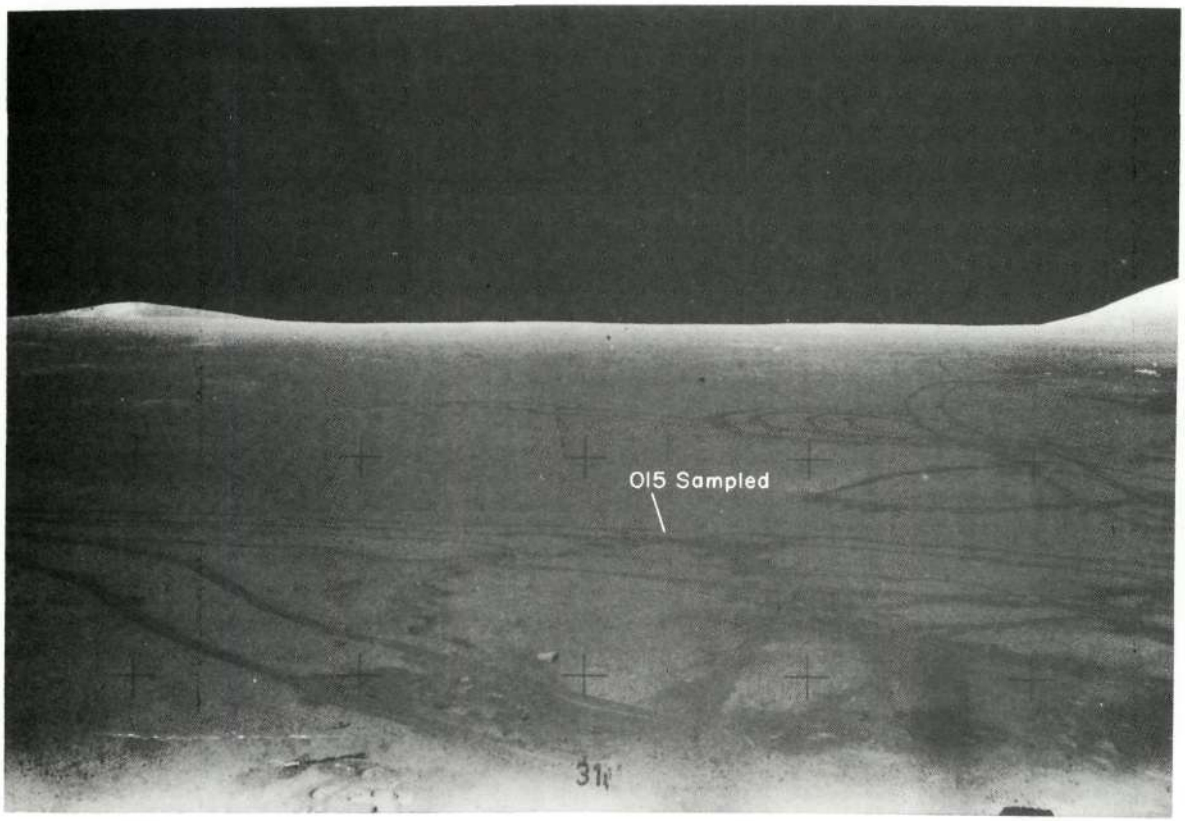

Figure 18. Sample 015. Post-sampling, down-sun photograph AS15-88-11932, looking west.

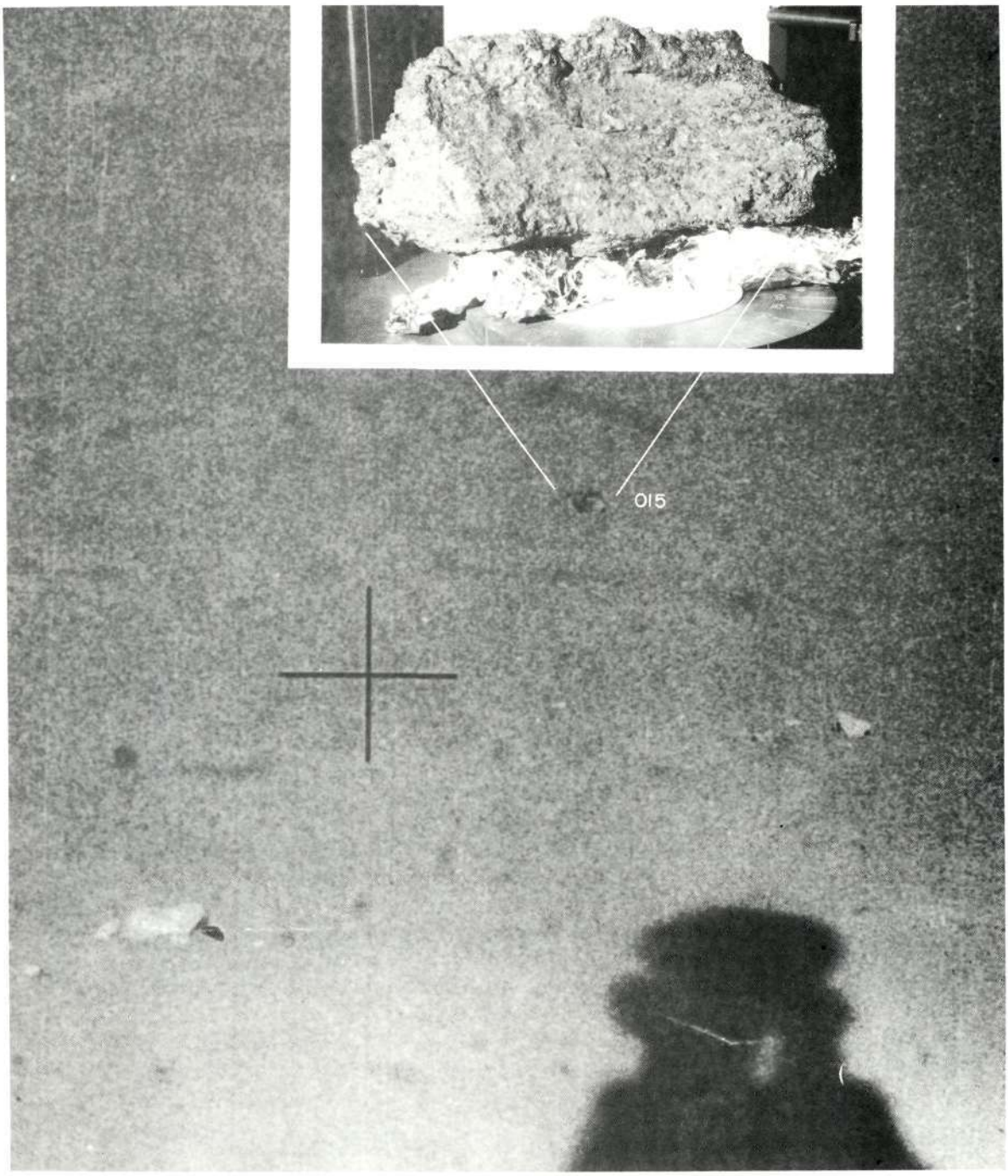

Figure 19. Sample 015 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-88-11385, taken down-sun, looking west.

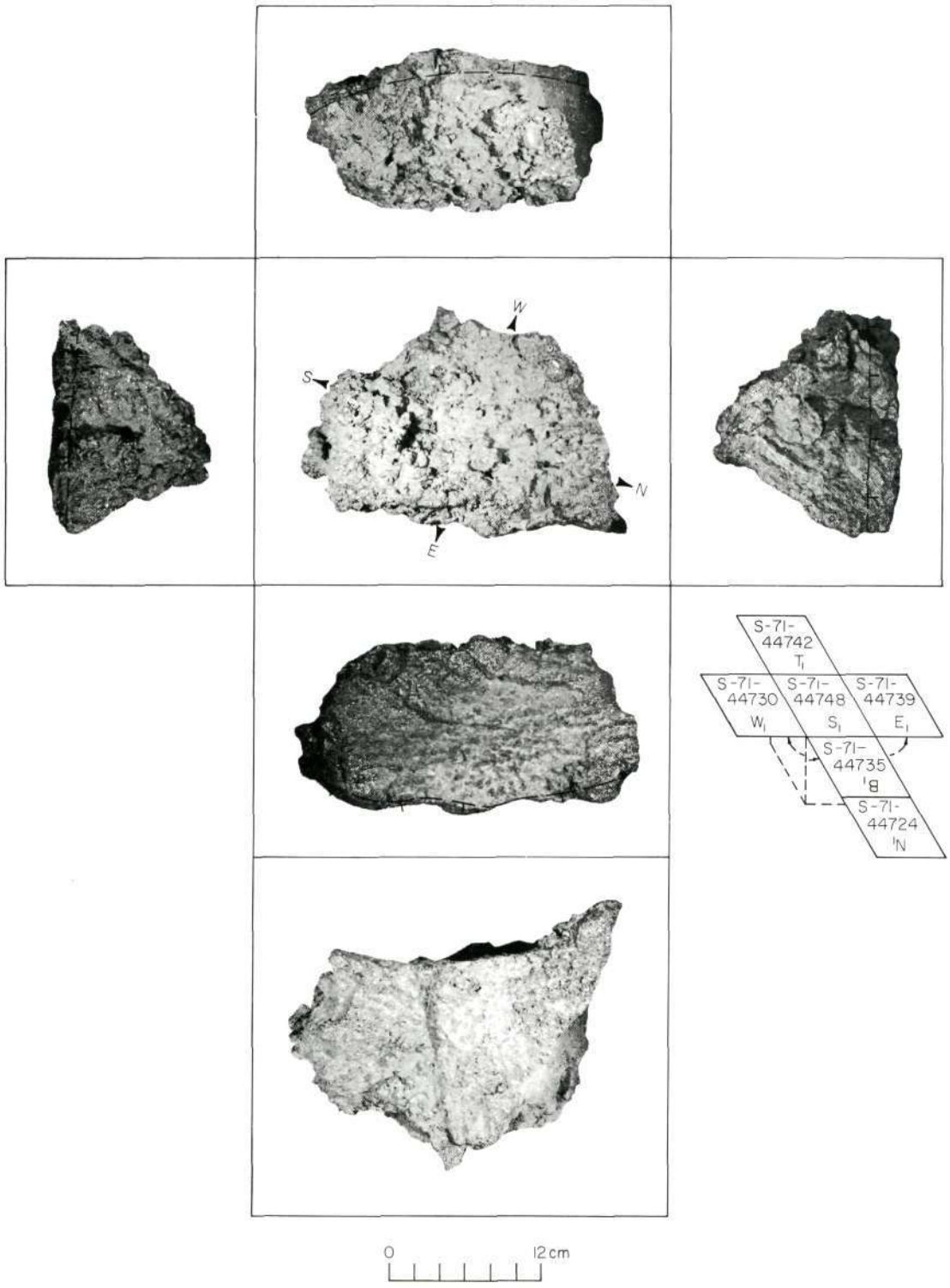

Figure 20. Orthogonal views of sample number 015.

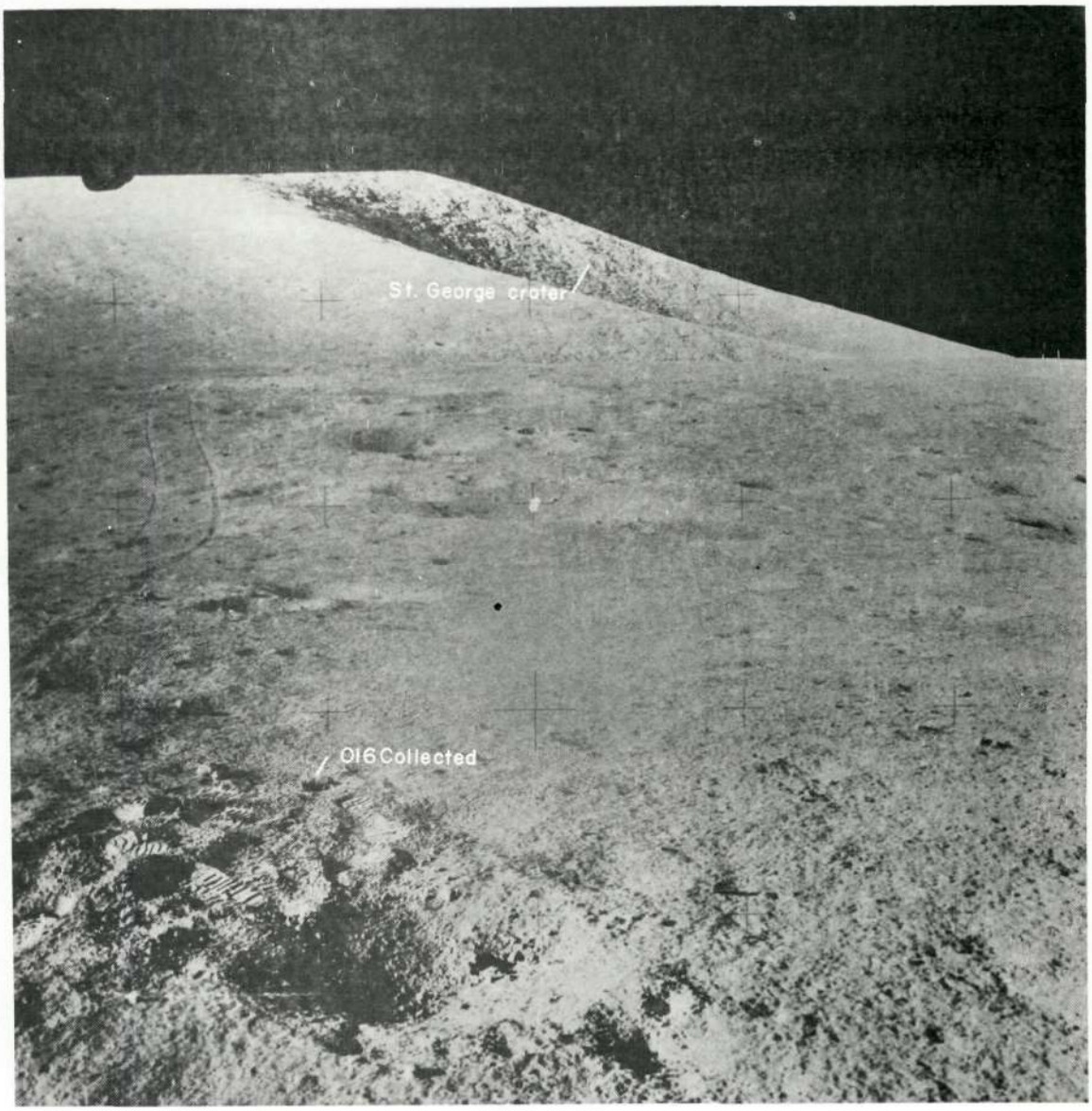

Figure 21. Area from which sample 016 was collected at station 3. Post-sampling, cross-sun photograph AS15-86-11584, looking southwest.

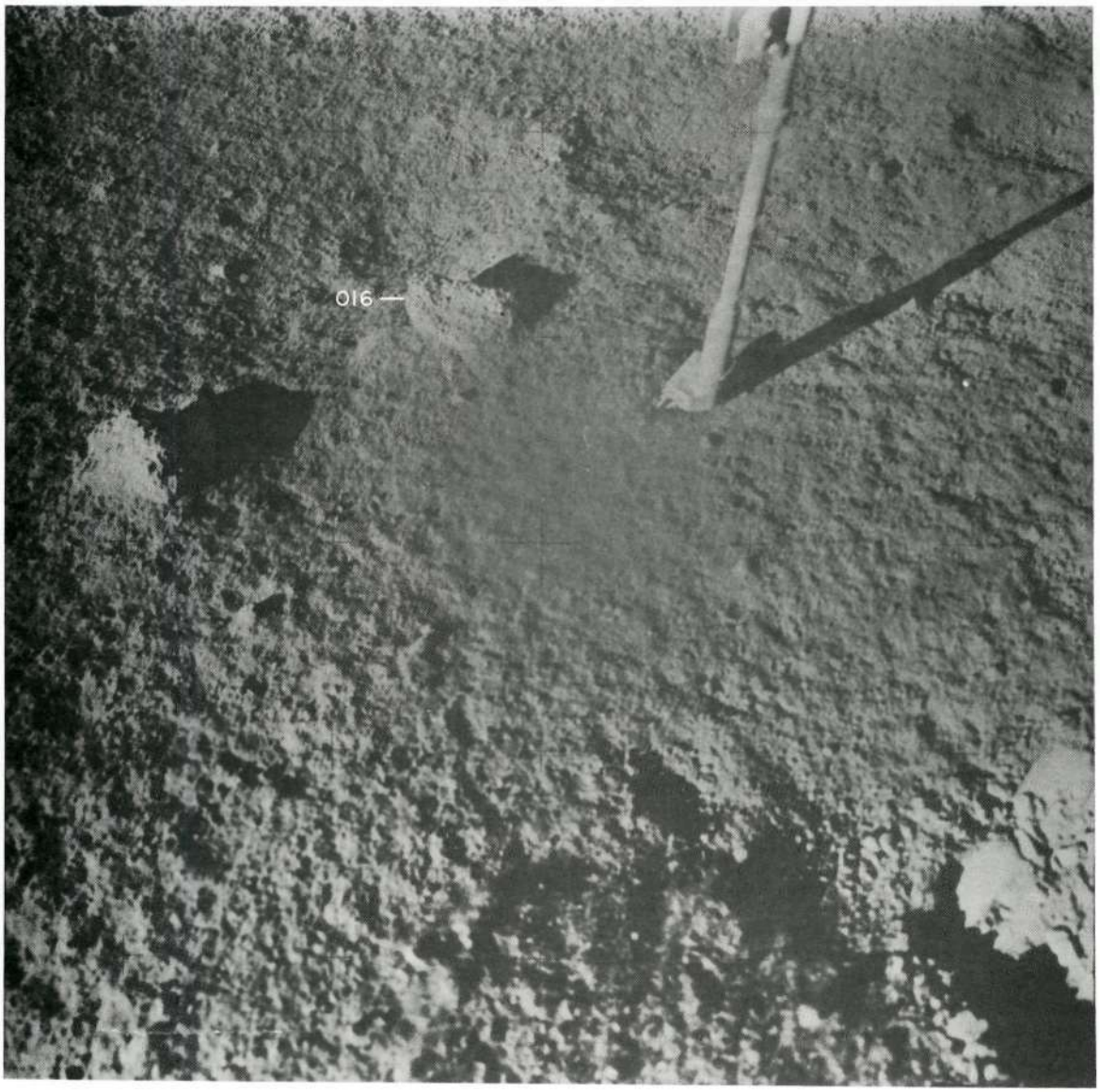

Figure 22. Sample 016 collected at station 3. Pre-sampling, cross-sun photograph AS15-86-11581, looking southwest

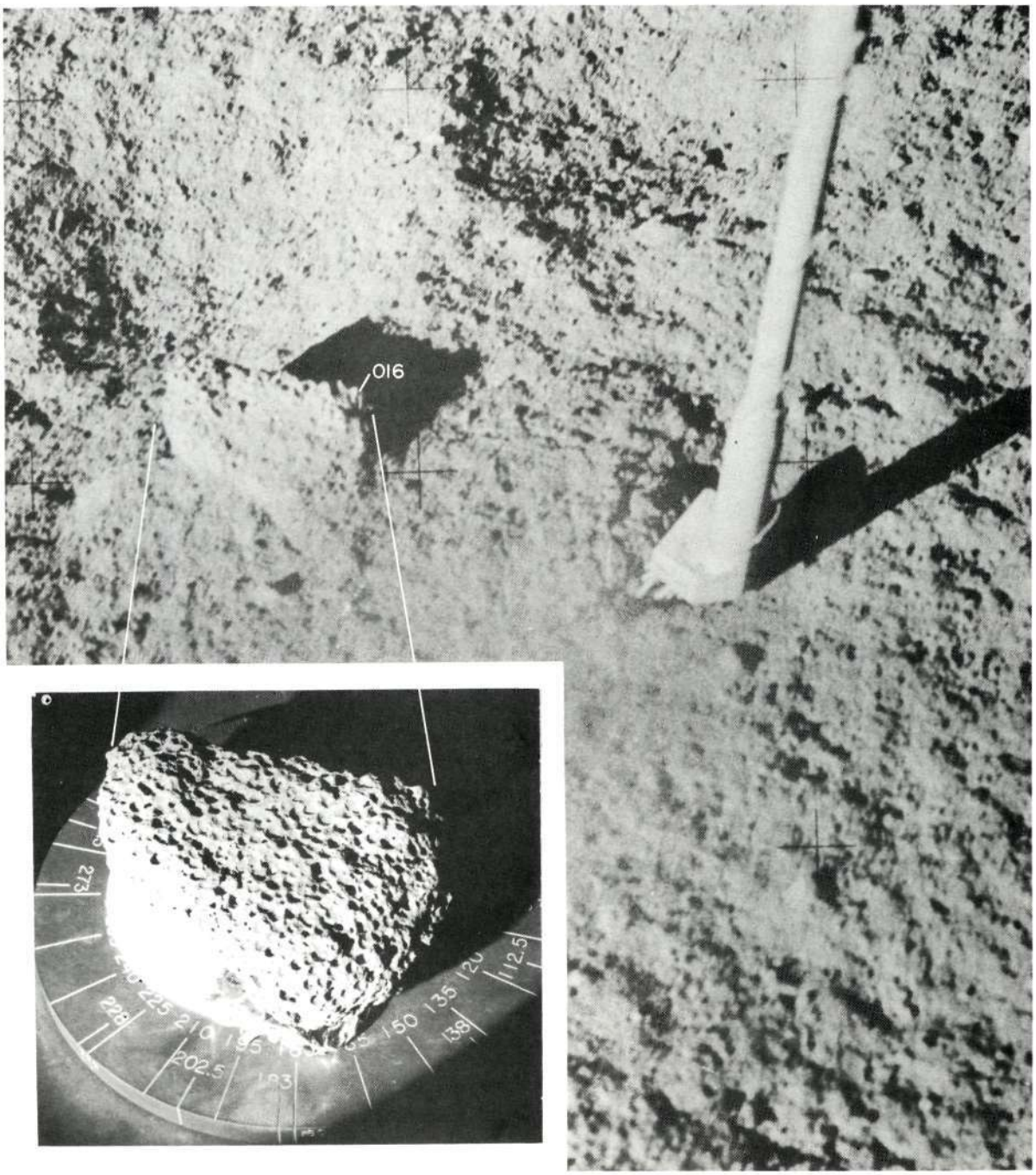

Figure 23. Sample 016 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-86-11581, taken cross-sun, looking southwest.

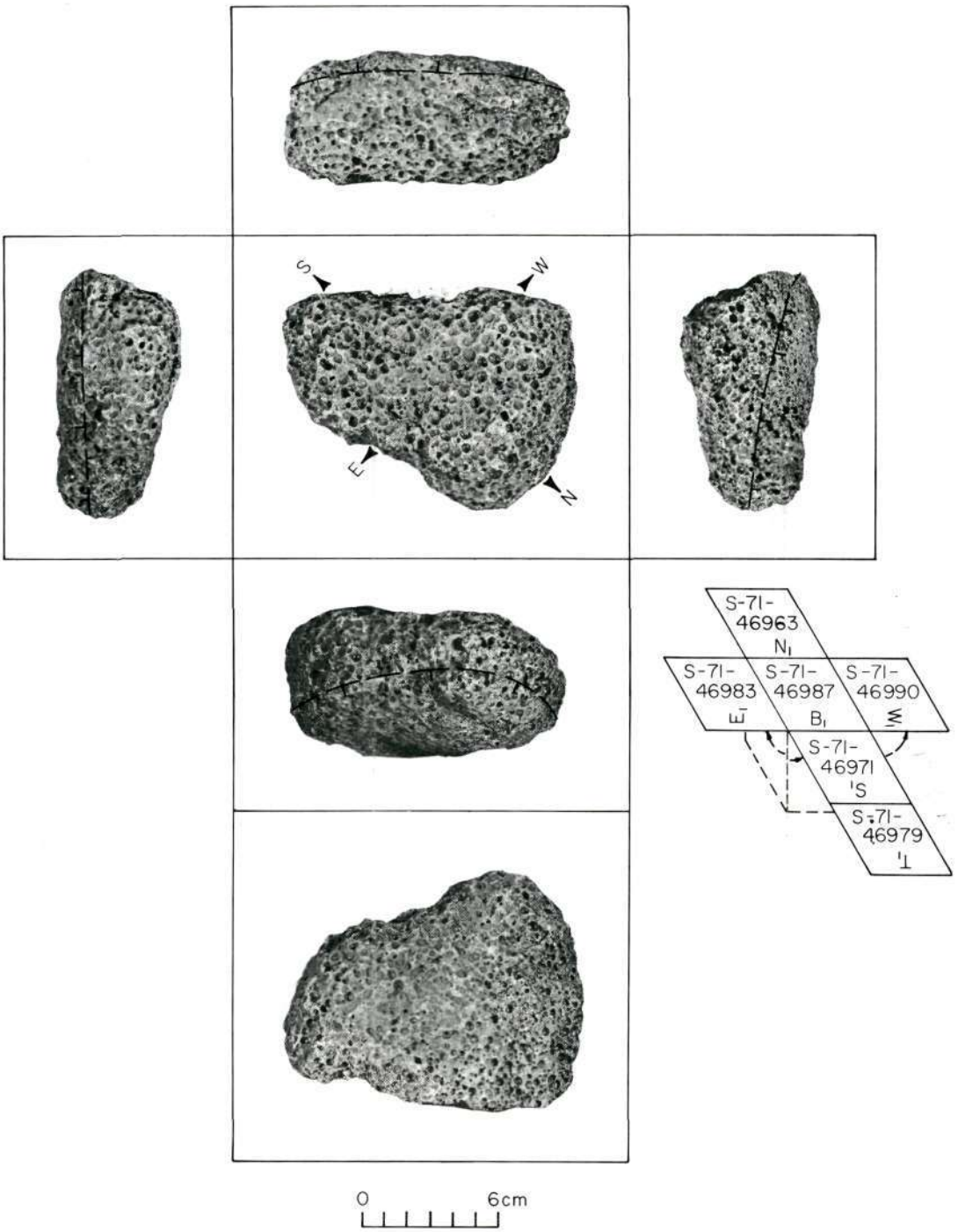

Figure 24. Orthogonal views of sample number 016.

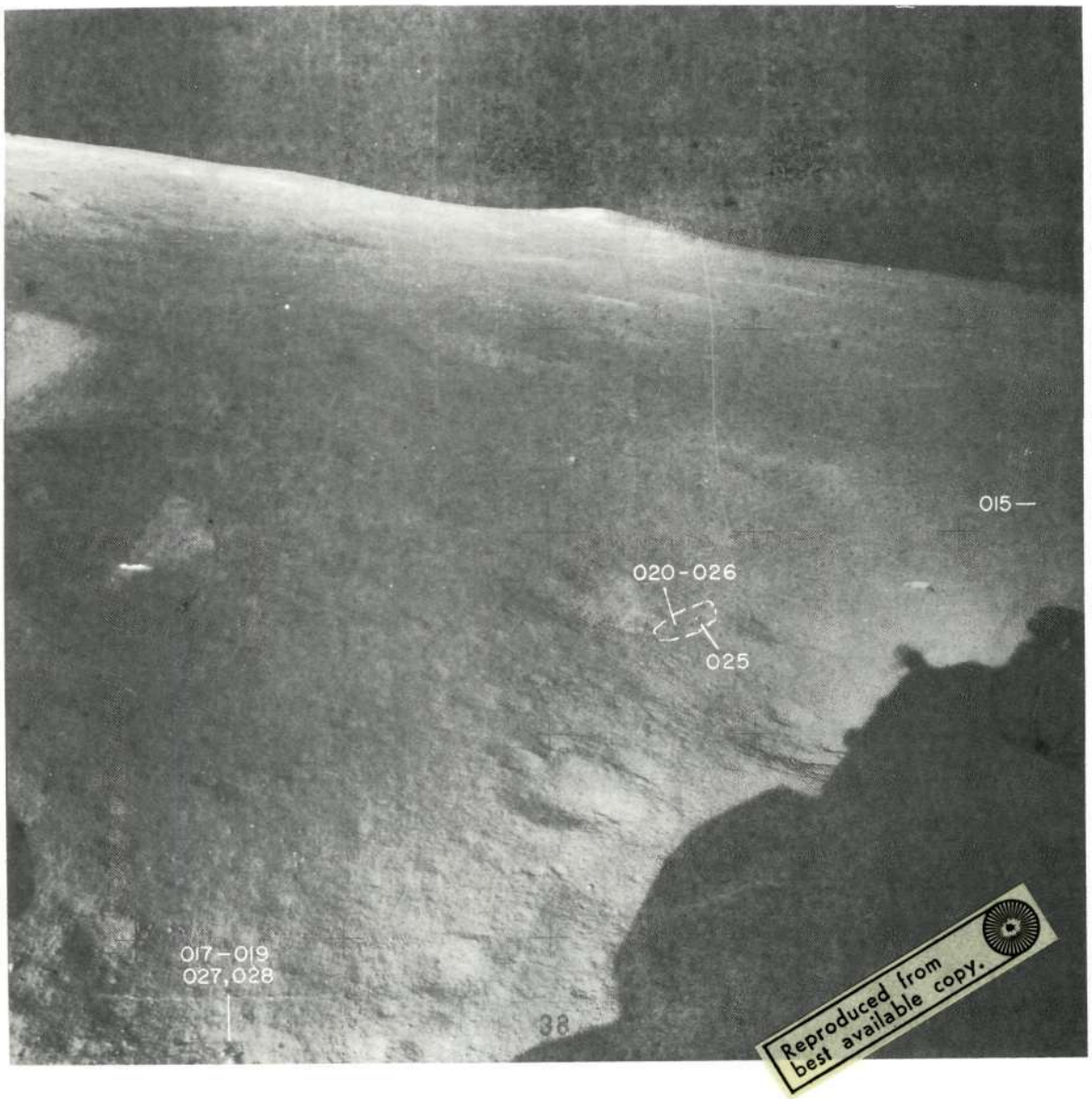

Figure 25. Samples 017-019, 027 and 028 collected at the LM. Pre-sampling, cross-sun photograph AS15-85-11385, looking west.

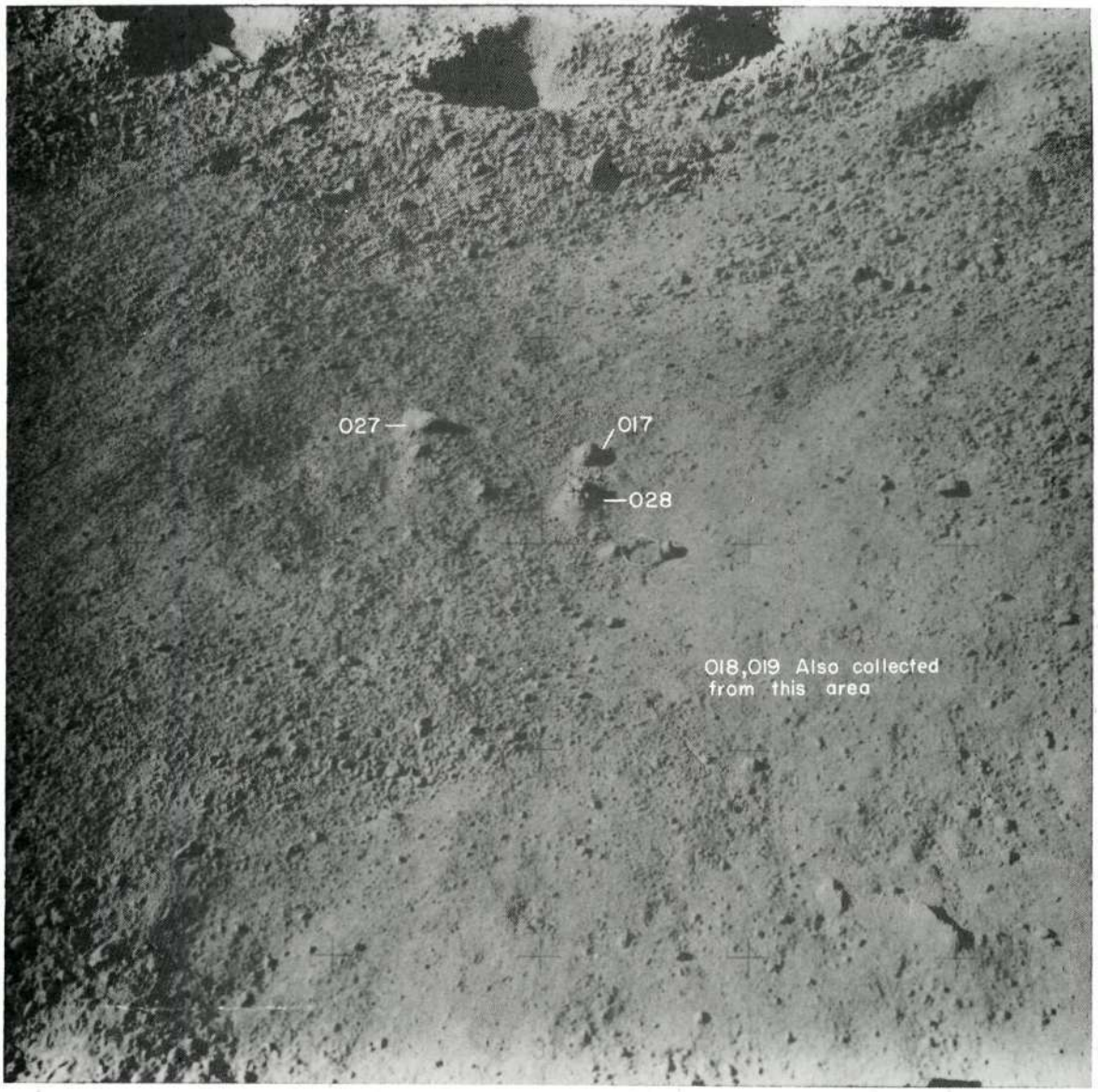

Figure 26. Samples 017-019, 027 and 028. Pre-sampling, cross-sun photograph AS15-86-11604, looking south.

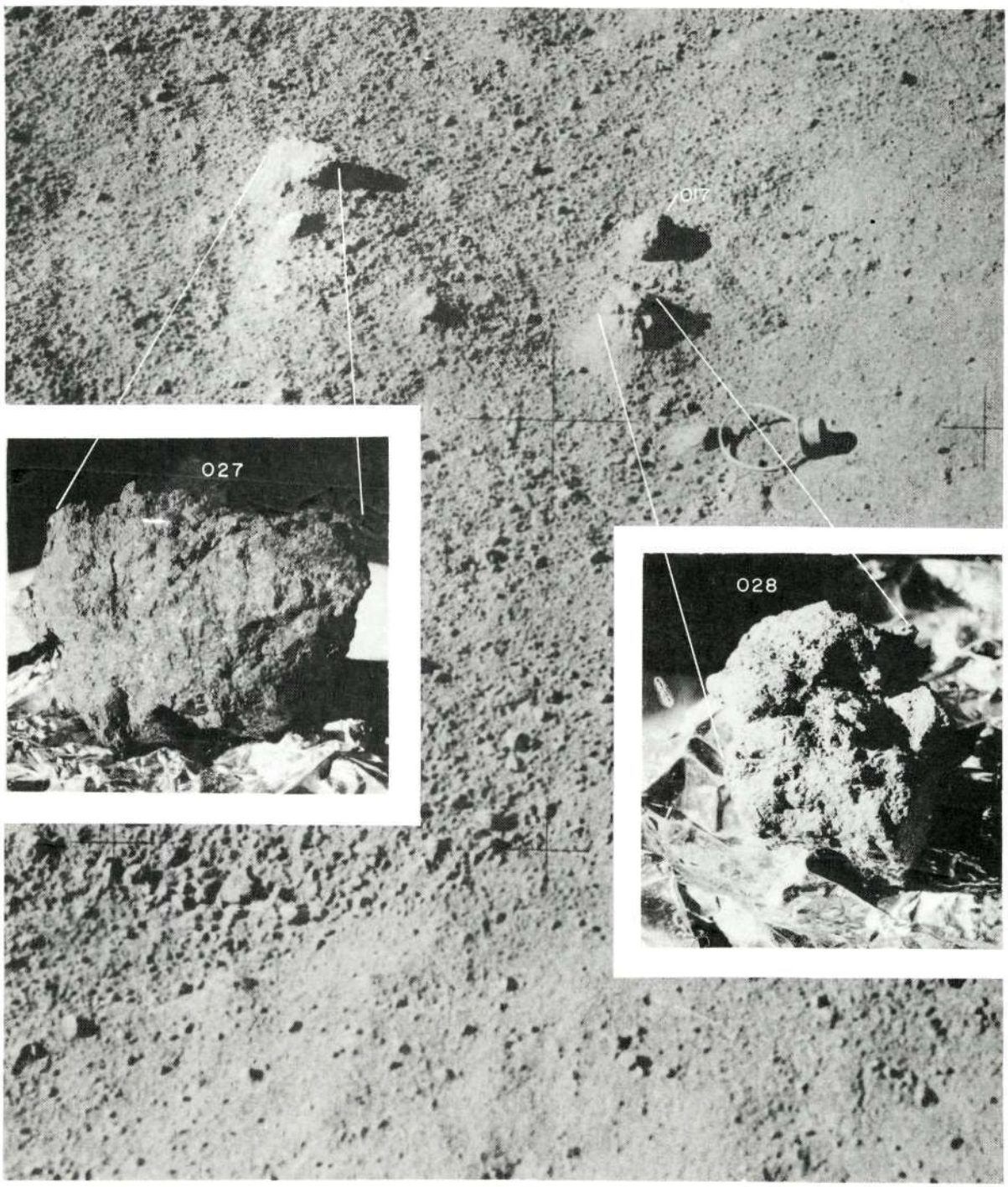

Figure 27. Samples 027 and 028 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-86-11604, taken cross-sun, looking south.

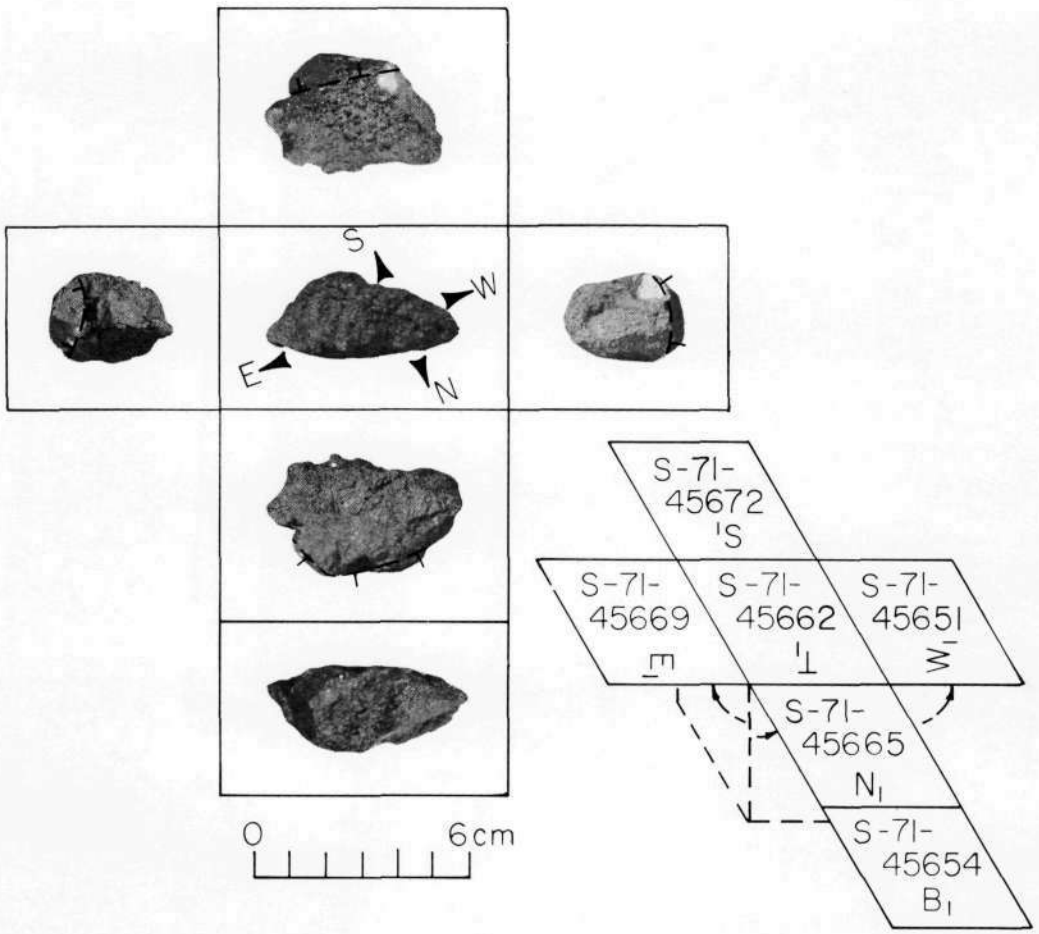

Figure 28. Orthogonal views of sample number 027.

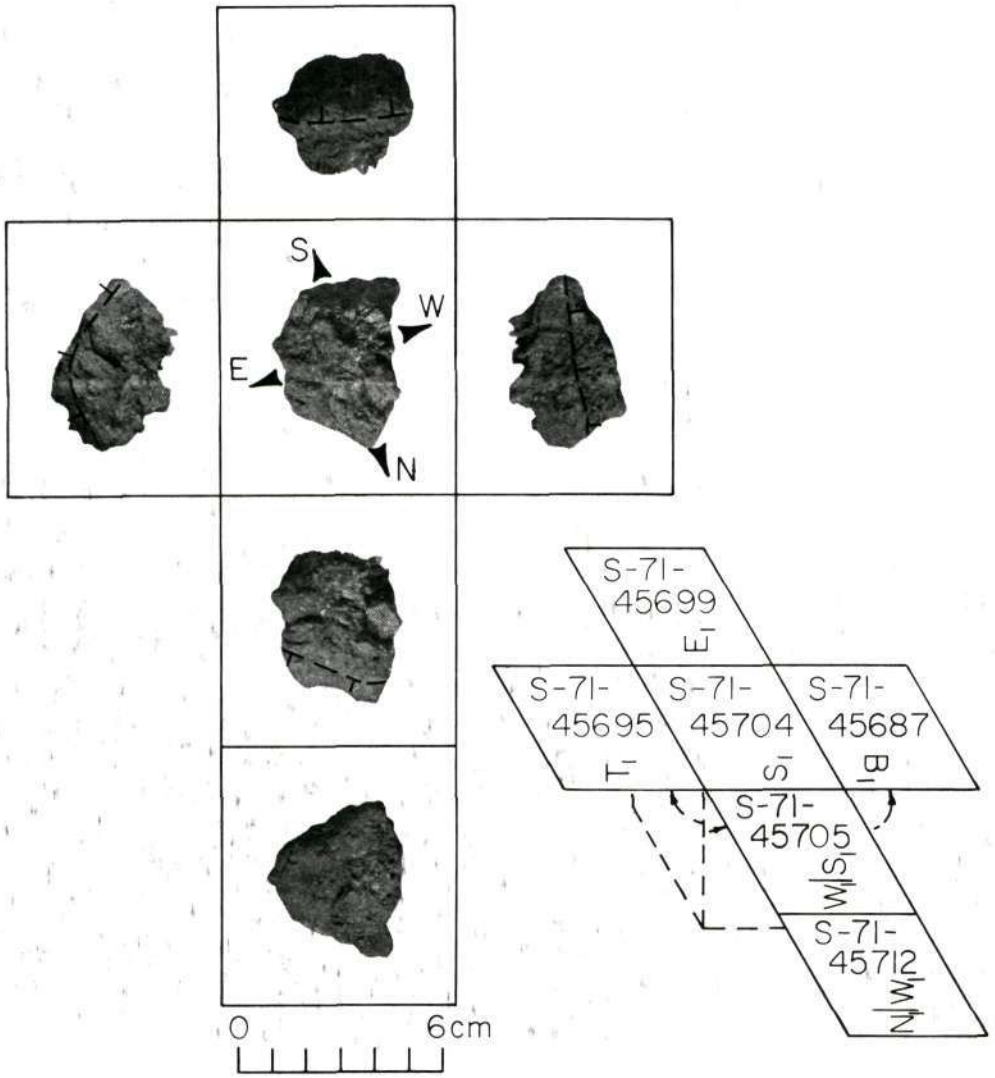

Figure 29. Orthogonal views of sample number 028.

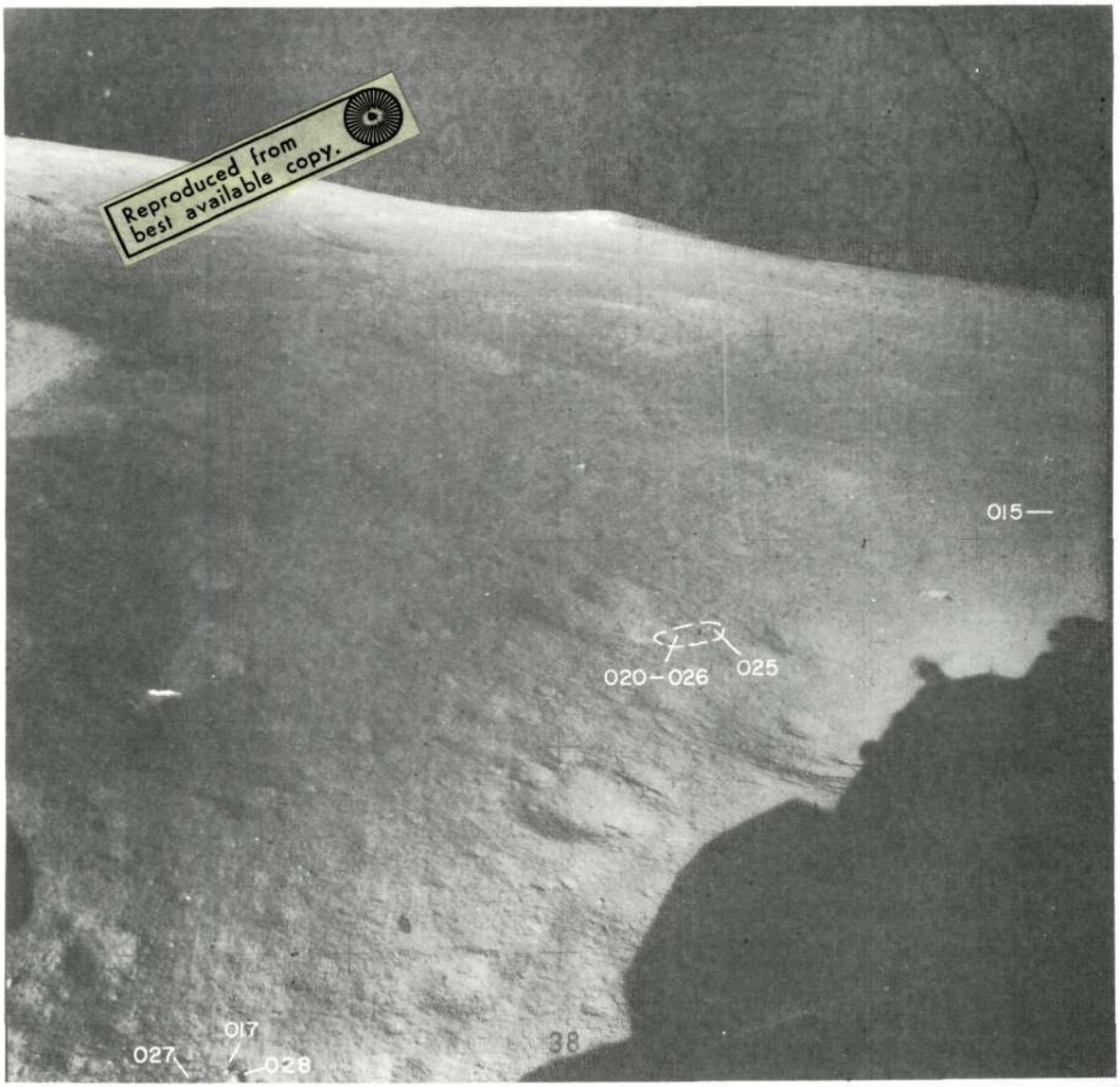

Figure 30. Samples 020-026 collected at the LM as the contingency sample. Pre-sampling, cross-sun photograph AS15-85-11385, looking west.

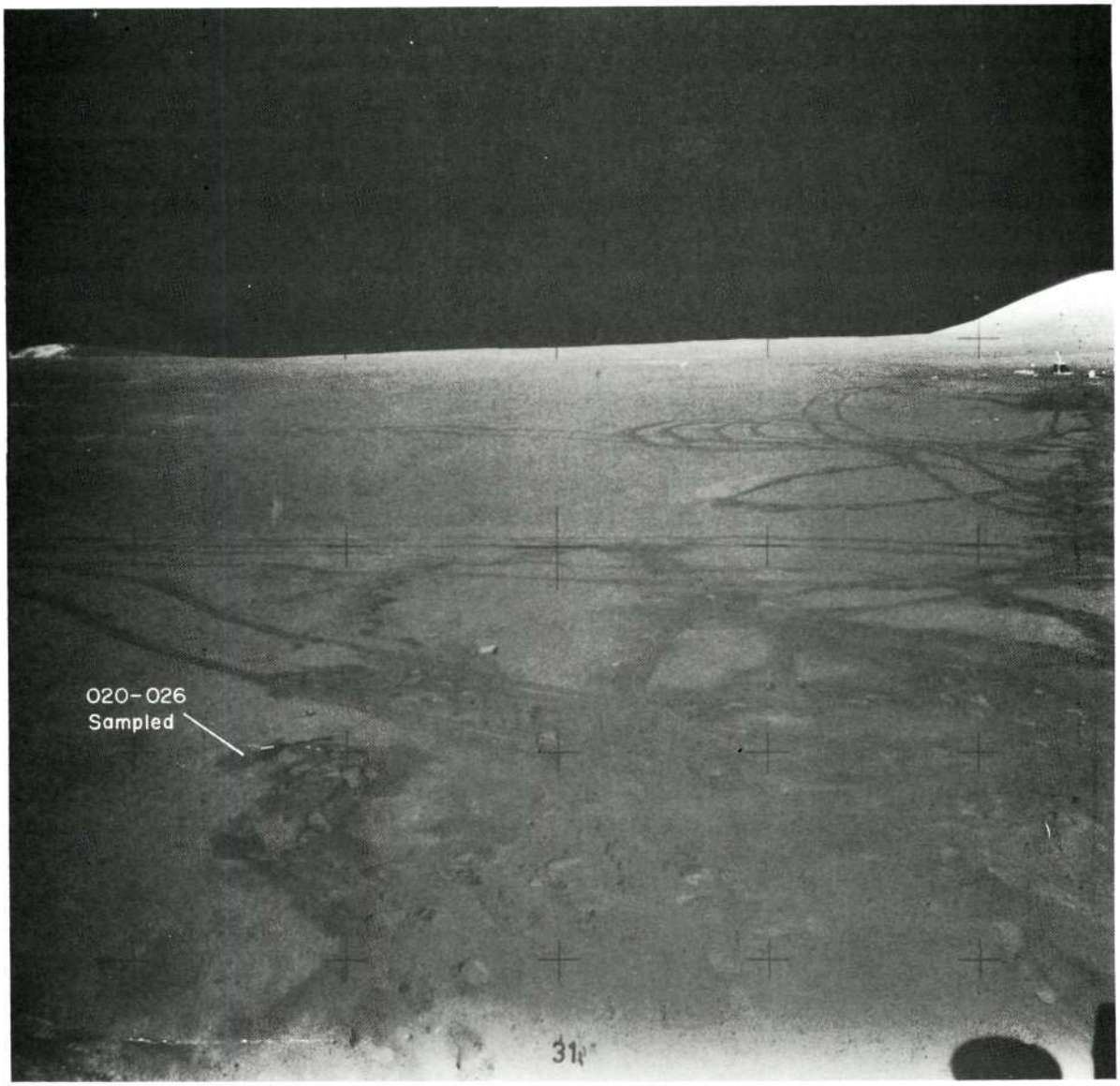

Figure 31. Samples 020-026. Post-sampling, down-sun photograph AS15-88-11943, looking west.

Figure 32. Sample 058 collected at the ALSEP site. Pre-sampling down-sun photograph AS15-92-12412, looking west.

Figure 33. Sample 058. Pre-sampling, cross-sun photograph AS15-92-12410, looking south.

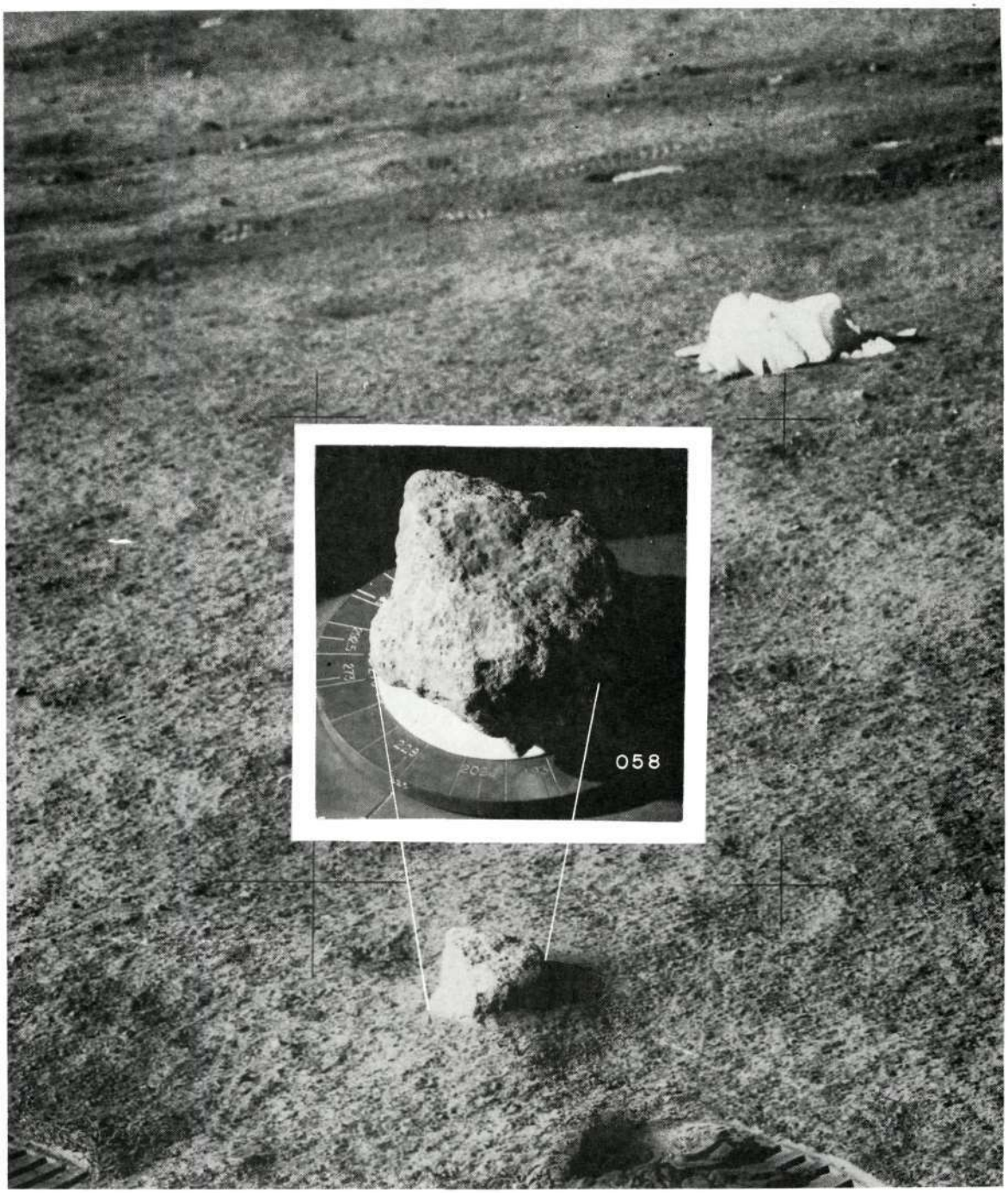

Figure 34. Sample 058 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-92-12410, taken cross-sun, looking south.

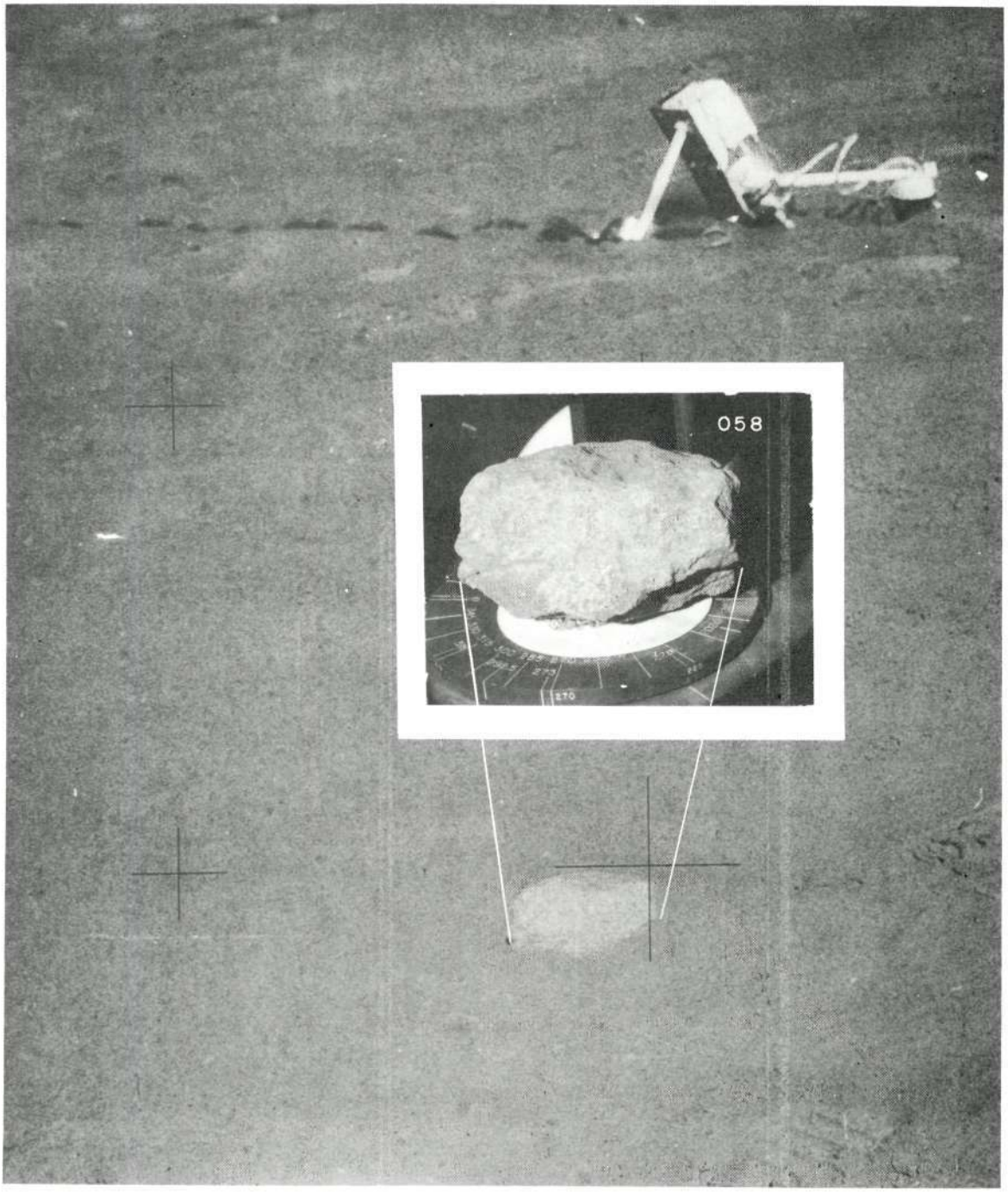

Figure 35. Sample 058 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-92-12412, taken down-sun, looking west.

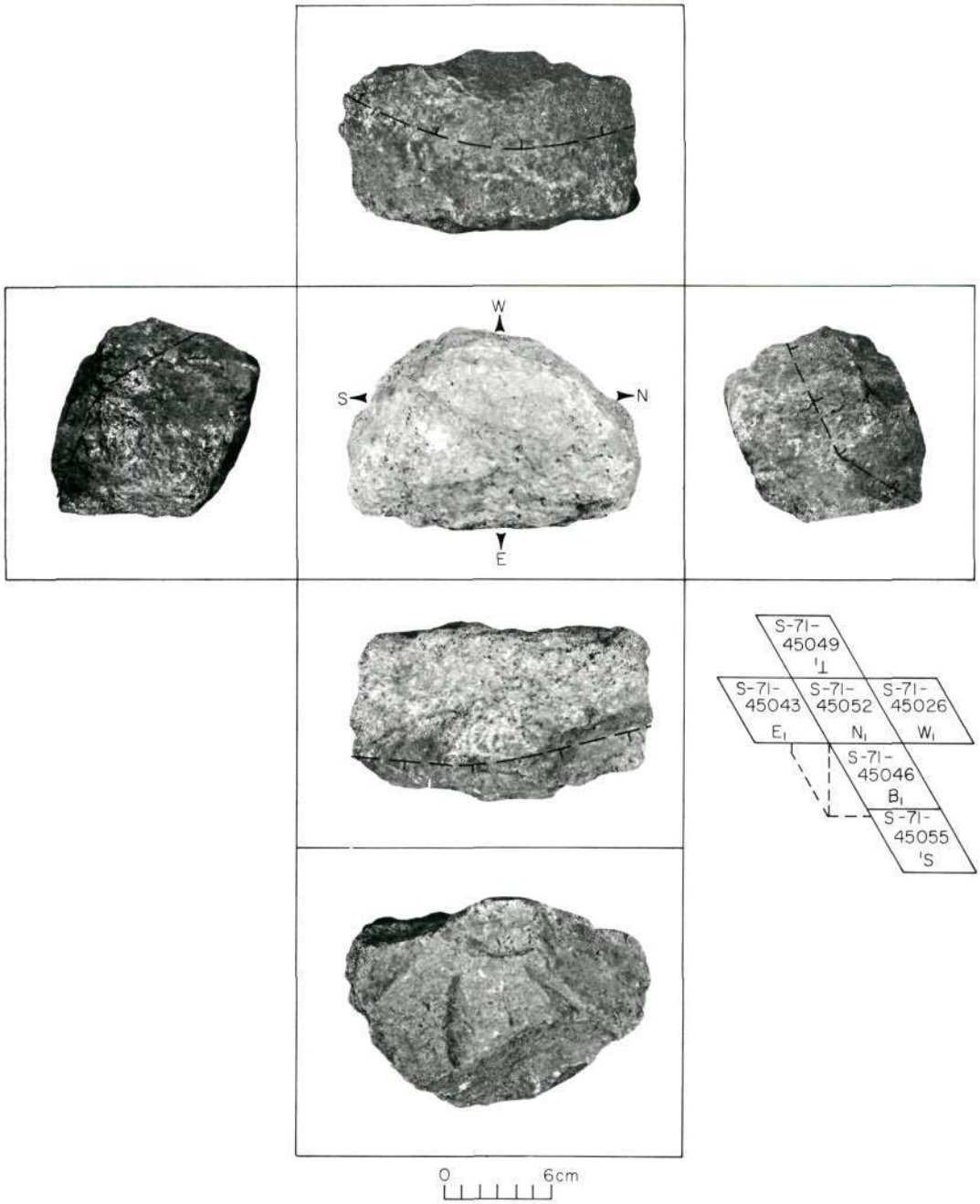

Figure 36. Orthogonal views of sample number 058.

Figure 37. Sample 059 collected at the ALSEP site. Pre-sampling, down-sun photograph AS15-92-12413, looking west.

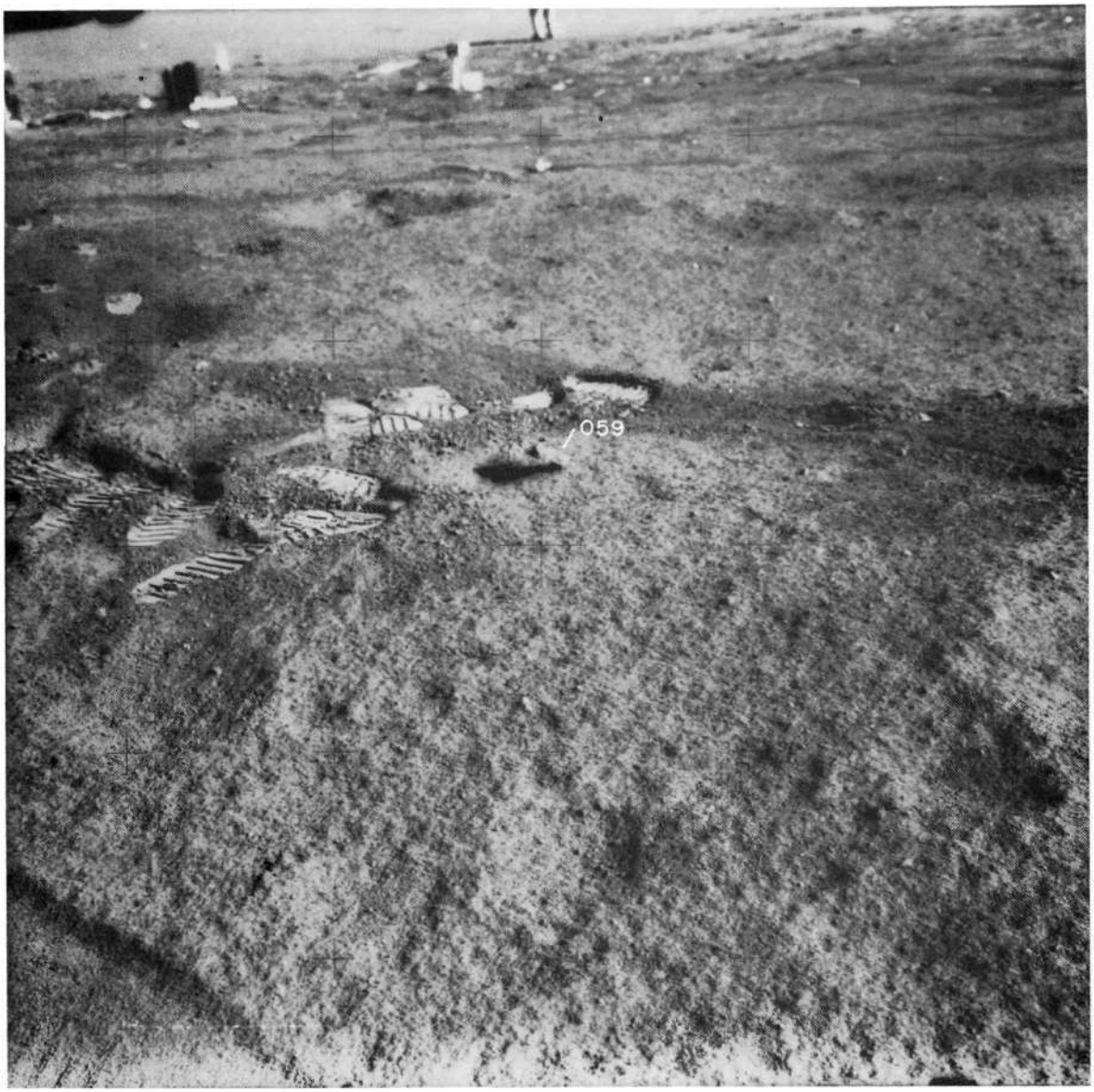

Figure 38. Sample 059. Pre-sampling, cross-sun photograph AS15-92-12415, looking north.

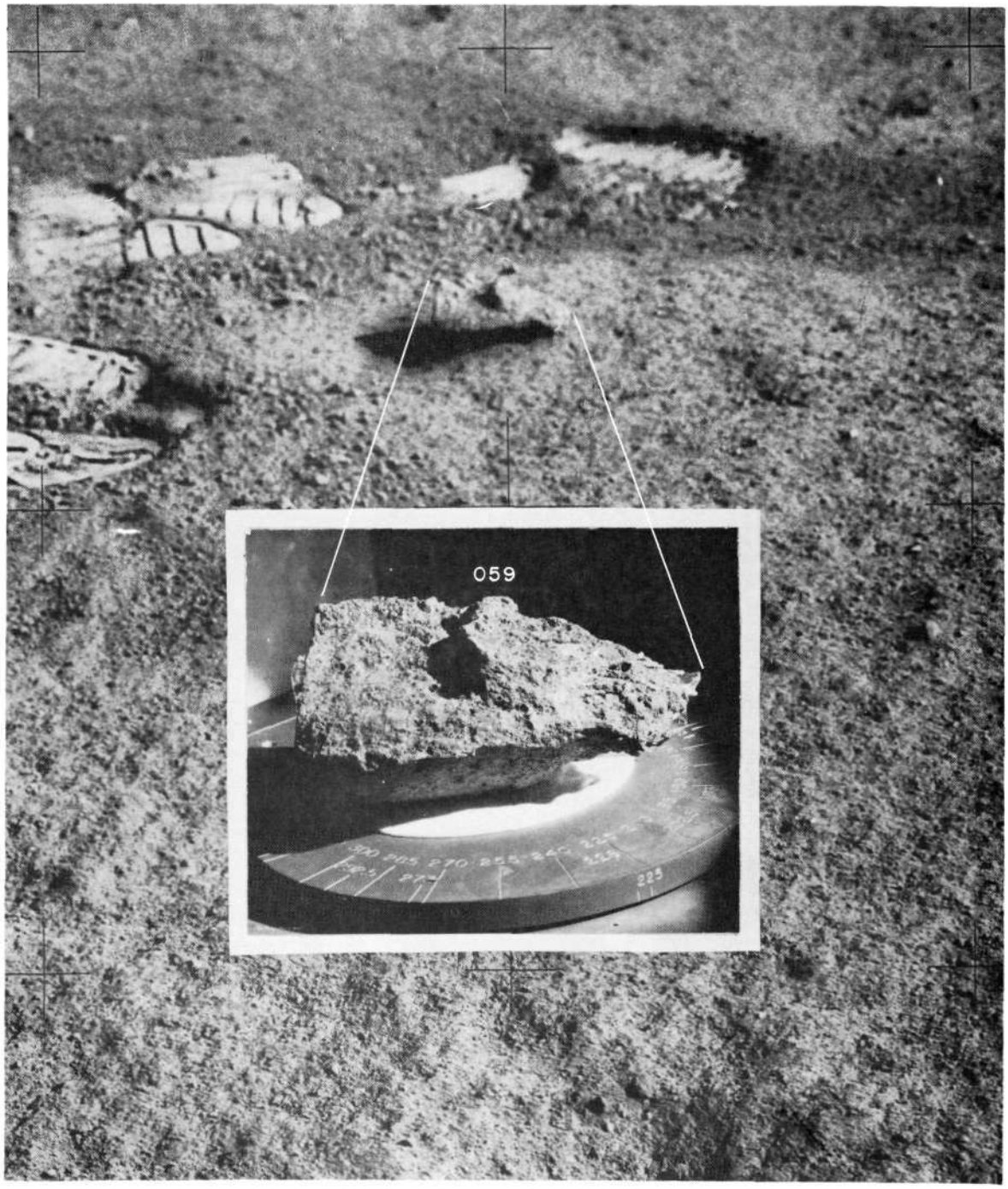

Figure 39. Sample 059 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-92-12415, taken cross-sun, looking north.

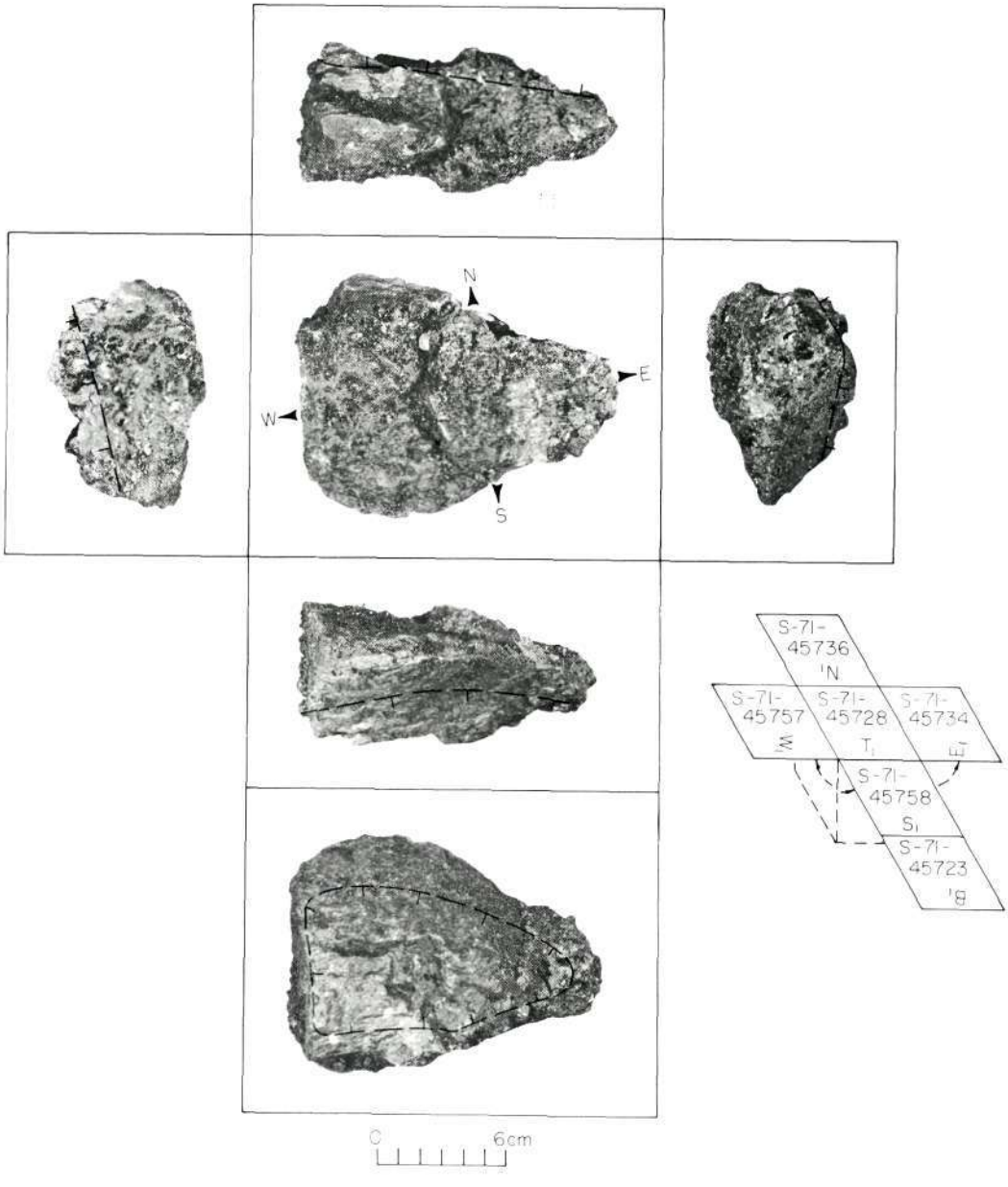

Figure 40. Orthogonal views of sample number 059.

Figure 41. Sample 065 collected at station 1 from the east rim of Elbow crater. Pre-sampling, down-sun photograph AS15-85-11416, looking west.

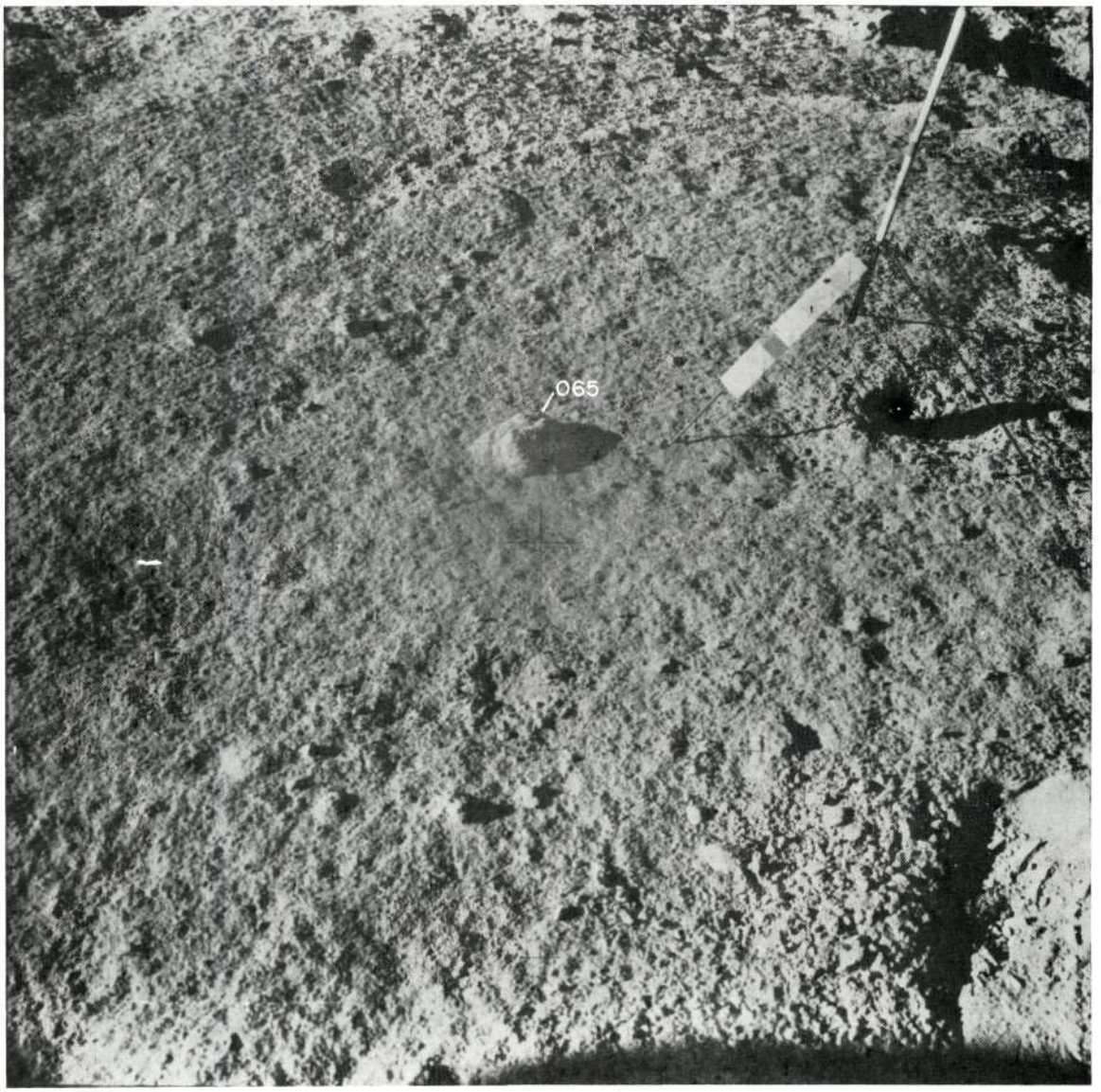

Figure 42. Sample 065. Pre-sampling, cross-sun photograph AS15-86-11531, looking south.

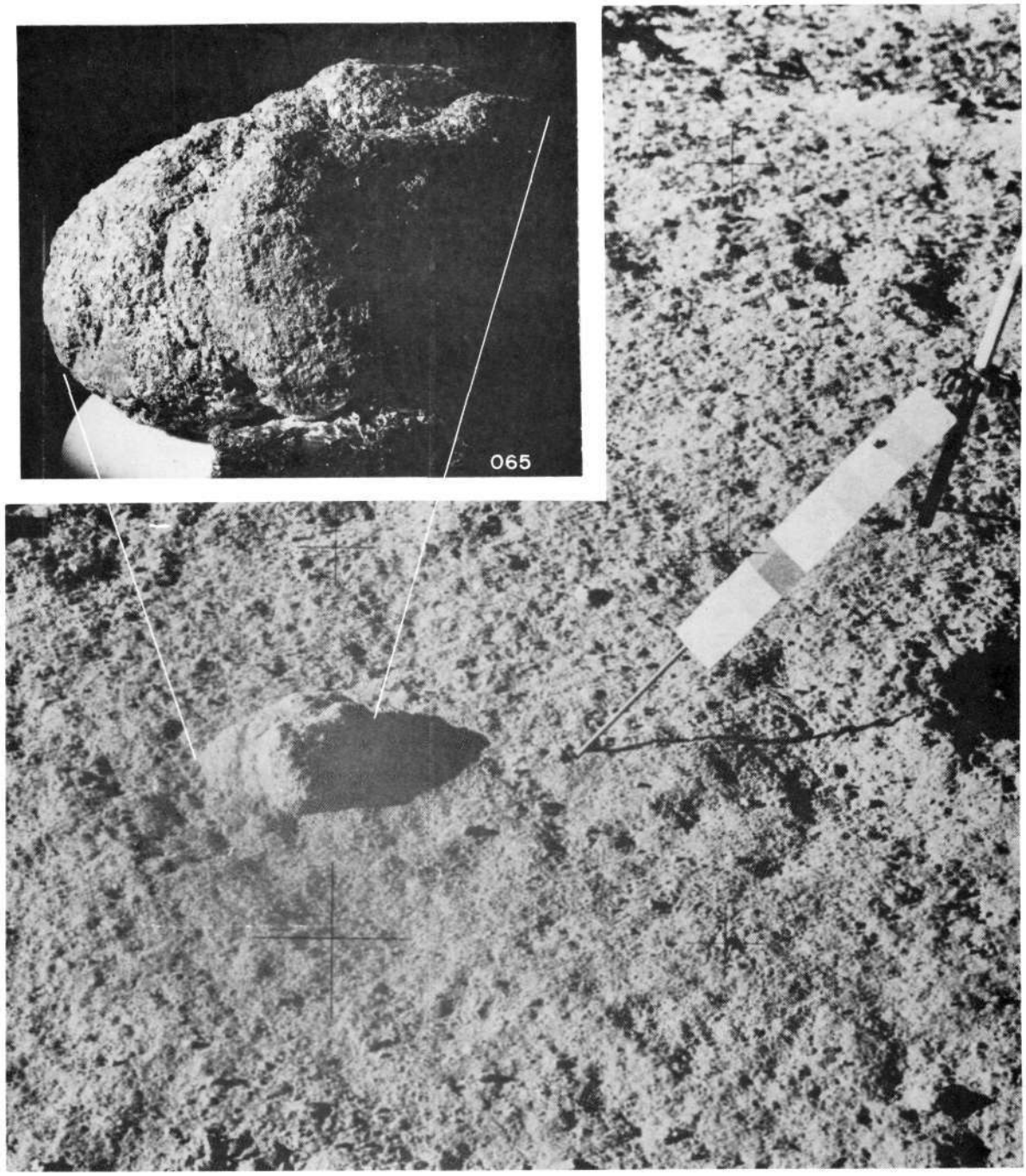

Figure 43. Sample 065 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-86-11531, taken cross-sun, looking south.

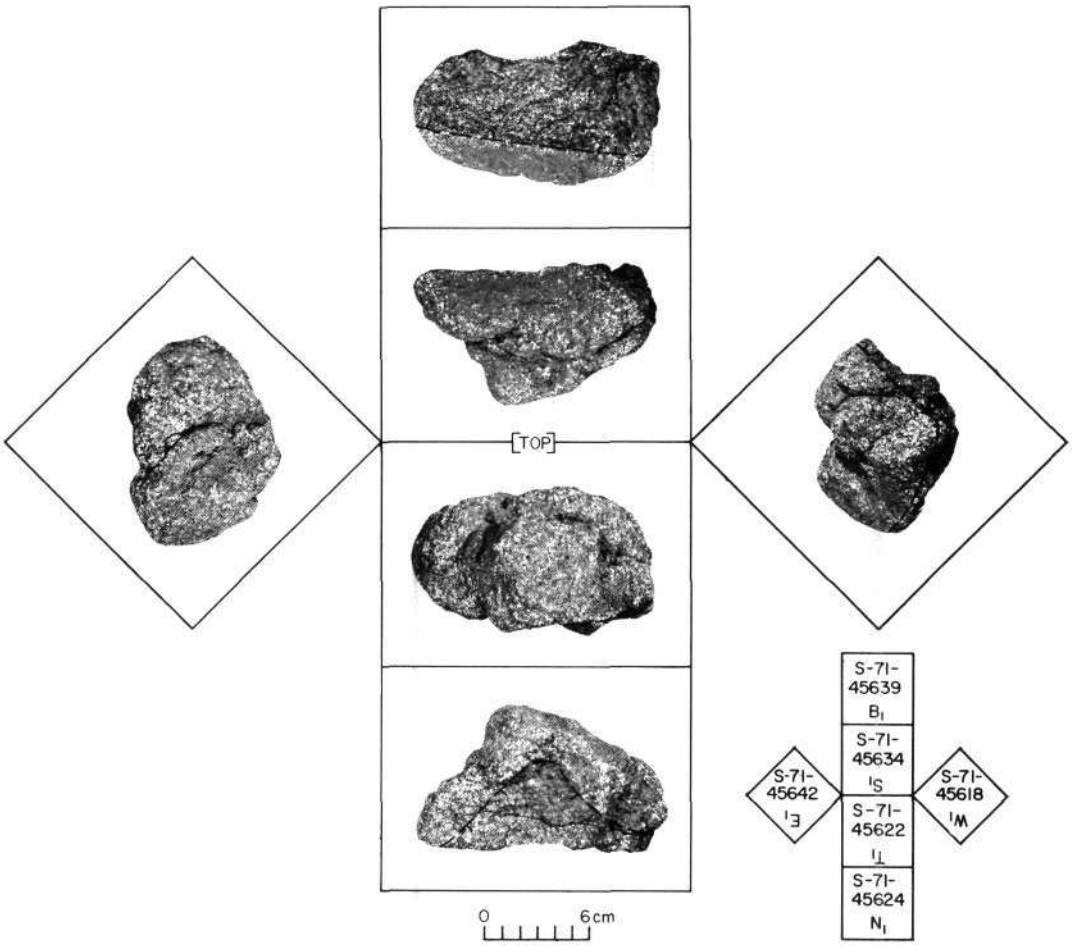

Figure 44. Orthogonal views of sample number 065.

Figure 45. Samples 070-076 collected at station 1 from the east rim of Elbow crater. Second sampling point in radial sample. Pre-sampling, down-sun photograph AS15-85-11418, looking west.

Figure 46. Samples 070-076. Pre-sampling, cross-sun photograph AS15-86-11534, looking south.

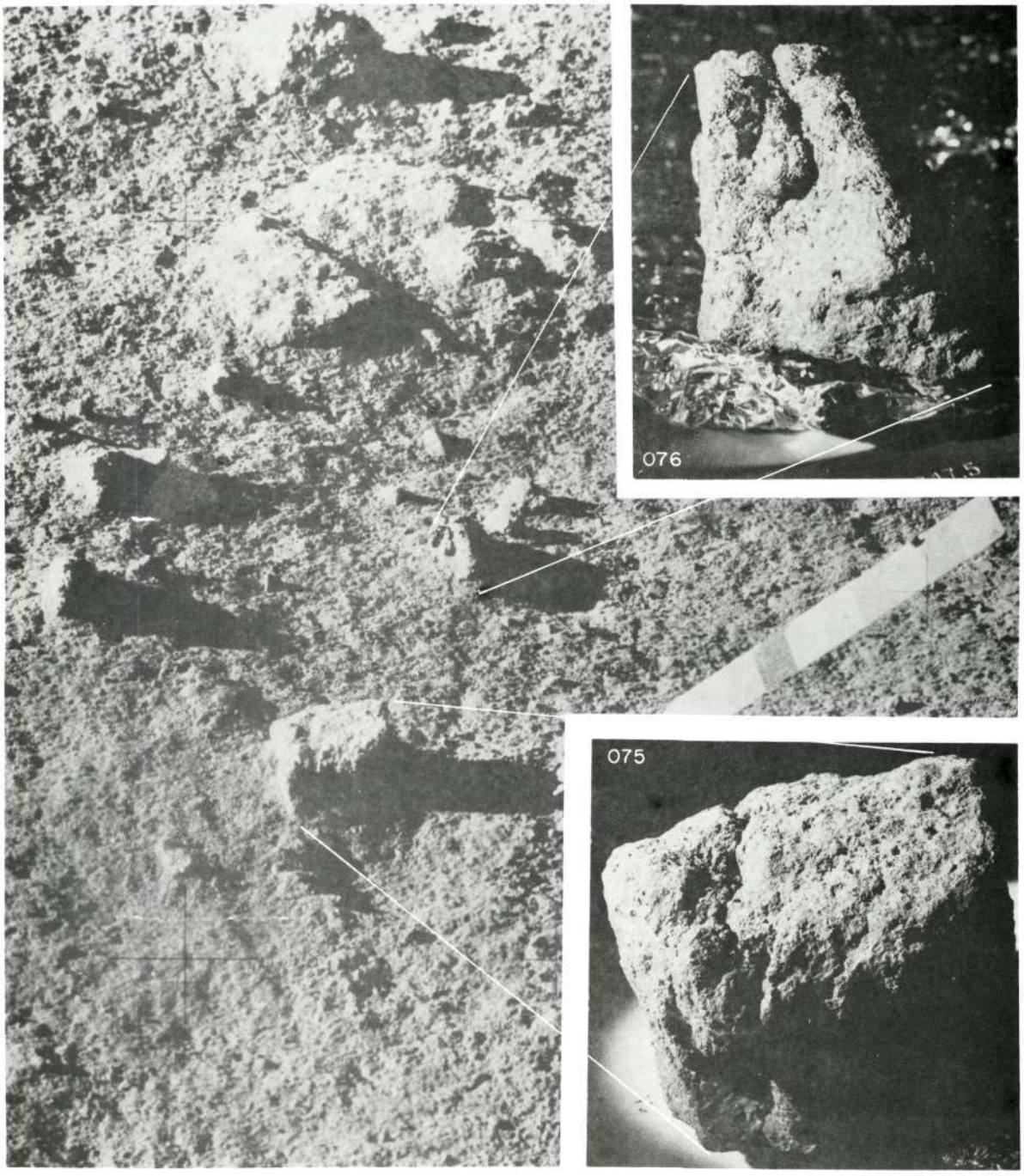

Figure 47. Samples 075 and 076 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-86-11534, taken cross-sun, looking south.

Q.2.

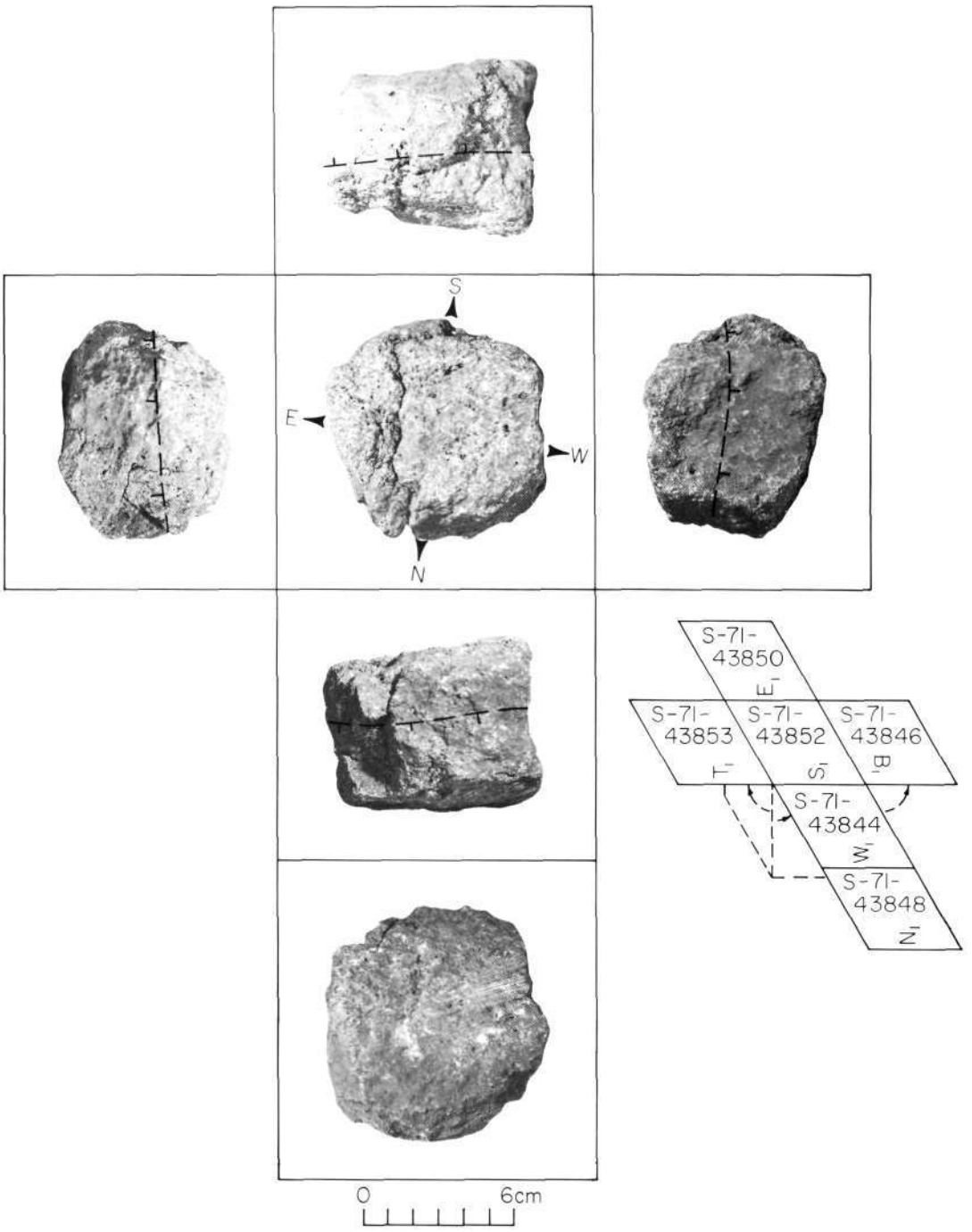

Figure 48. Orthogonal views of sample number 075.

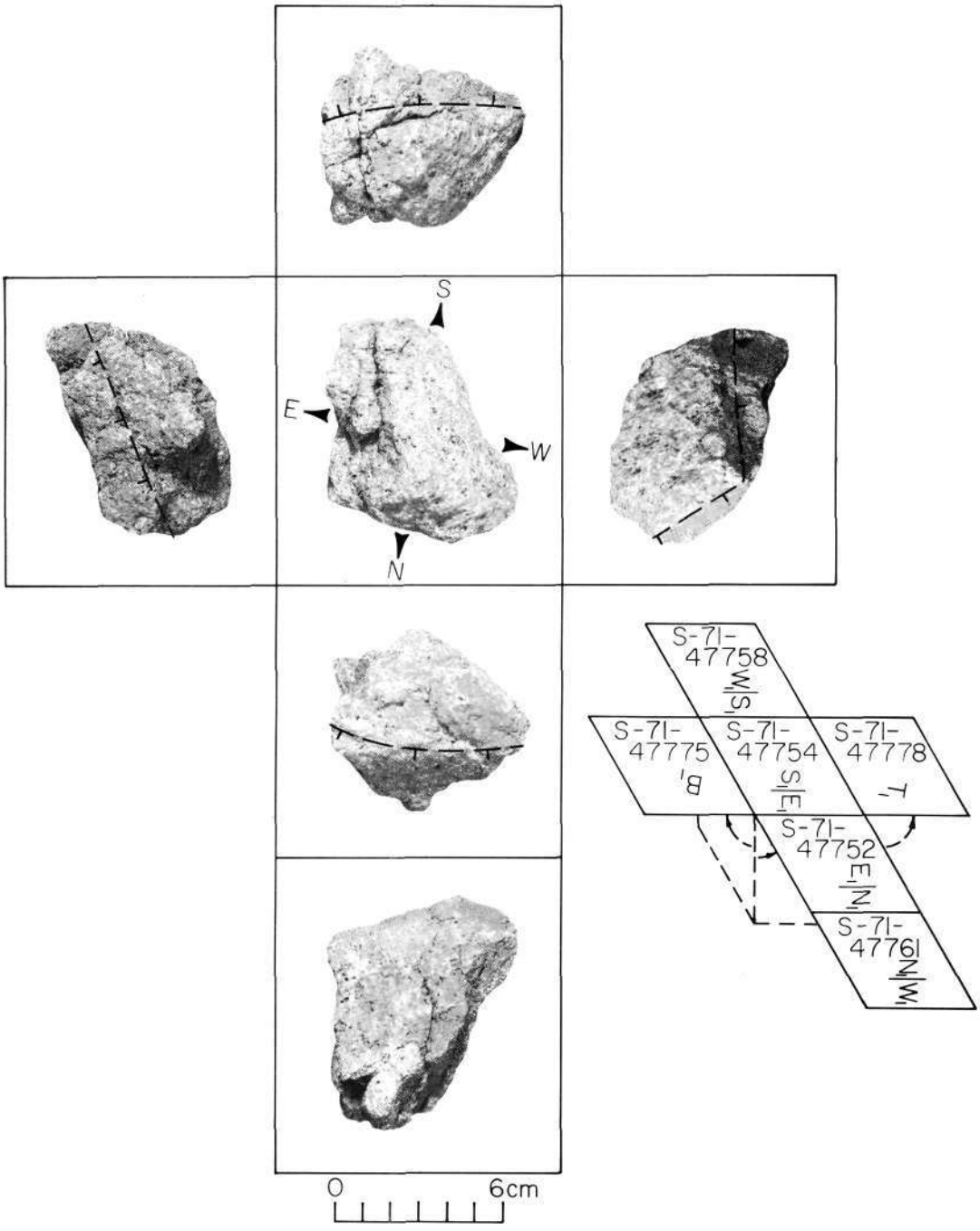

Figure 49. Orthogonal views of sample number 076.

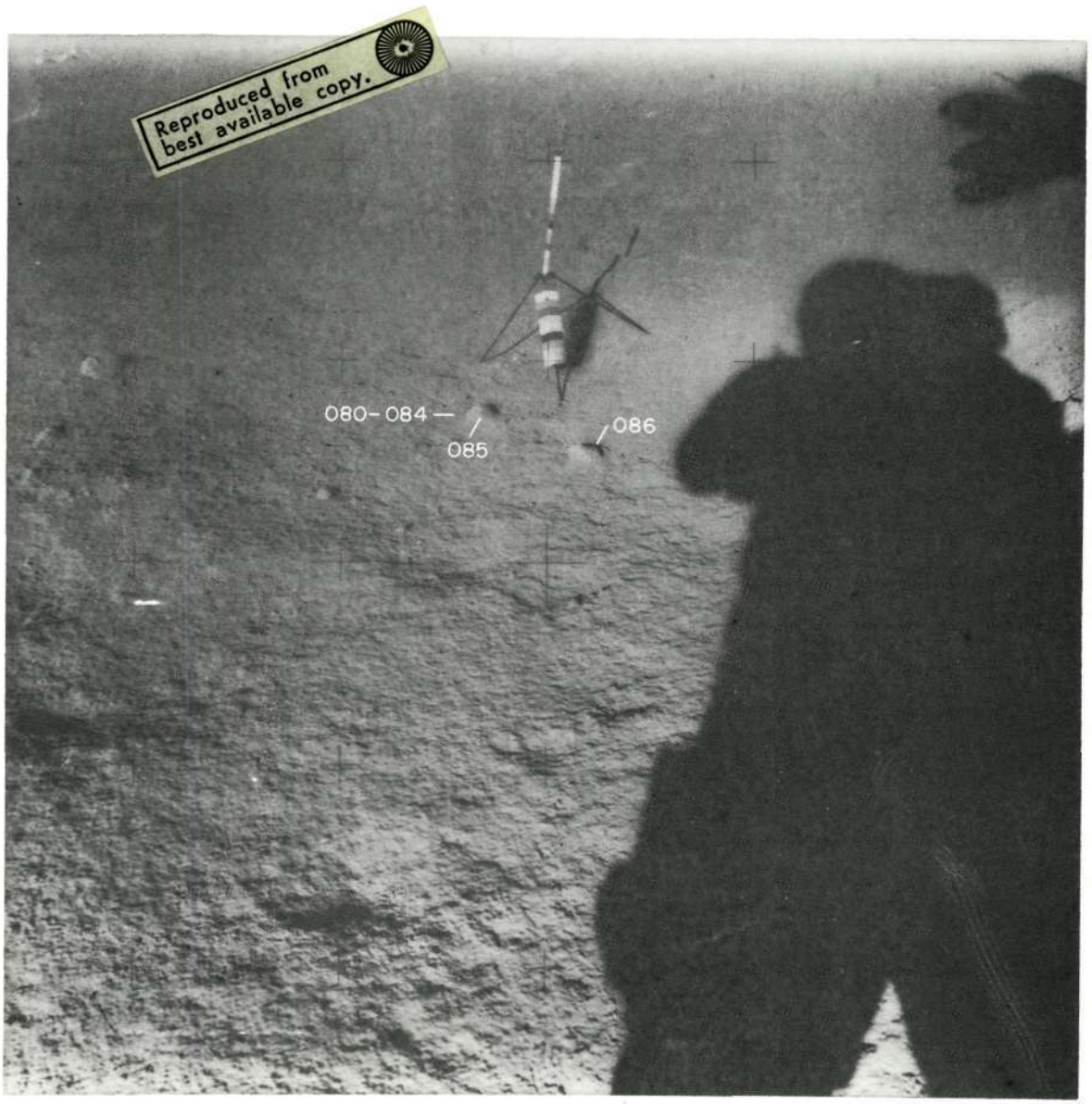

Figure 50. Samples 080-086 collected at station 1 from east of the rim of Elbow crater. Third sampling point of radial sample. Pre-sampling, down-sun photograph AS15-85-11420, looking west.

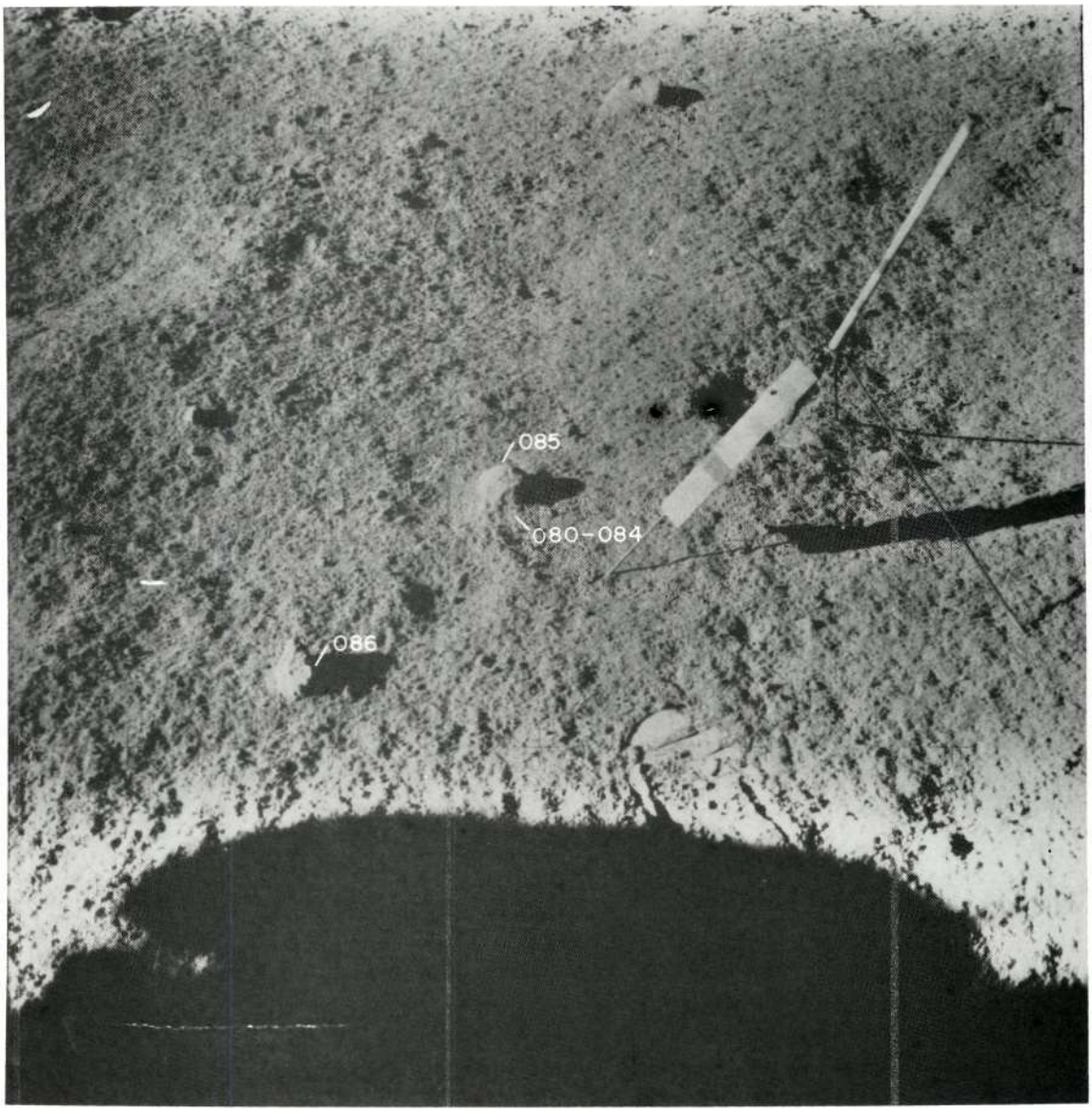

Figure 51. Sample 080-086. Pre-sampling, cross-sun photograph AS15-86-11536, looking south.

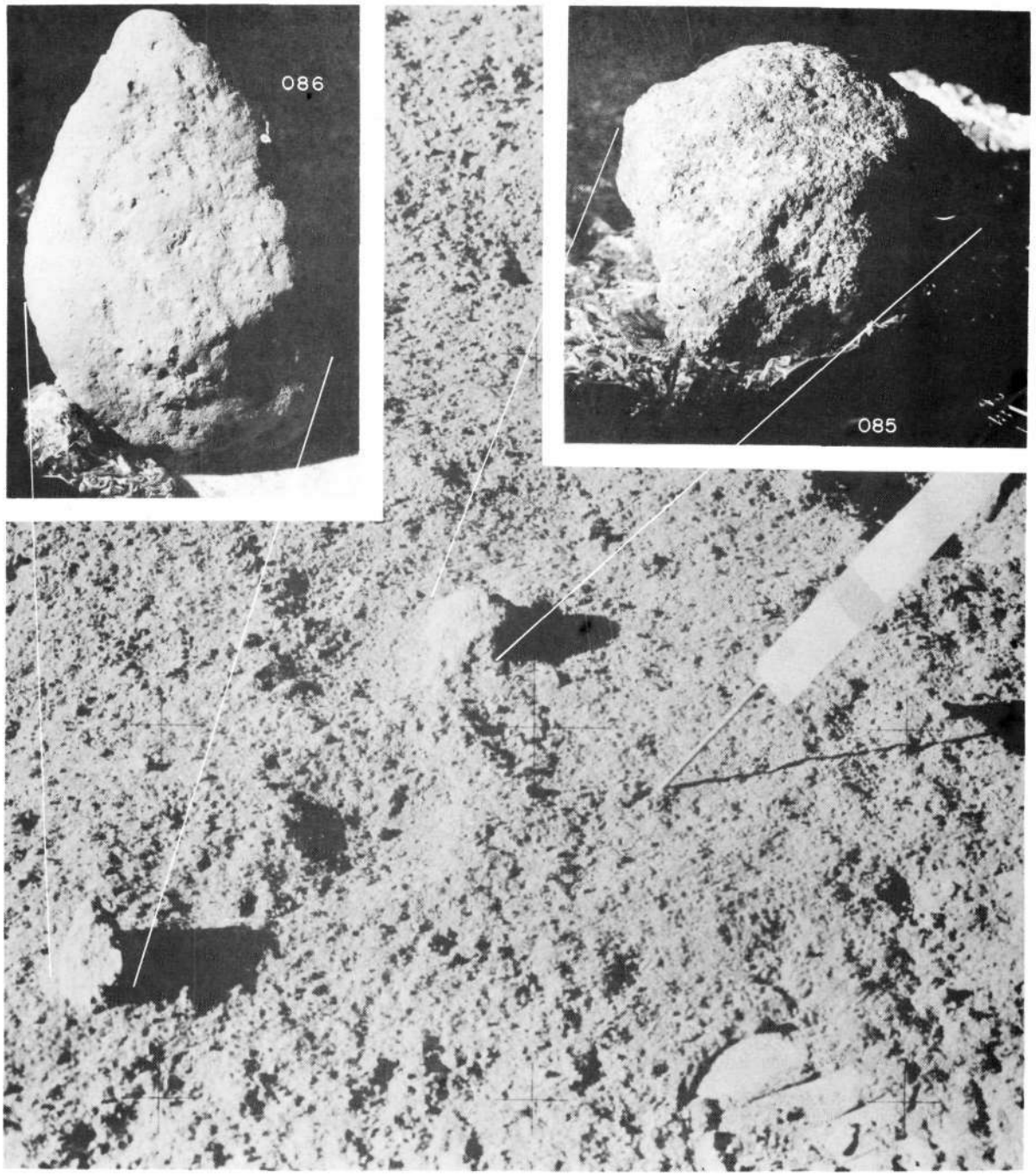

Figure 52. Samples 085 and 086 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-86-11536, taken cross-sun, looking south.

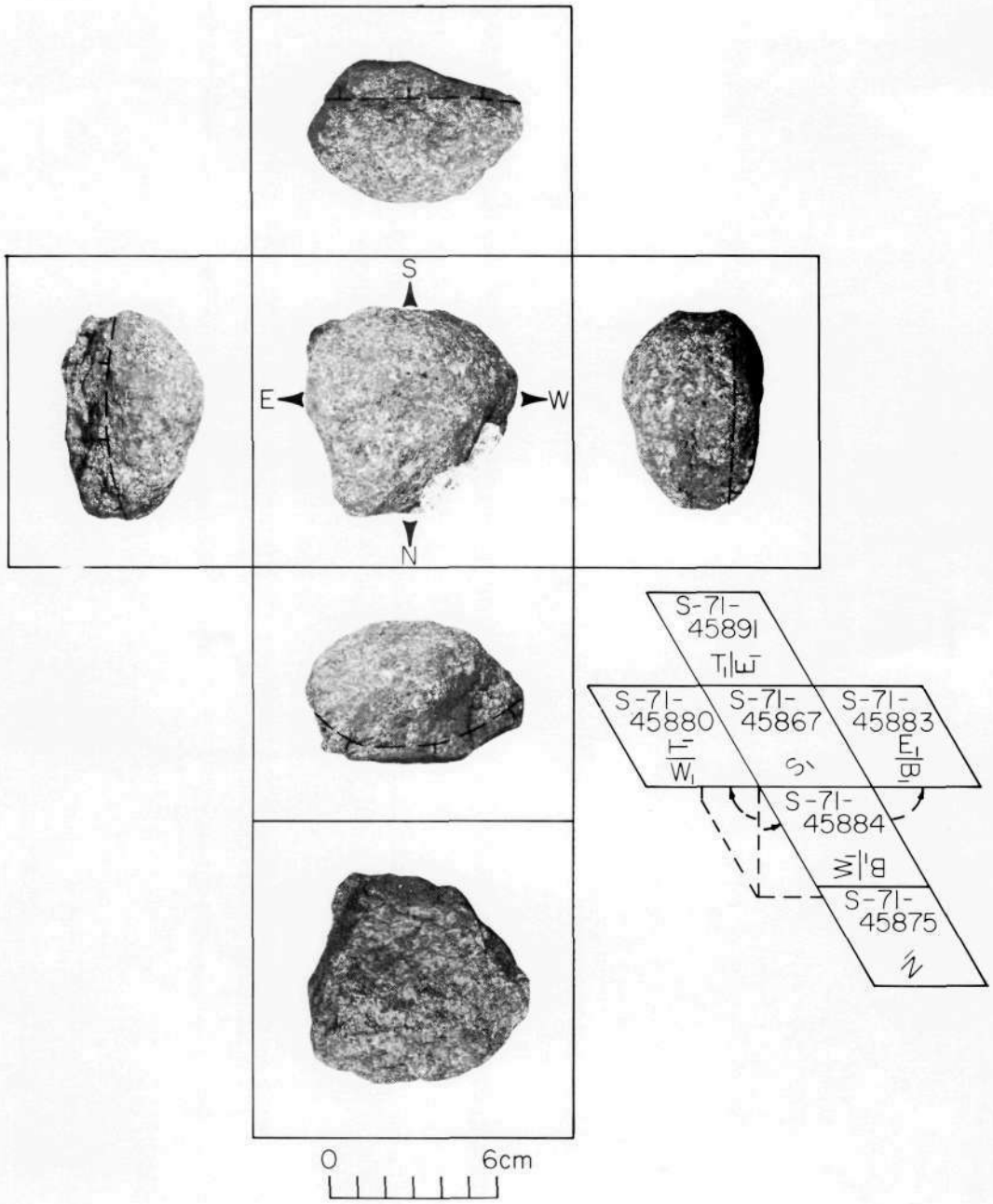

Figure 53. Orthogonal views of sample number 085.

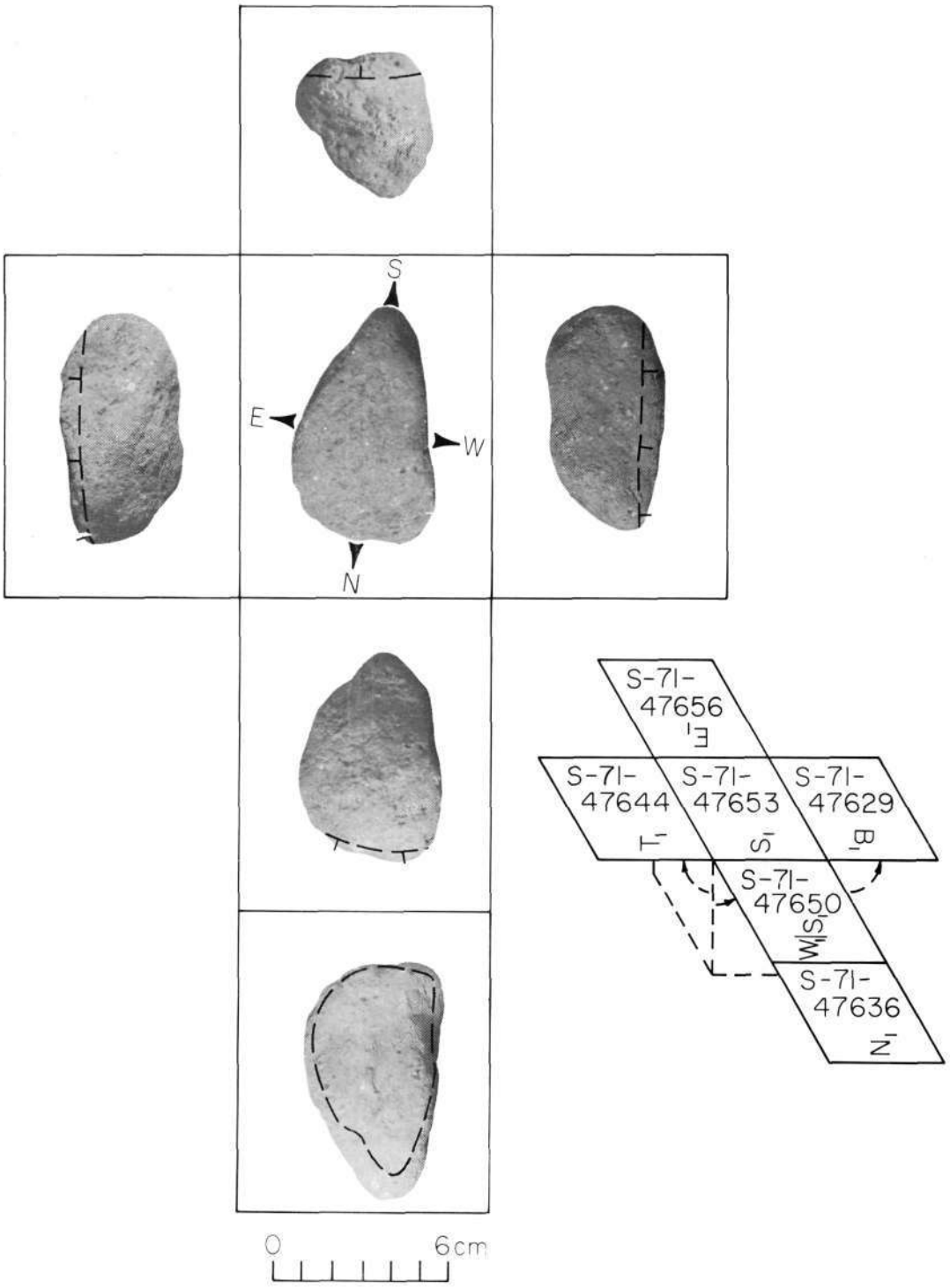

Figure 54. Orthogonal views of sample number 086.

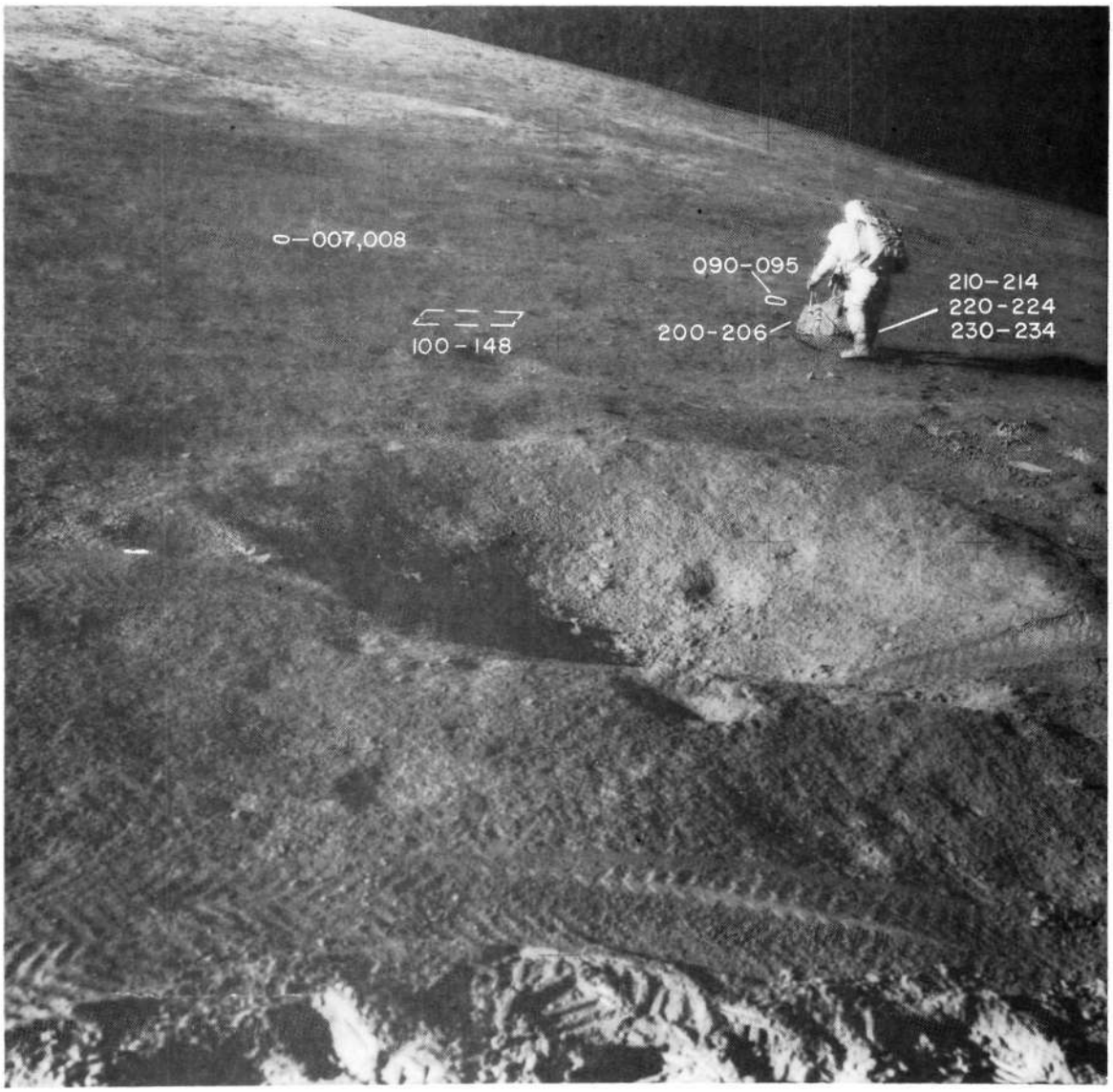

Figure 55. General view of areas from which samples 090-234 were collected at station 2. Pre-sampling, cross-sun photograph AS15-85-11435, looking south.

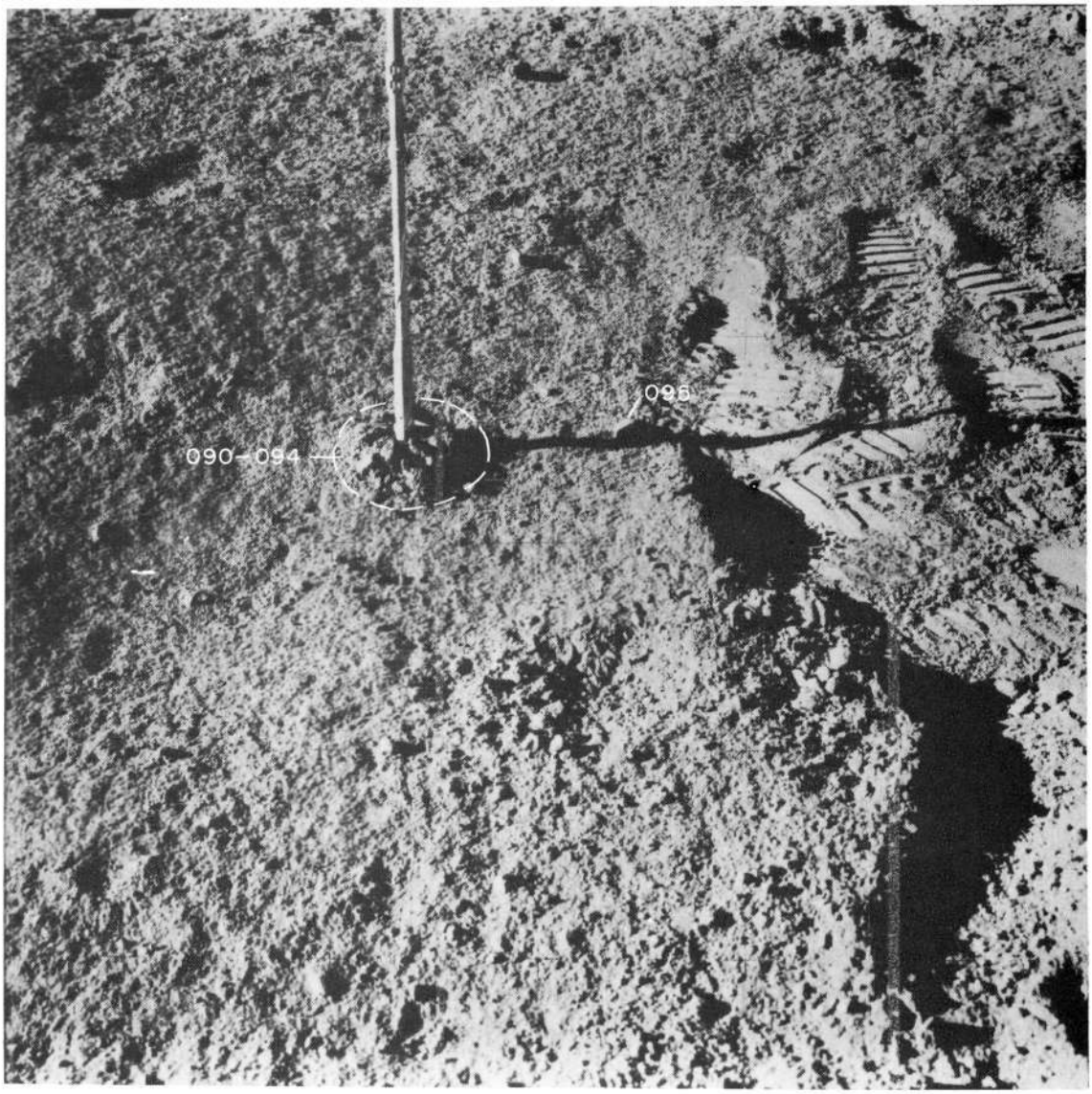

Figure 56. Samples 090-095 collected at station 2. Pre-sampling, cross-sun photograph AS15-86-11549, looking south.

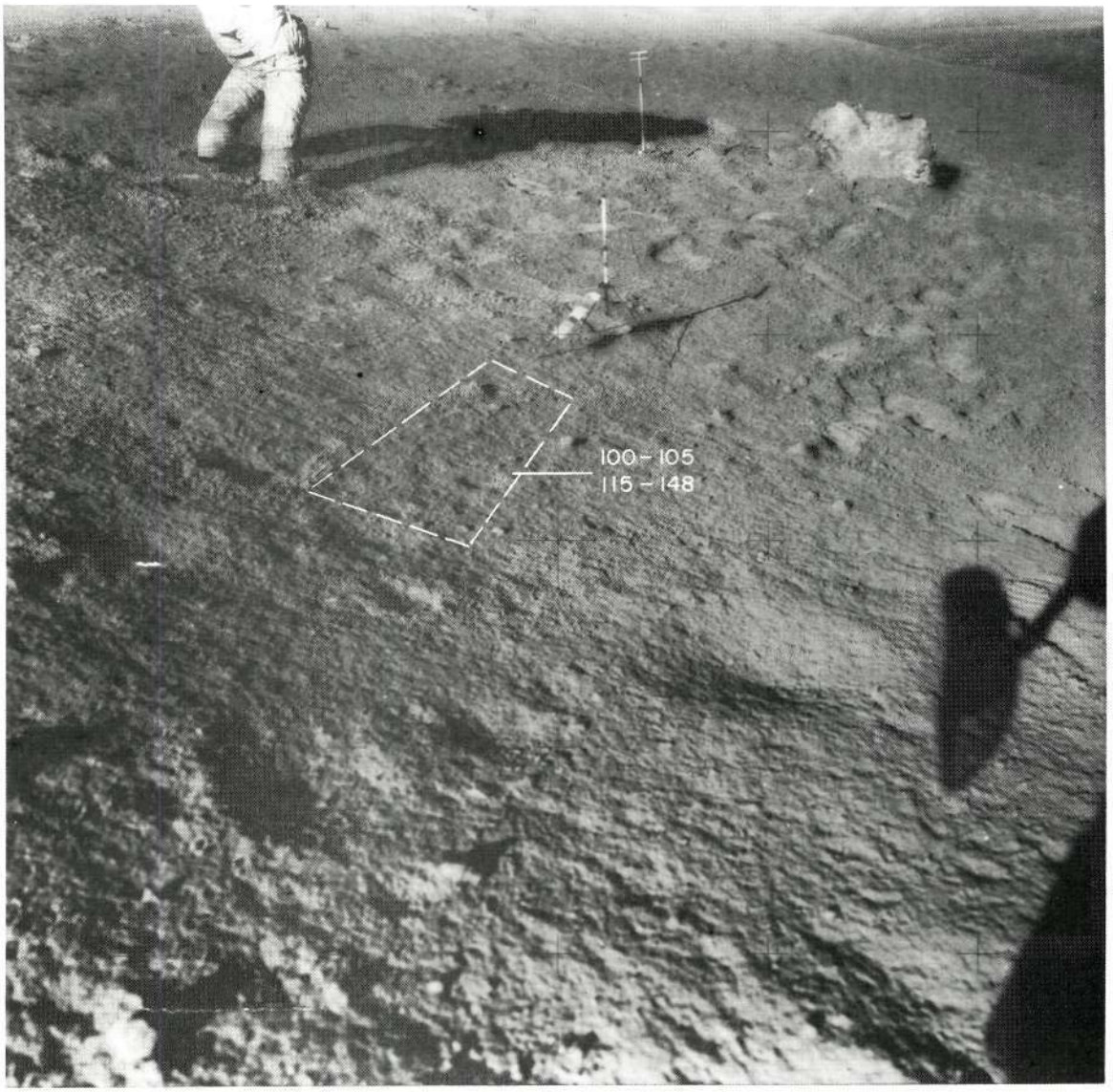

Figure 57. Samples 100-148 collected at station 2 as a comprehensive sample. Pre-sampling, cross-sun photograph AS15-85-11442, looking southwest.

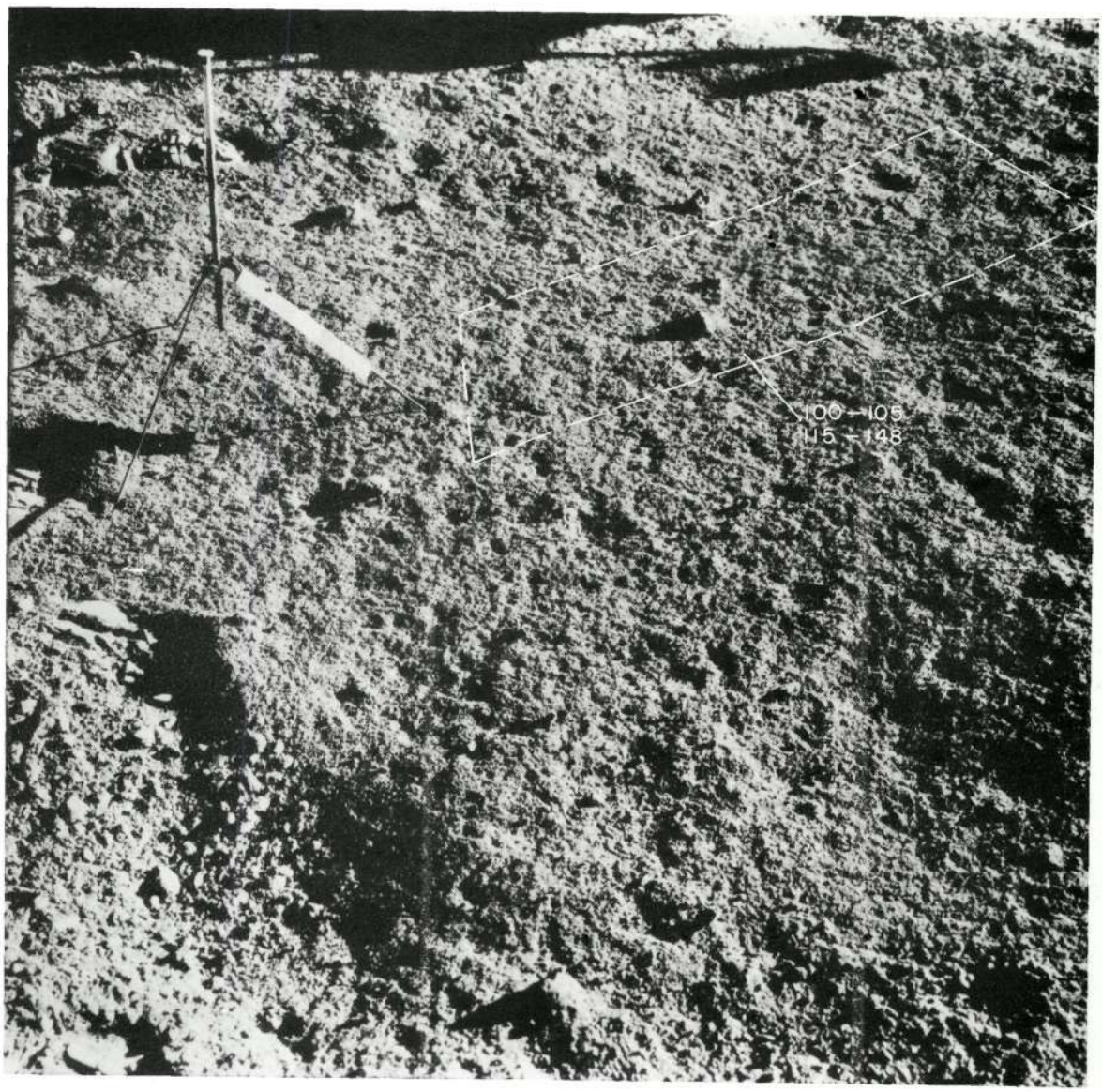

Figure 58. Sample 100-148. Pre-sampling, cross-sun photograph AS15-86-11567, looking north.

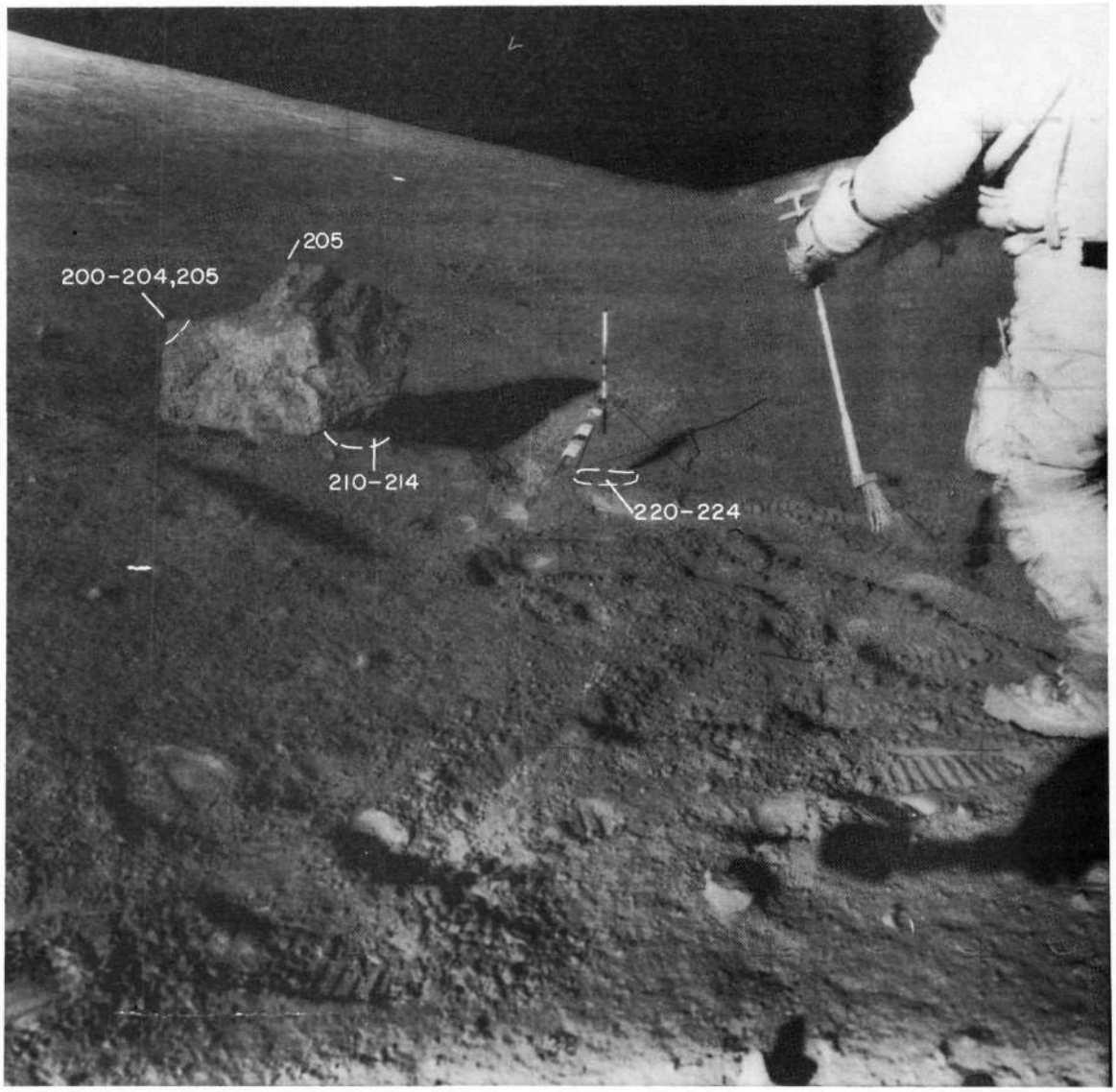

Figure 59. General view of samples 200-244 collected at station 2 from on and near the boulder. Pre-sampling, cross-sun photograph AS15-85-11440, looking southwest.

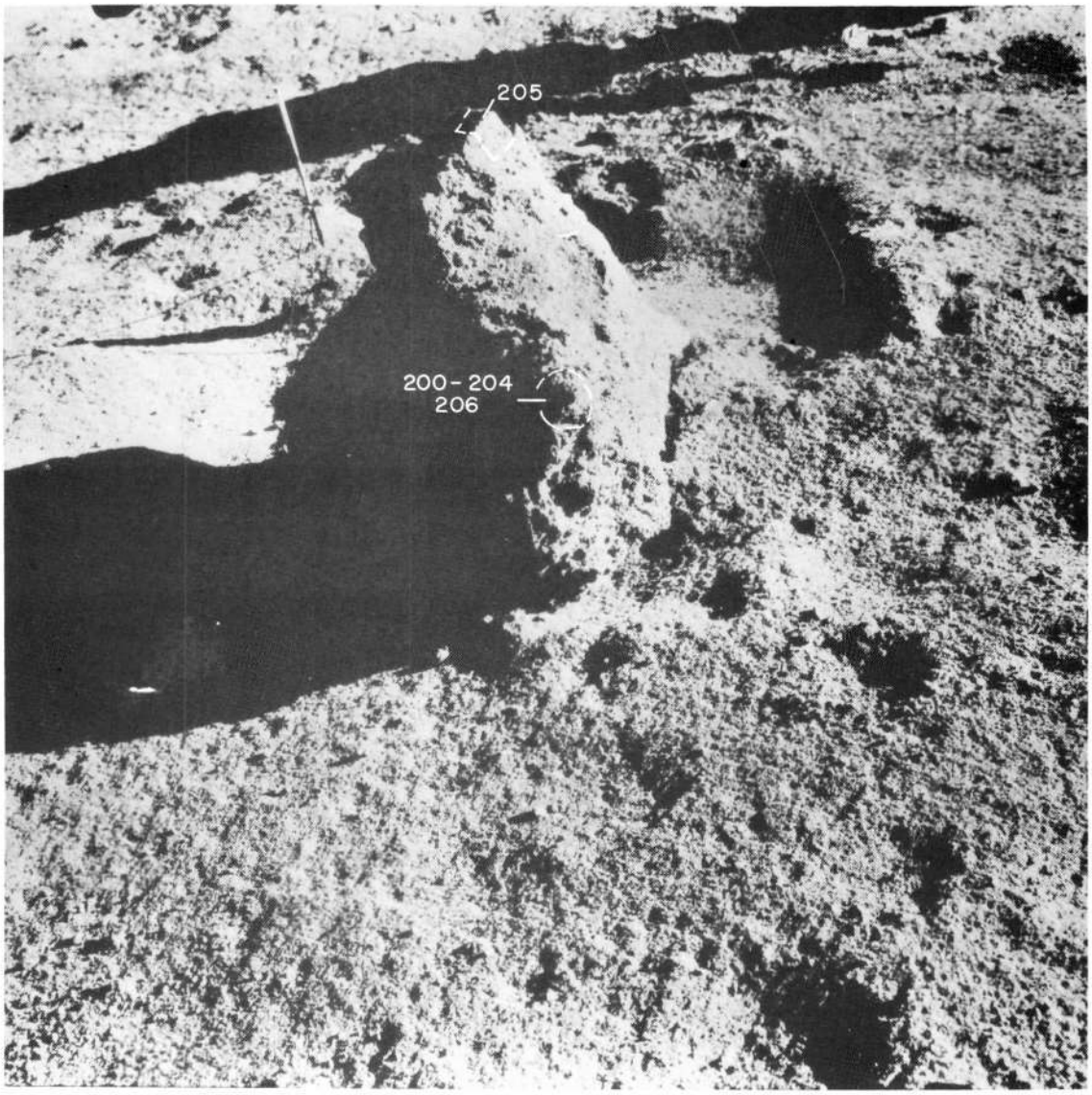

Figure 60. Samples 200-206 collected at station 2. Pre-sampling, cross-sun photograph AS15-86-11547, looking north.

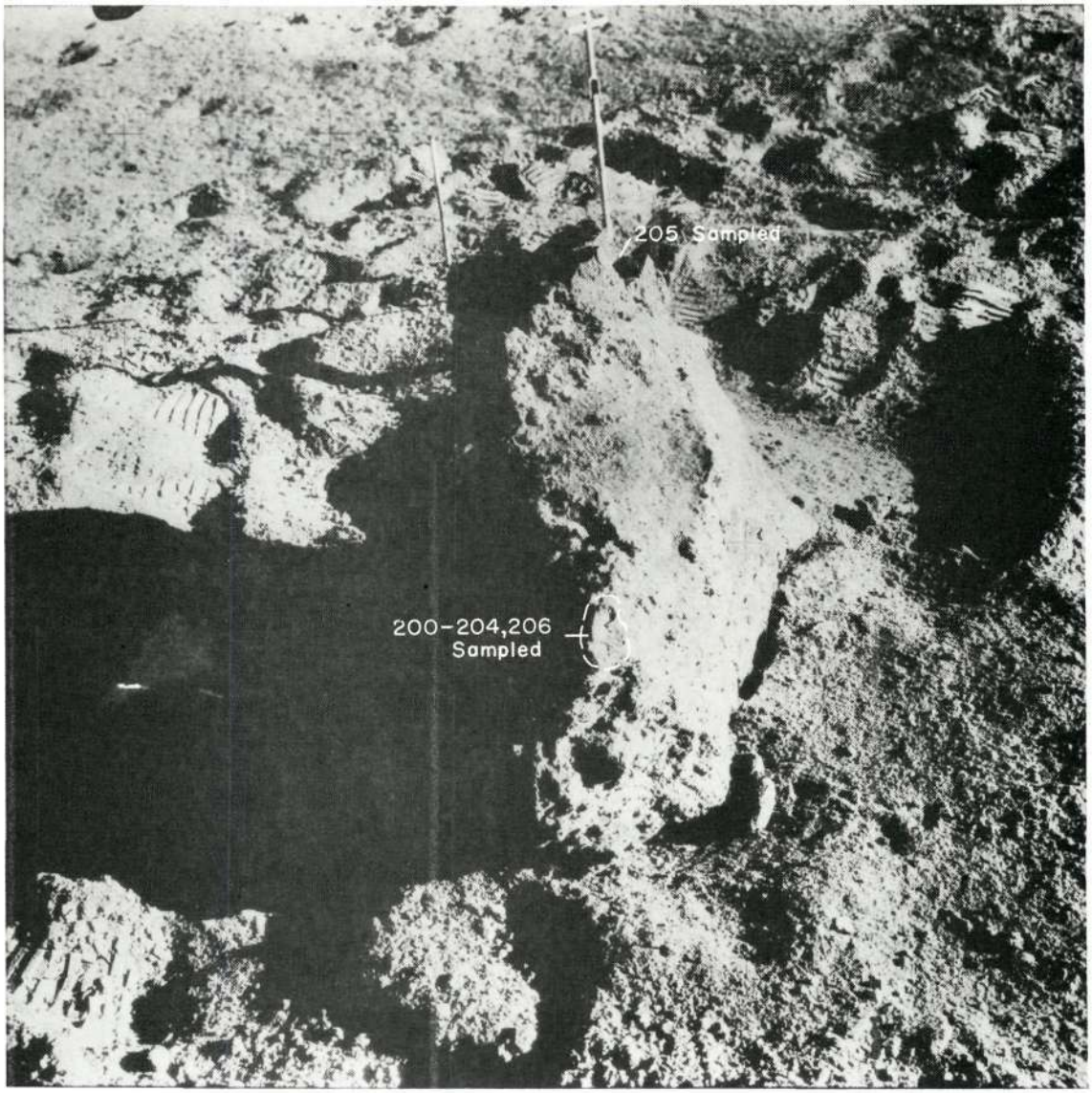

Figure 61. Samples 200-206. Post-sampling, cross-sun photograph AS15-86-11558, looking north.

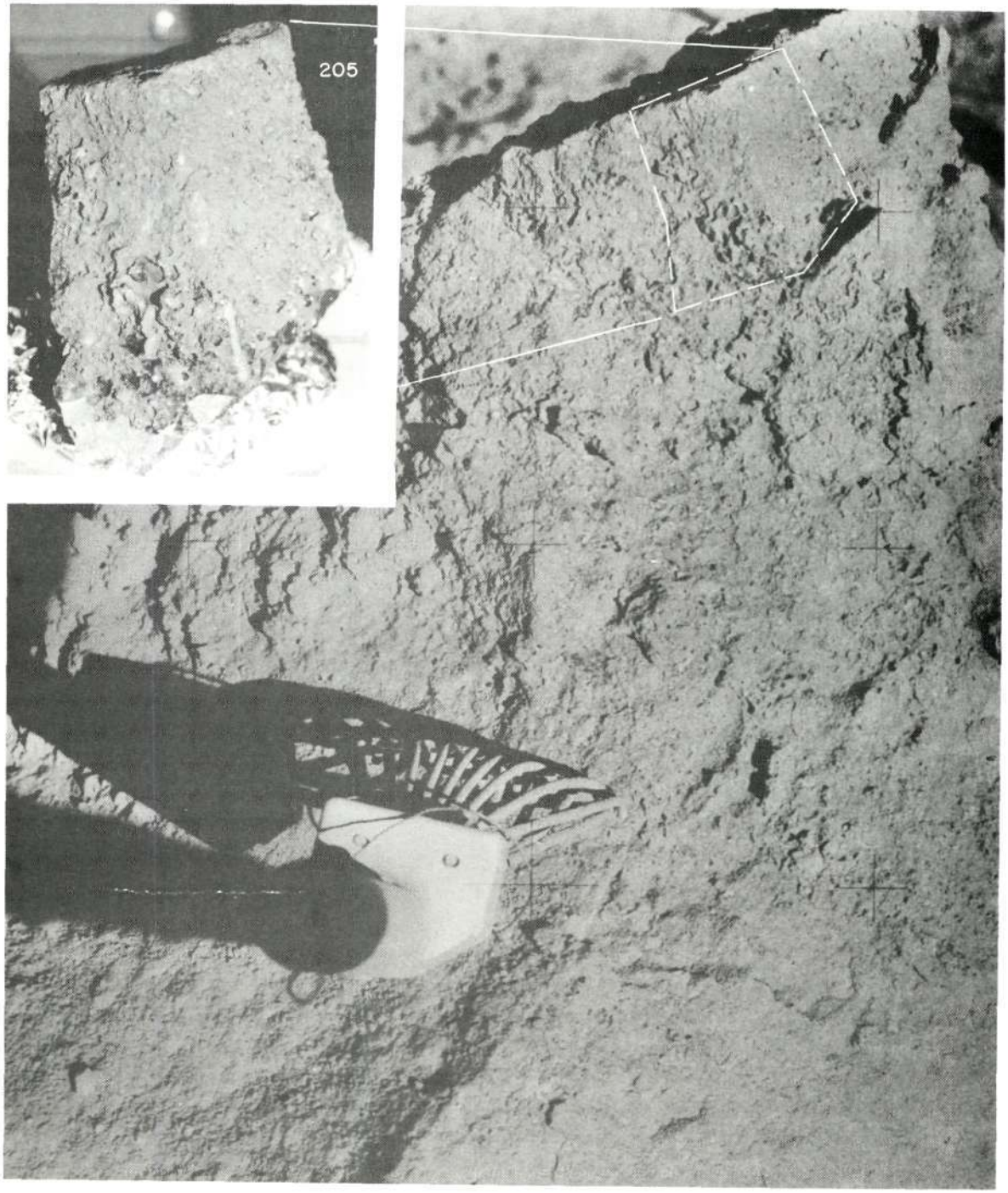

Figure 62. Sample 205 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-86-11552, taken cross-sun, looking northwest.

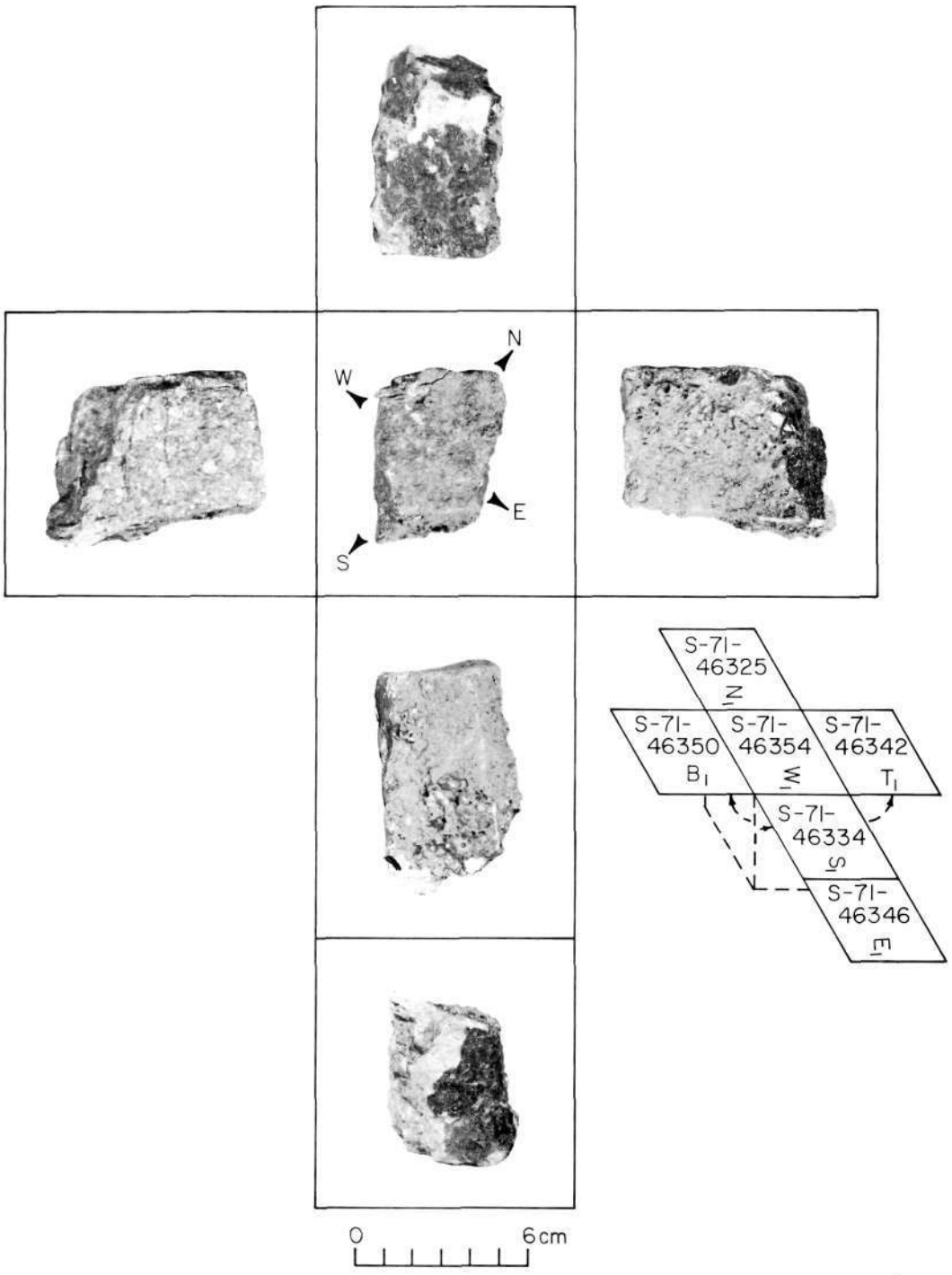

Figure 63. Orthogonal views of sample number 205.

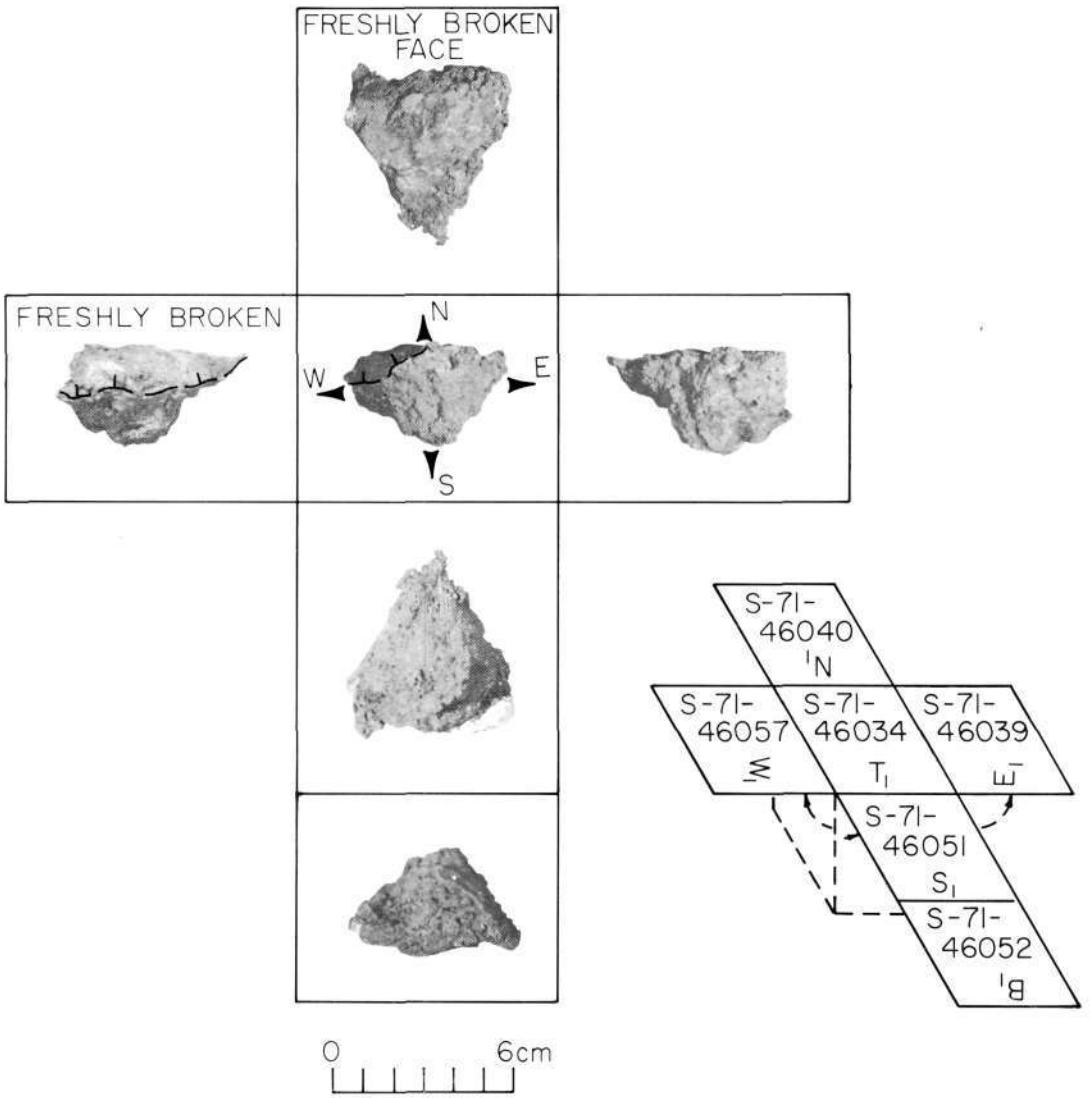

Figure 64. Orthogonal views of sample number 206.

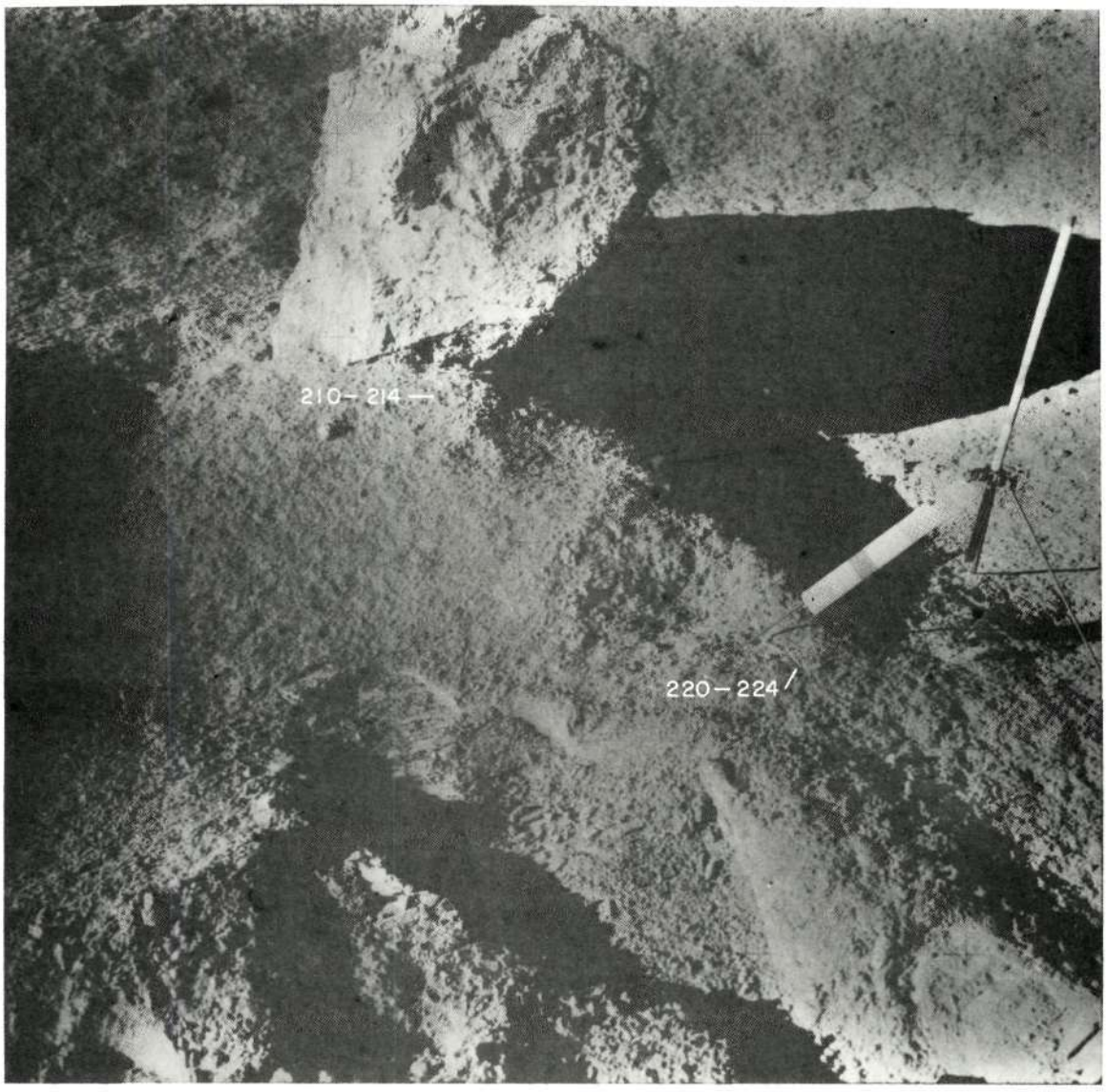

Figure 65. Samples 210-224 collected at station 2. Pre-sampling, cross-sun, photograph AS15-86-11544, looking south.

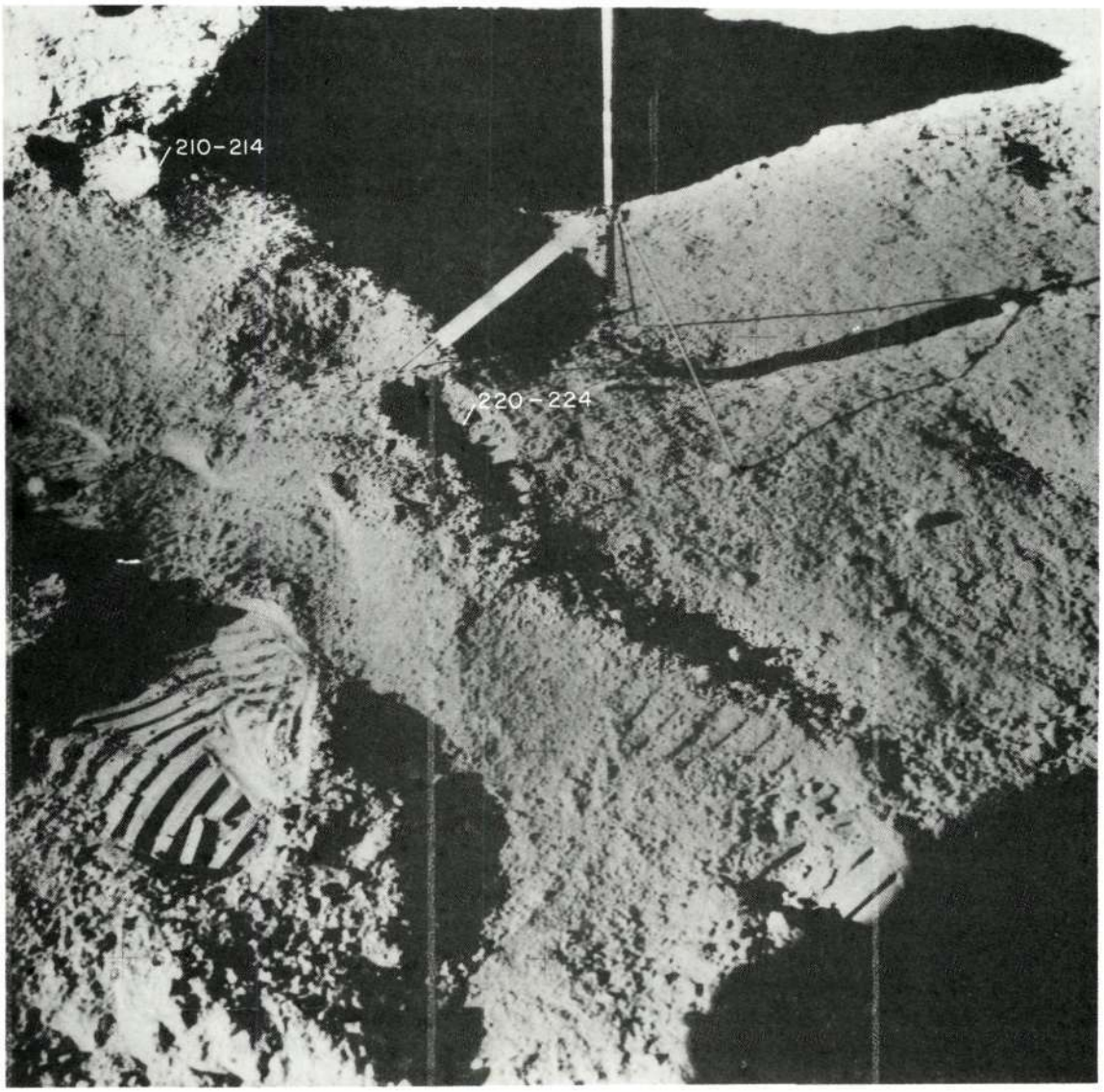

Figure 66. Samples 210-224. Post-sampling, cross-sun photograph AS15-86-11557, looking south.

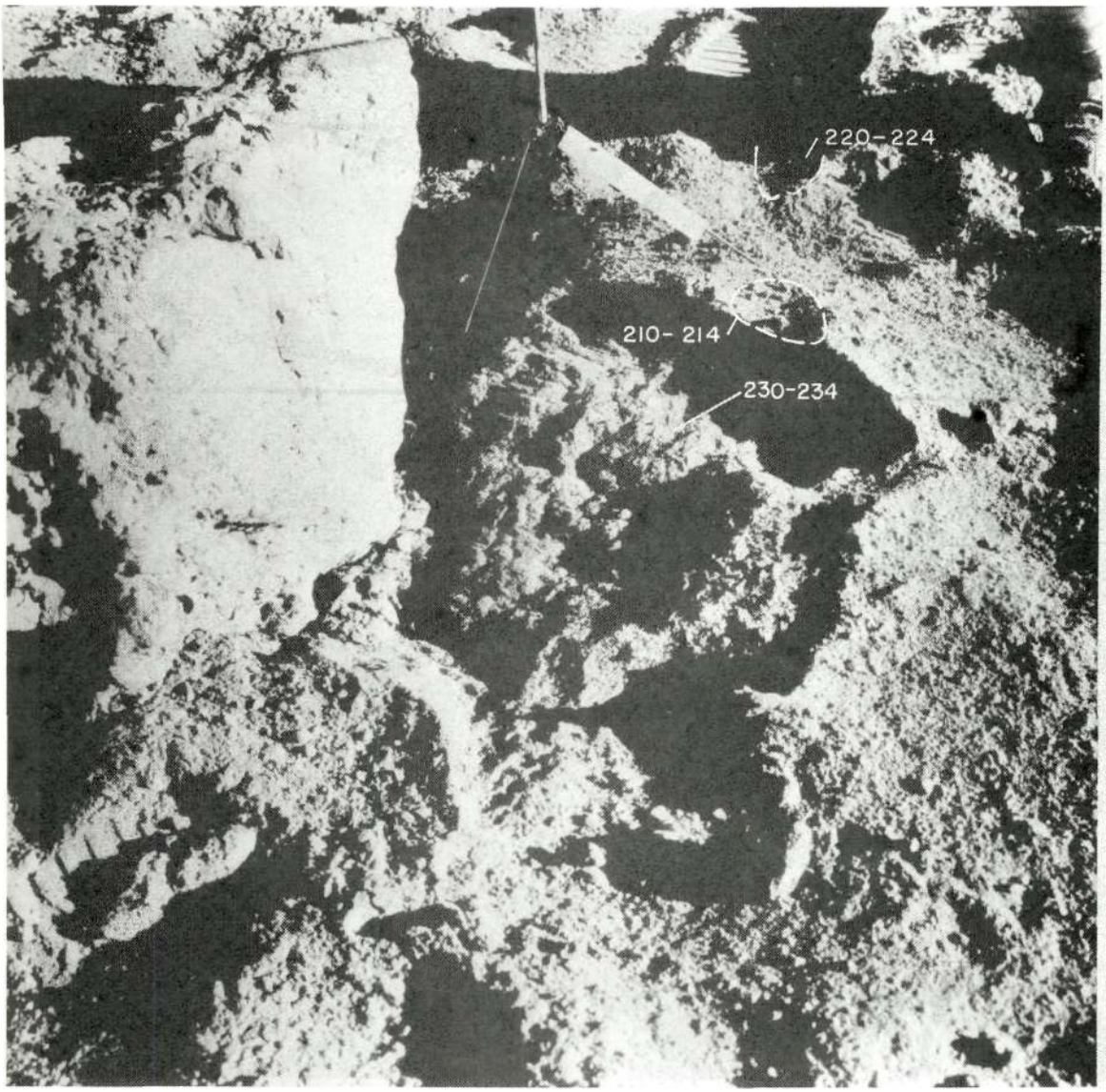

Figure 67. Samples 230-234 collection at station 2 from beneath the large boulder. Pre-sampling, cross-sun, photograph AS15-86-11564, looking north.

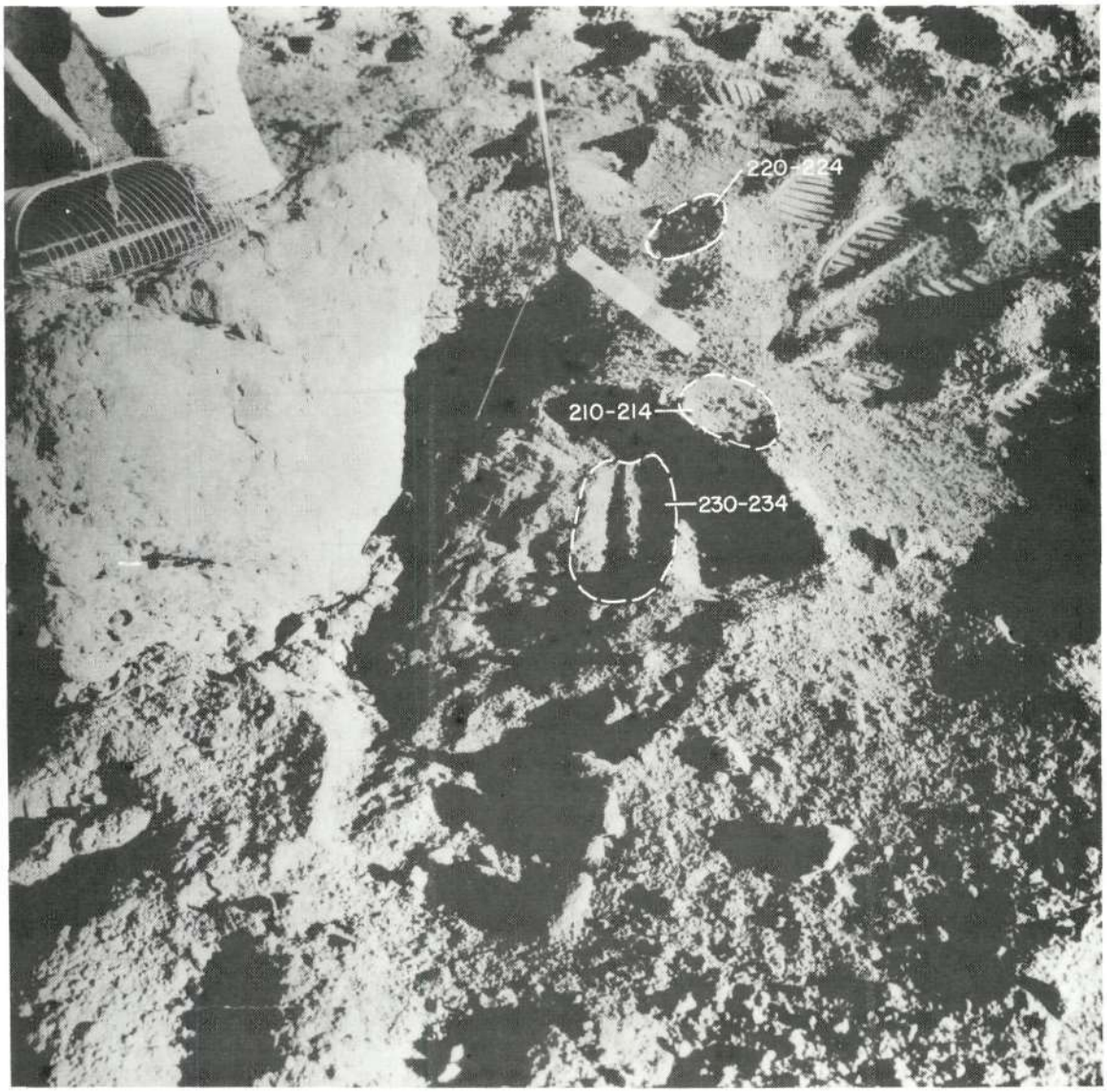

Figure 68. Samples 230-234. Post-sampling, cross-sun, photograph AS15-86-11565, looking north.

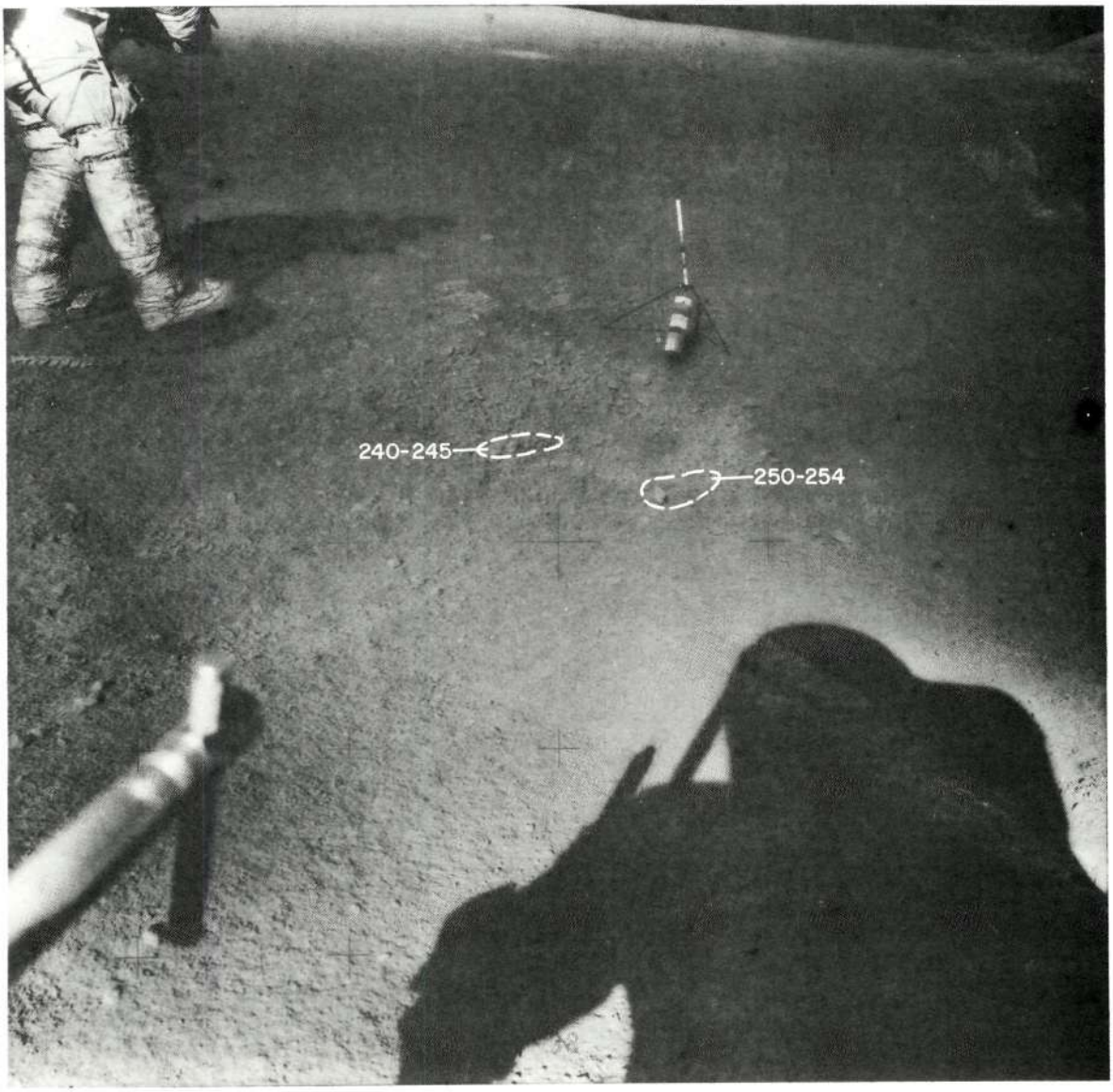

Figure 69. Samples 240-254 collected at station 6 from the bottom and rim of a fresh crater. Pre-sampling, down-sun photograph AS15-85-11499, looking west.

Figure 70. Samples 240-245, pre-sampling, cross-sun, photograph AS15-86-11610, looking north.

Figure 71. Samples 255, 256, (and 257, not identified) collected at station 6. Pre-sampling, down-sun, photograph AS15-86-11631, looking west.

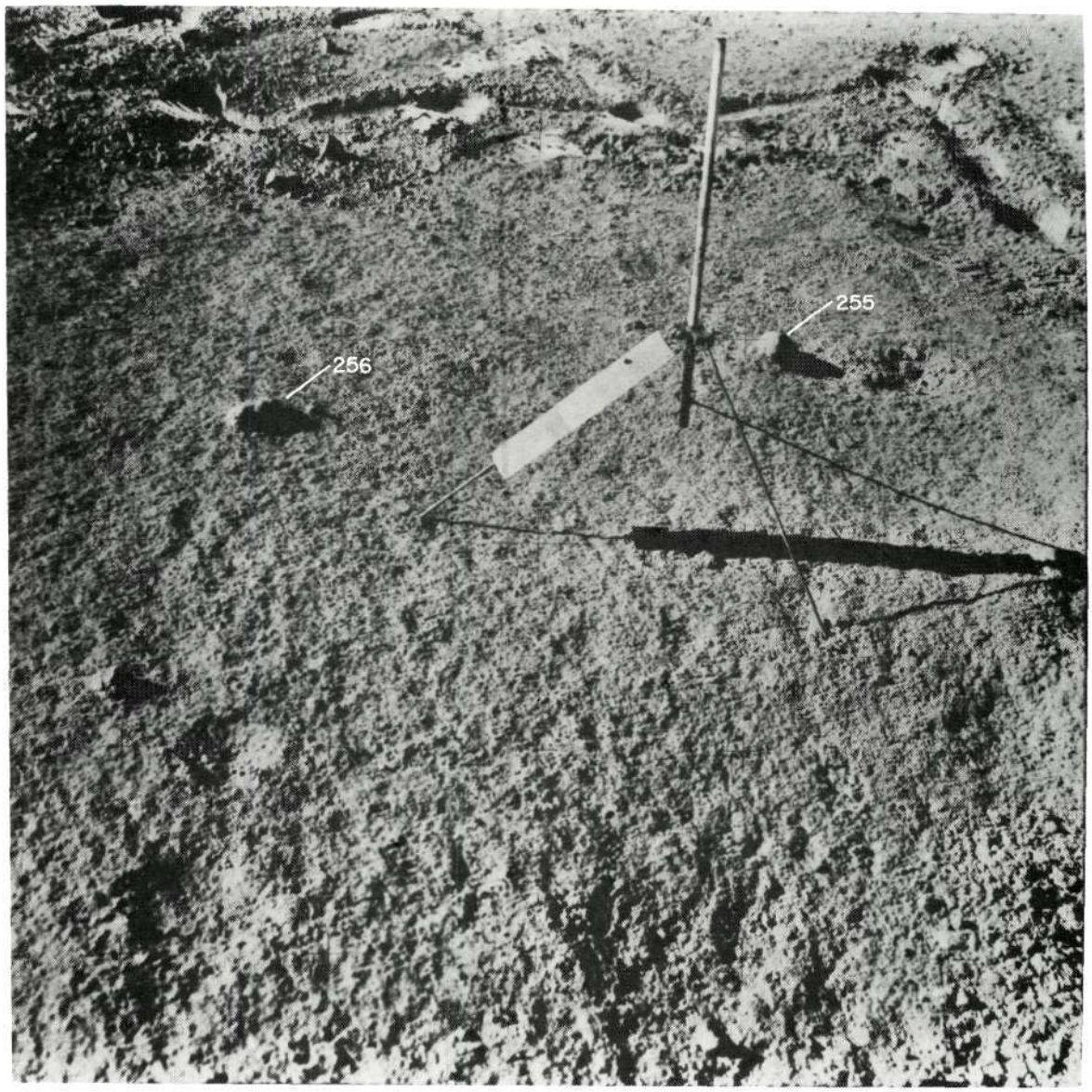

Figure 72. Samples 255, 256, (and 257, not identified). Pre-sampling cross-sun, photograph AS15-86-11630, looking south.

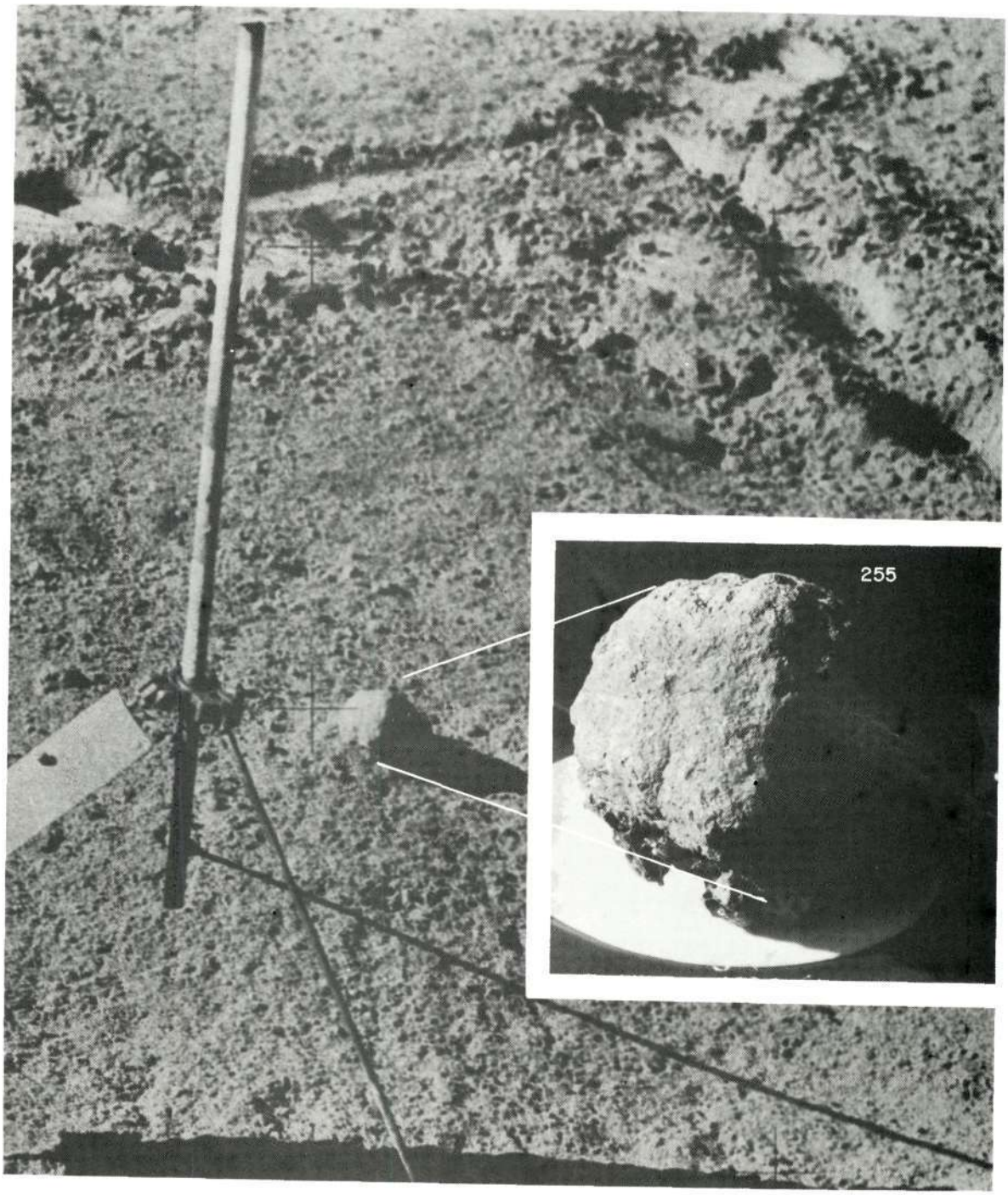

Figure 73. Sample 255 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-86-11630, taken cross-sun, looking south.

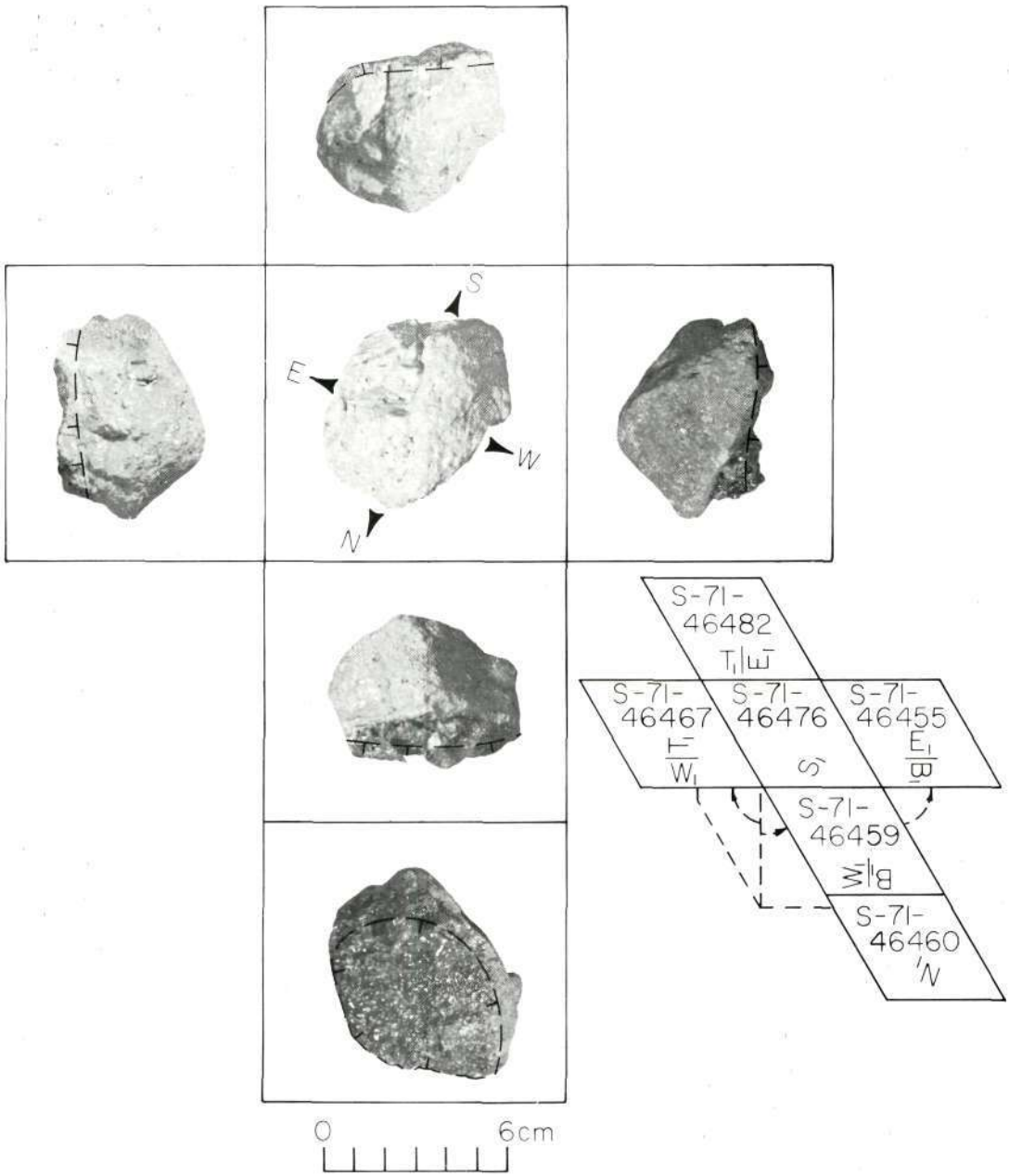

Figure 74. Orthogonal views of sample number 255.

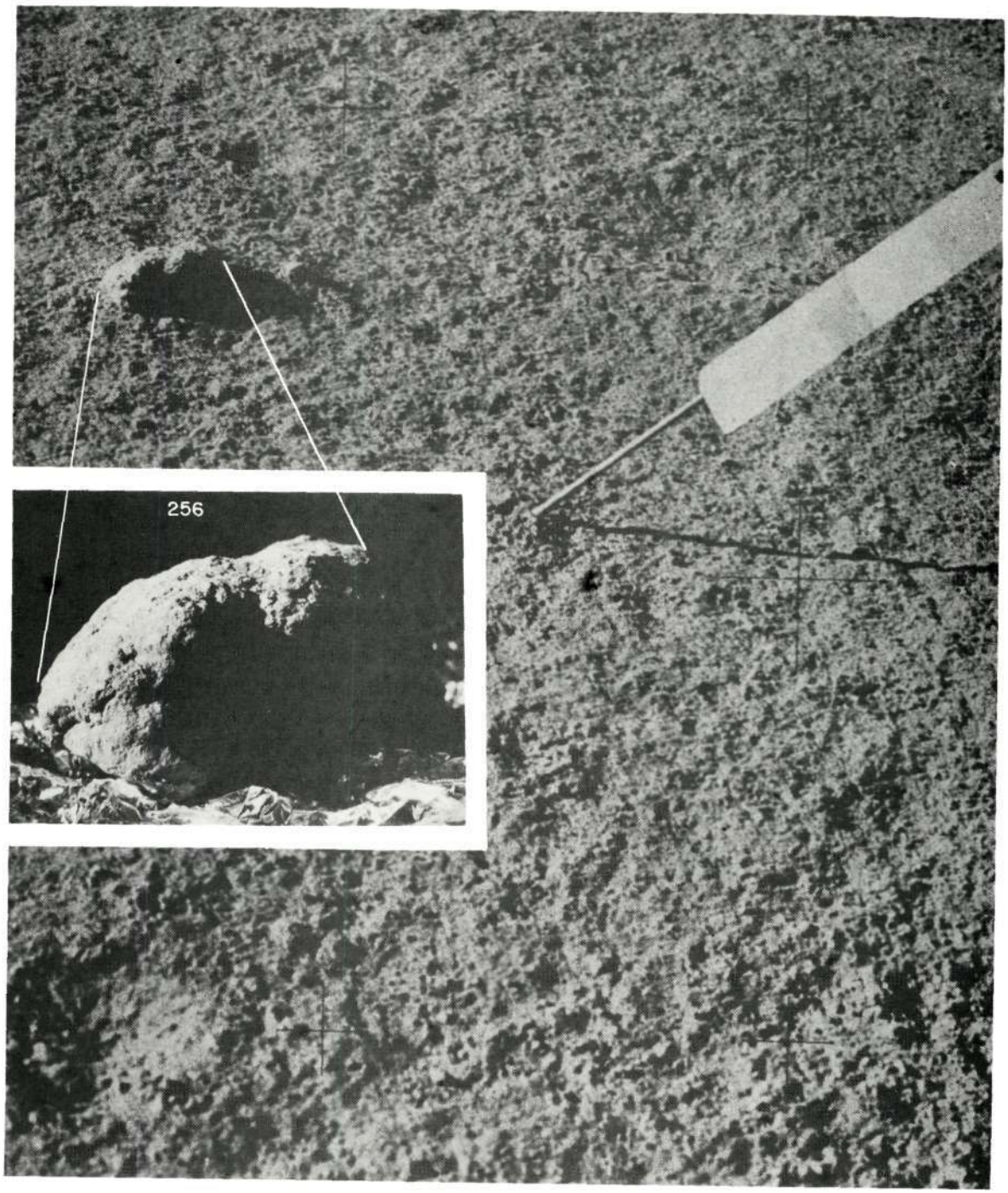

Figure 75. Sample 256 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-86-11630, taken cross-sun, looking south.

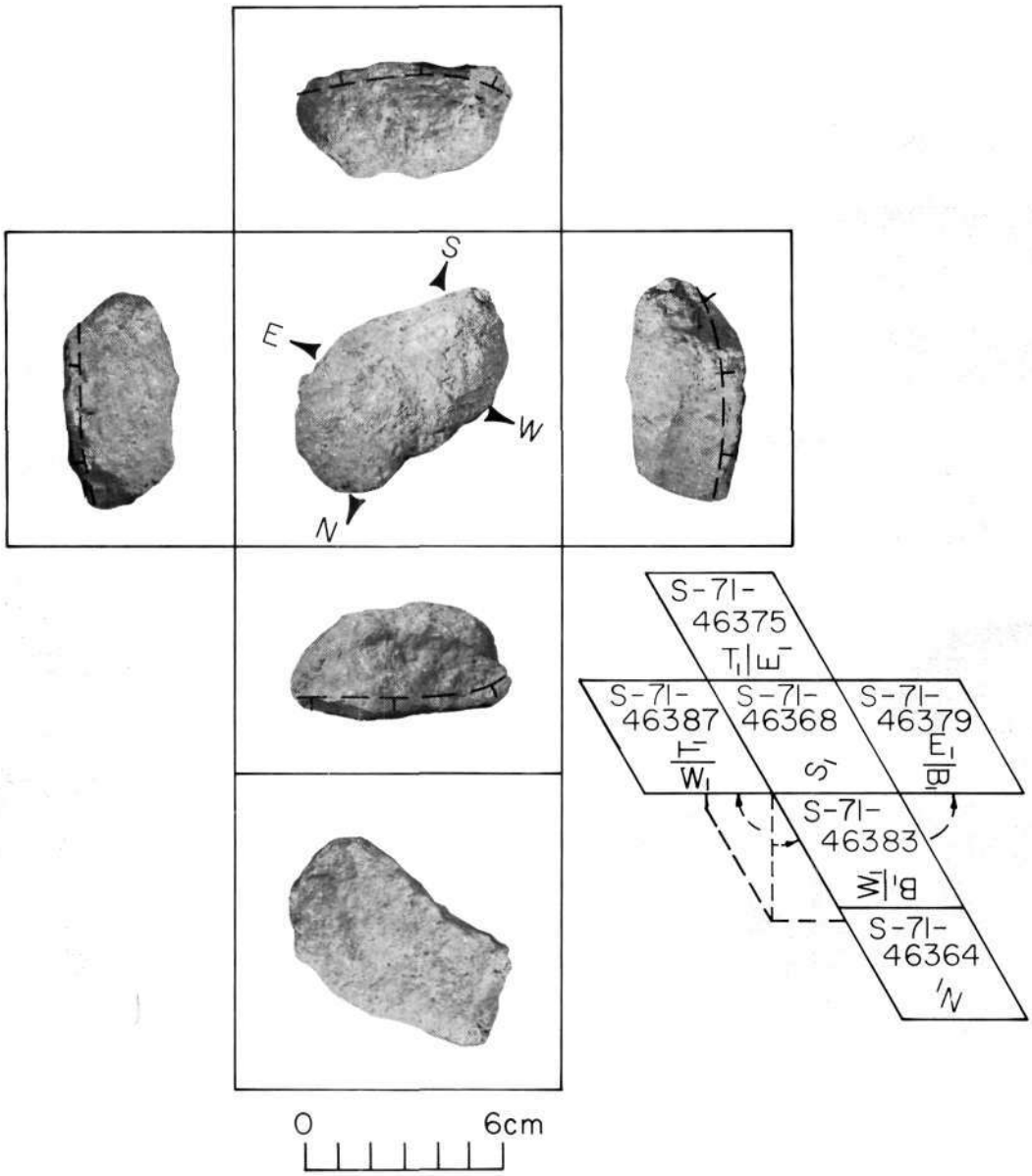

Figure 76. Orthogonal views of sample number 256.

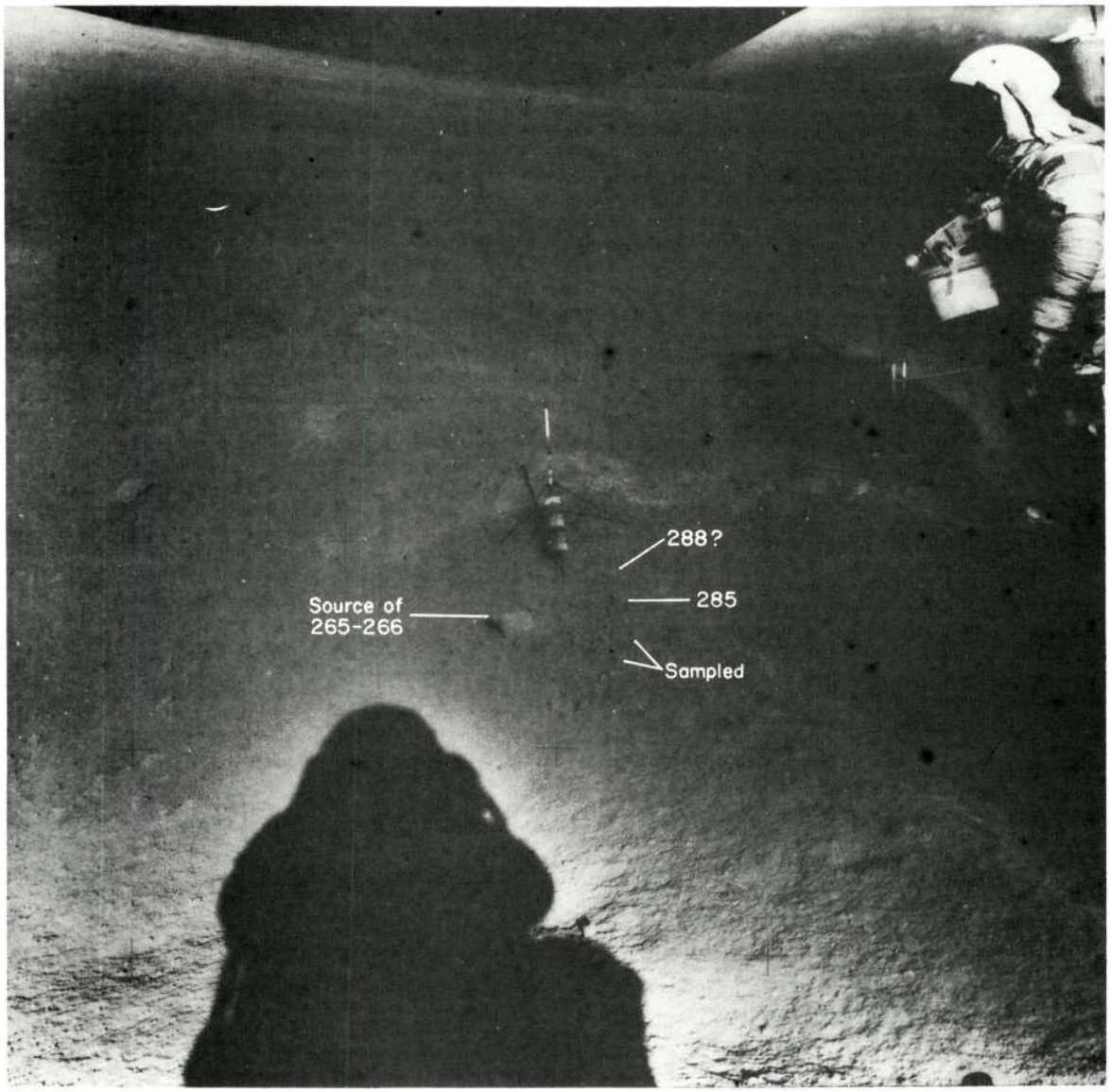

Figure 77. Samples 265, 266, 285, 288 (and vicinity of 259, 268, 269, 286, 287, and 289, not identified) collected at station 6 from the north rim of the 12-m crater. Pre-sampling, down-sun, photograph AS15-85-11523, looking west.

Figure 78. Samples 265, 266, 285, 288 (and vicinity of 259, 268, 286, and 289 not identified). Pre-sampling, cross-sun, photograph AS15-86-11635, looking south.

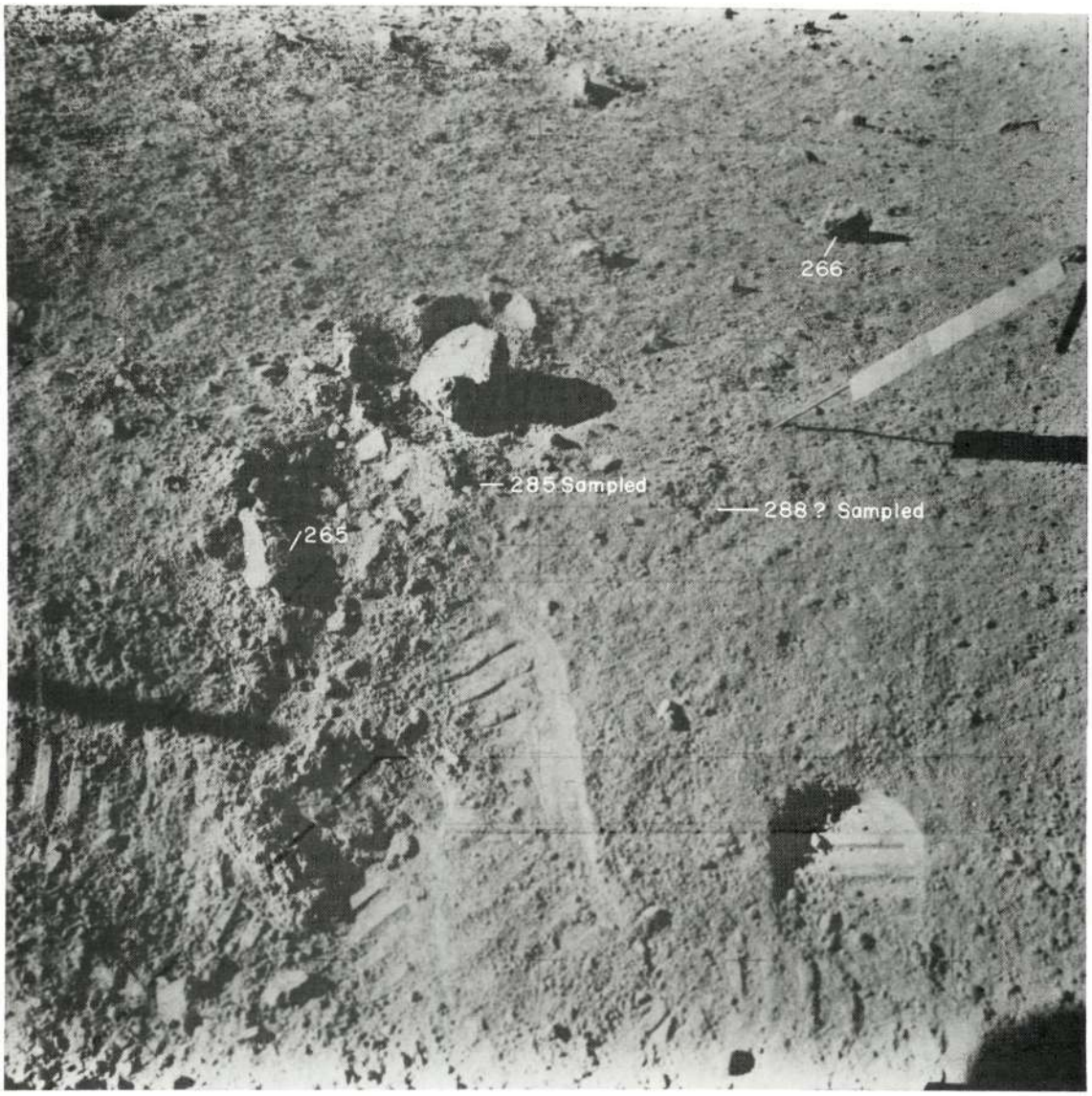

Figure 79. Samples 265 and 266 collected at station 6 from north rim of 12-m crater after rock from which 265, 266 were derived was broken. During sampling, cross-sun, photograph AS15-86-11639, looking south.

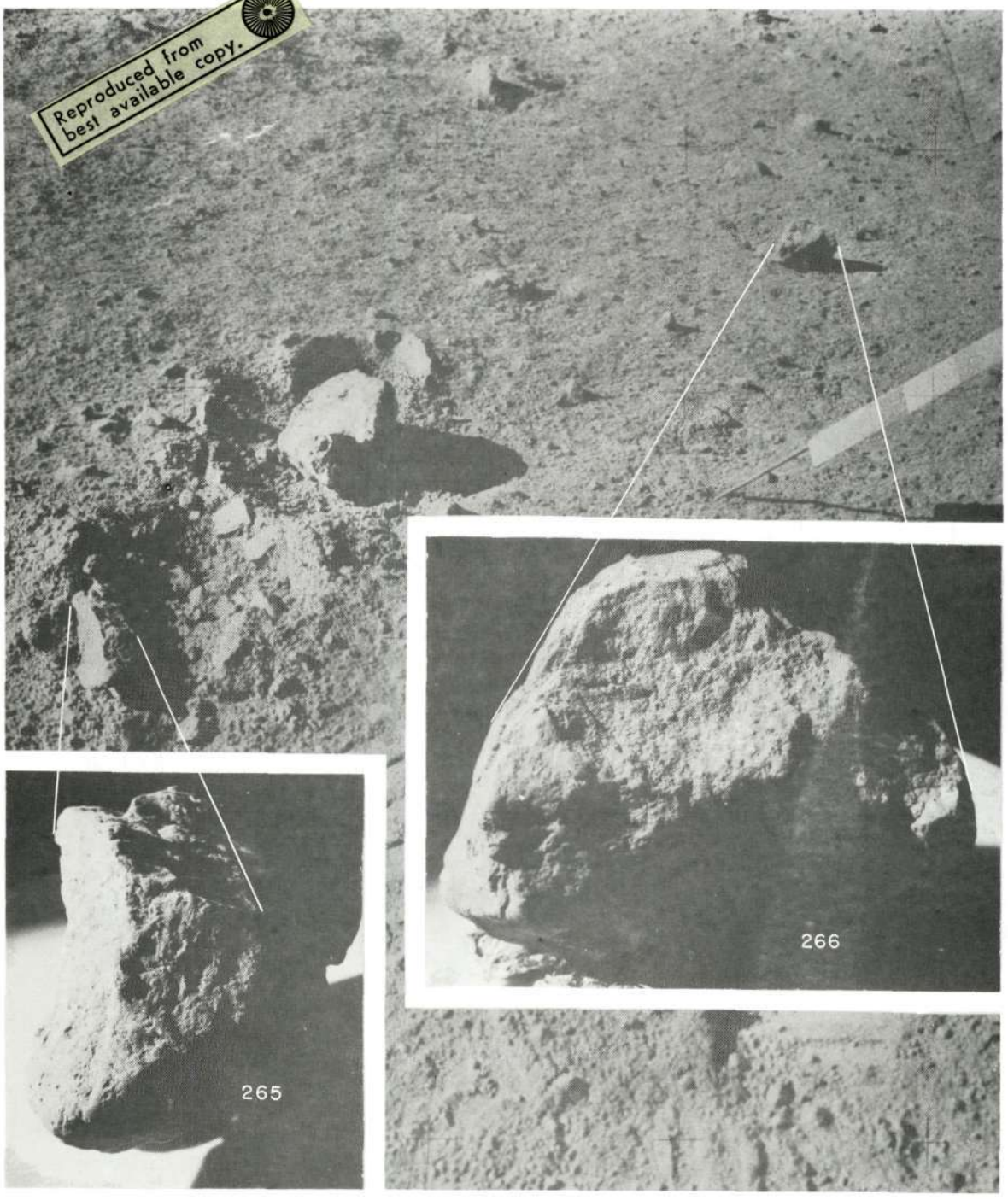

Figure 80. Samples 265 and 266 showing approximate lunar orientation after having been broken and moved, reconstructed in the LRL compared to EVA photograph AS15-86-11639, taken cross-sun, looking south.

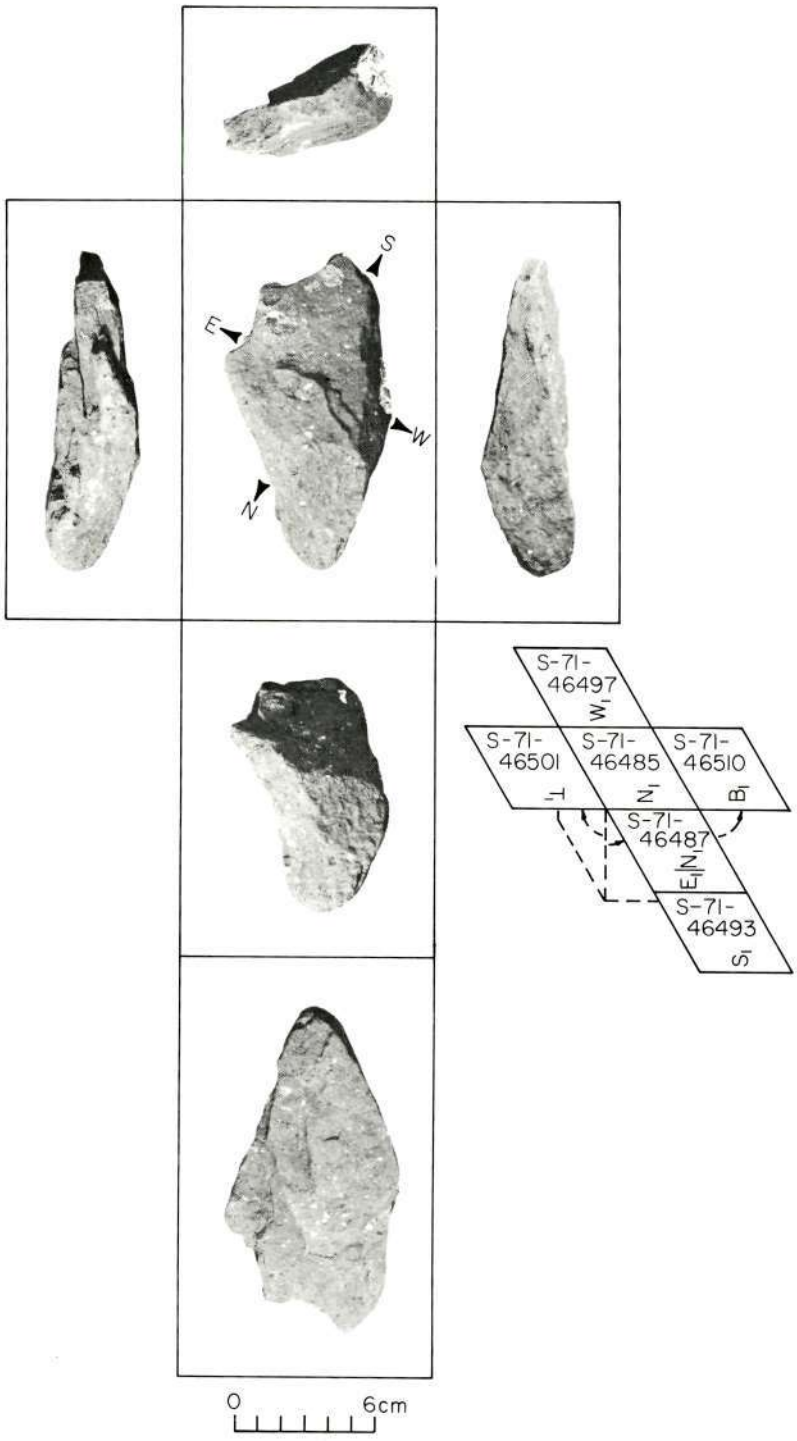

Figure 81. Orthogonal views of sample number 265.

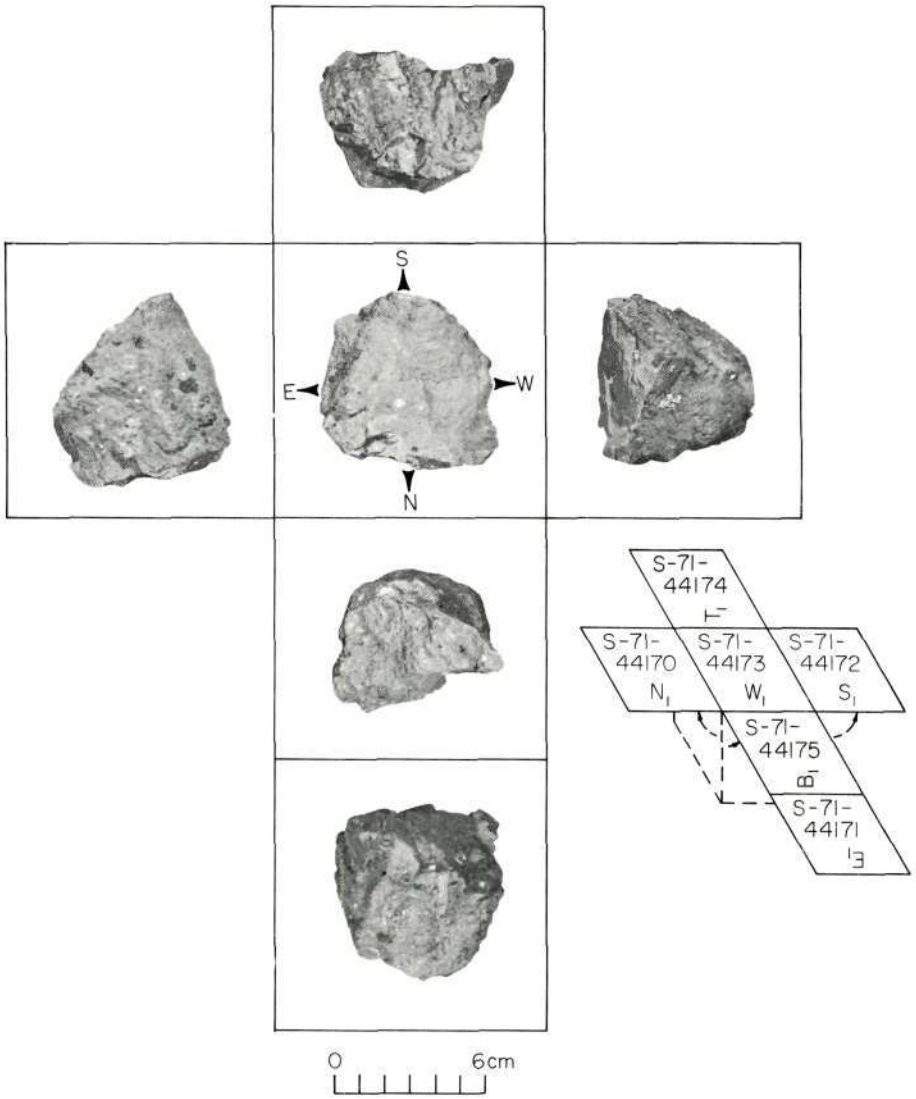

Figure 82. Orthogonal views of sample number 266.

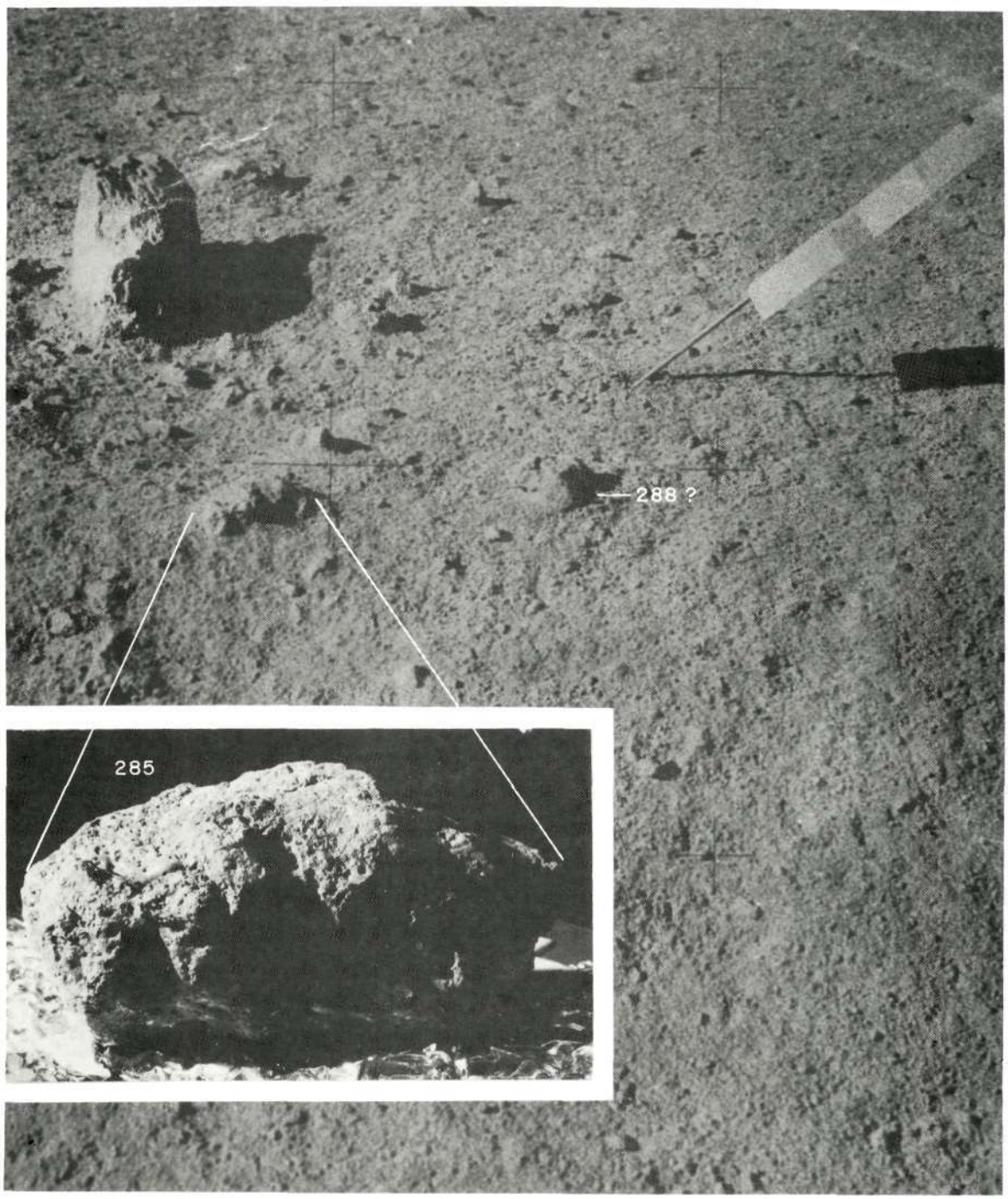

Figure 83. Sample 265 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-86-11630, taken cross-sun, looking south.

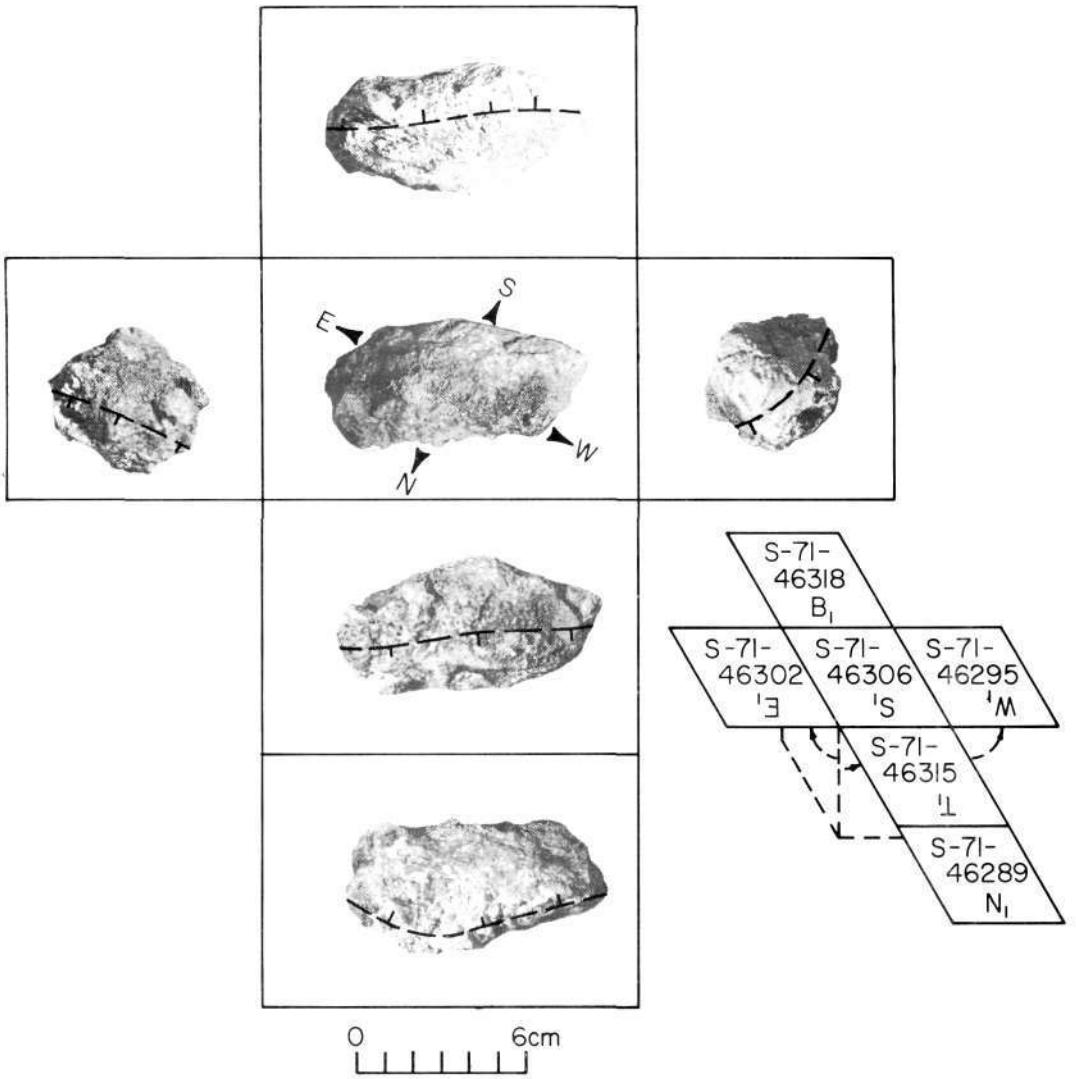

Figure 84. Orthogonal views of sample number 285.

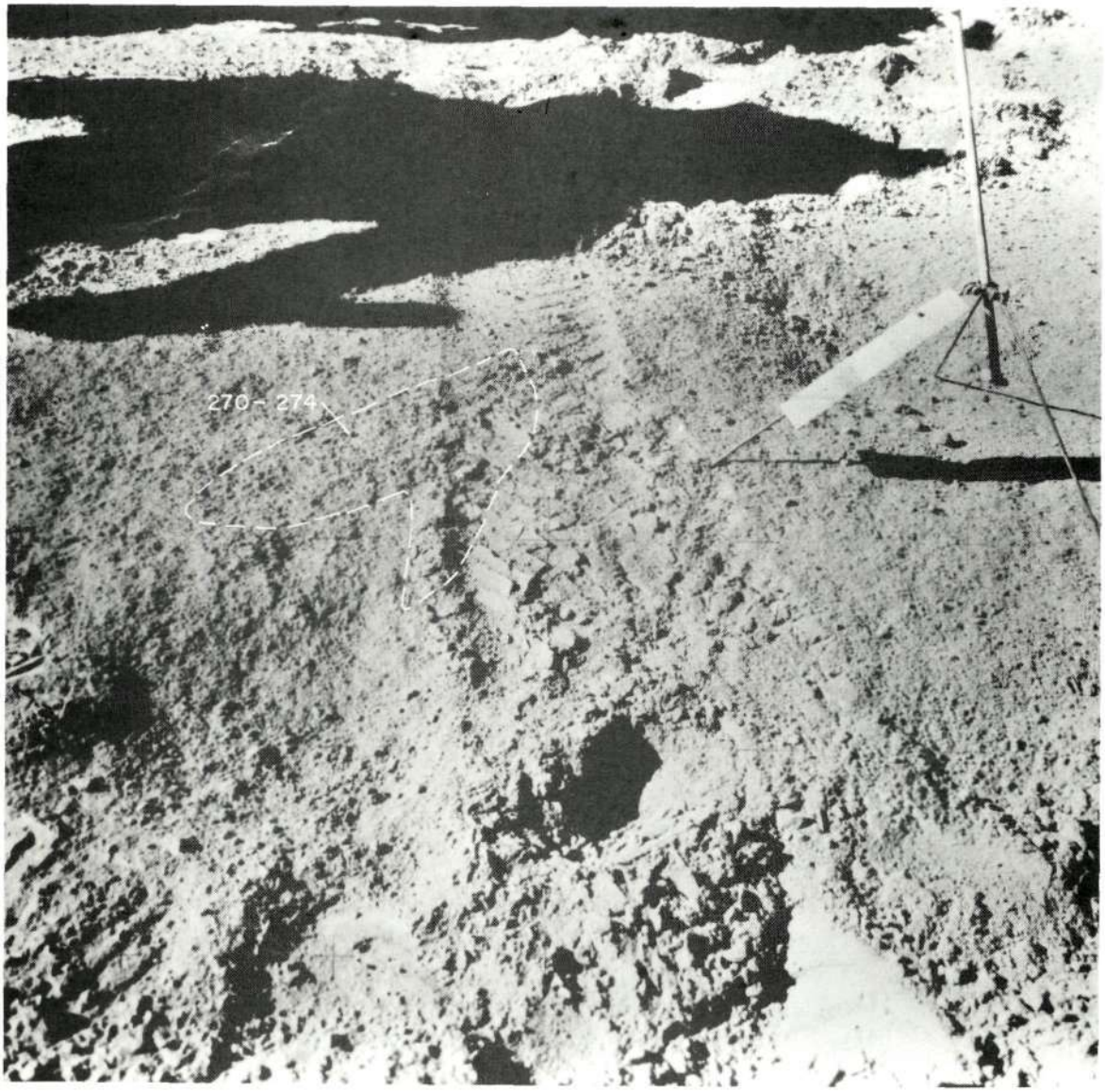

Figure 85. Samples 270-274 collected at station 6 from edge of LRV track. Pre-sampling, cross-sun, photograph AS15-86-11656, looking south.

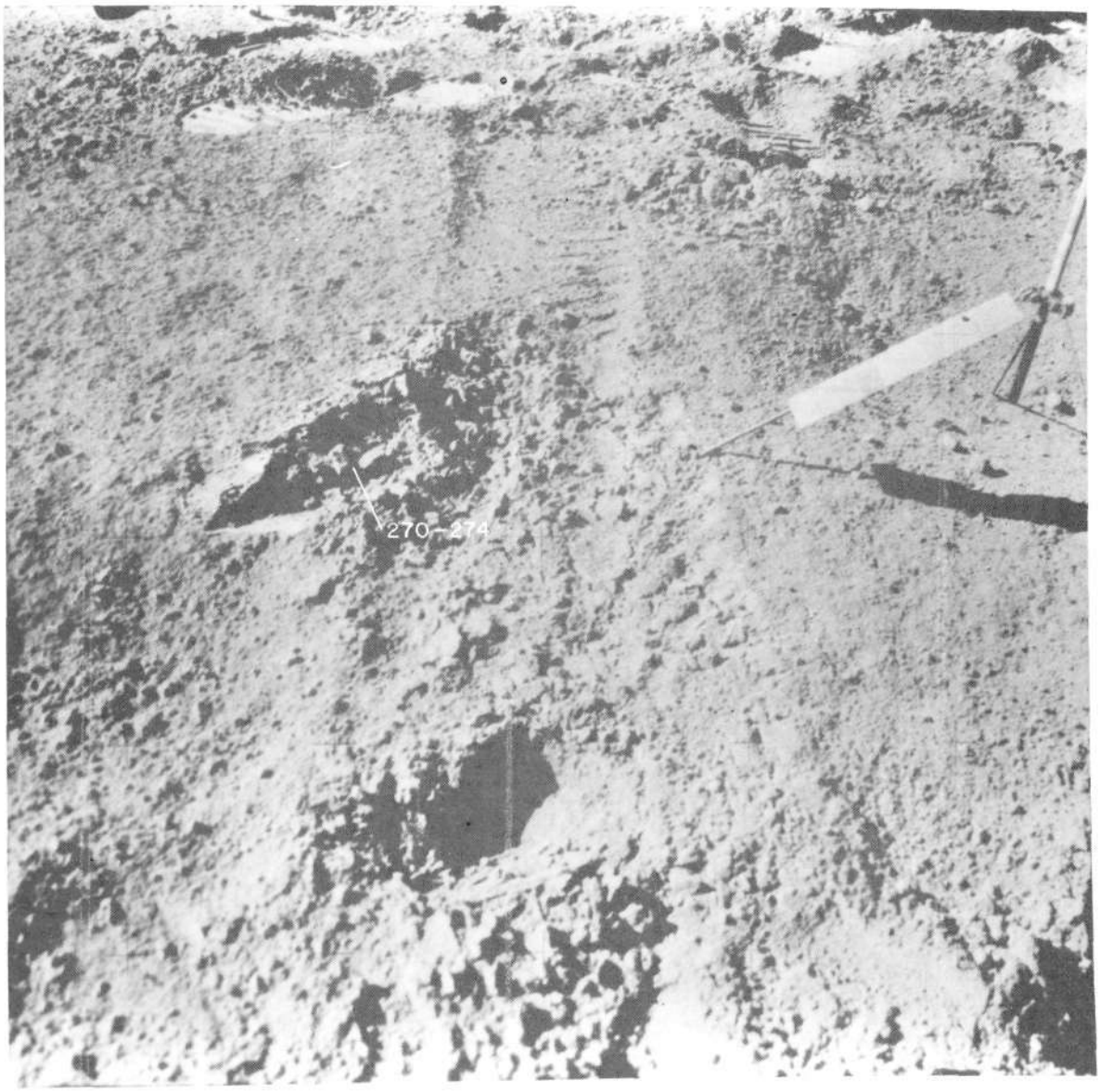

Figure 86. Samples 270-274 collected at station 6 from edge of LRV track. Post-sampling, cross-sun, photograph AS15-86-11657, looking south.

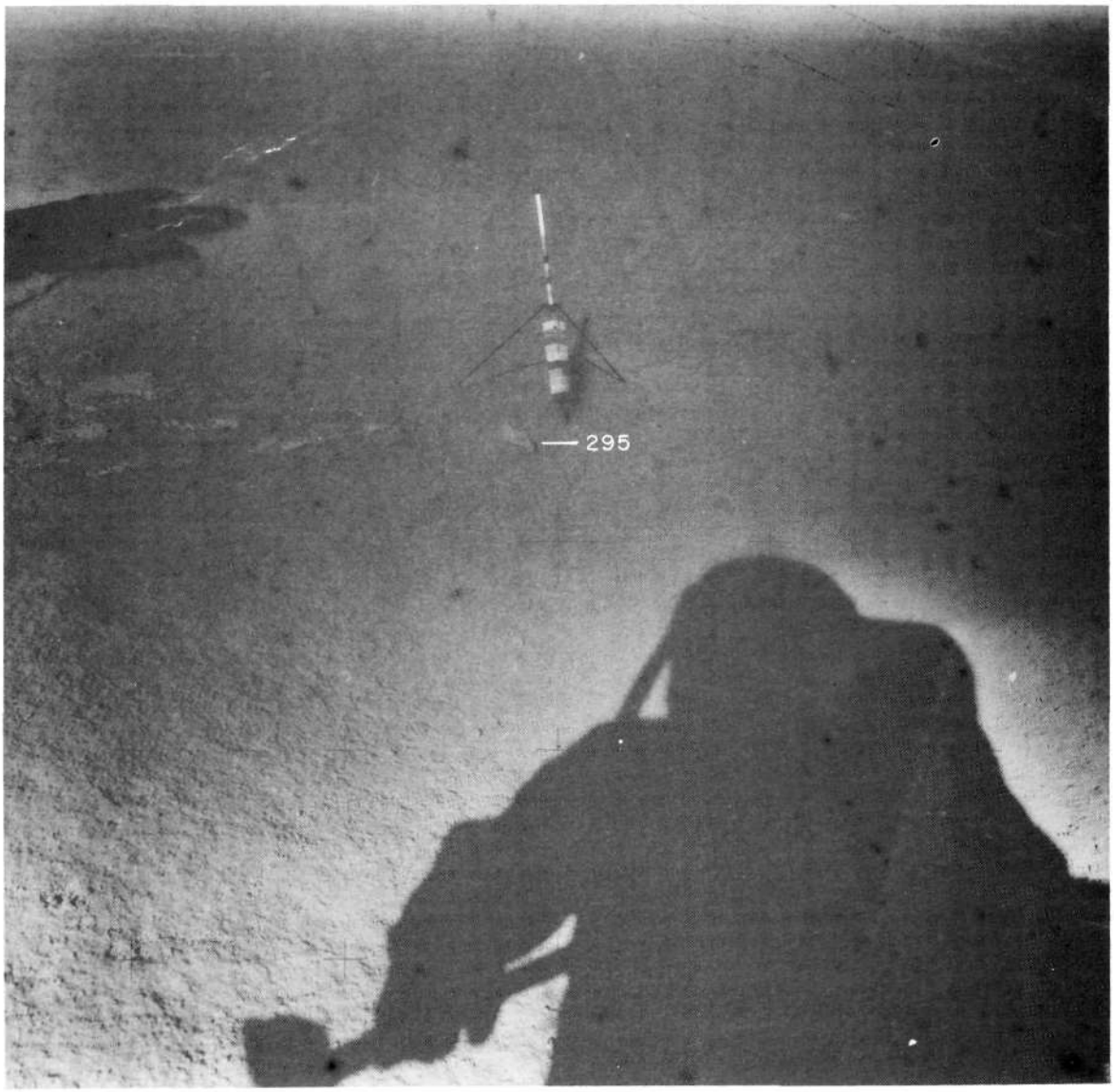

Figure 87. Sample 295 (soil samples 290-294 probably from around rock 295) collected at station 6 from base of Hadley Delta. Pre-sampling, down-sun, photograph AS15-85-11501, looking west.

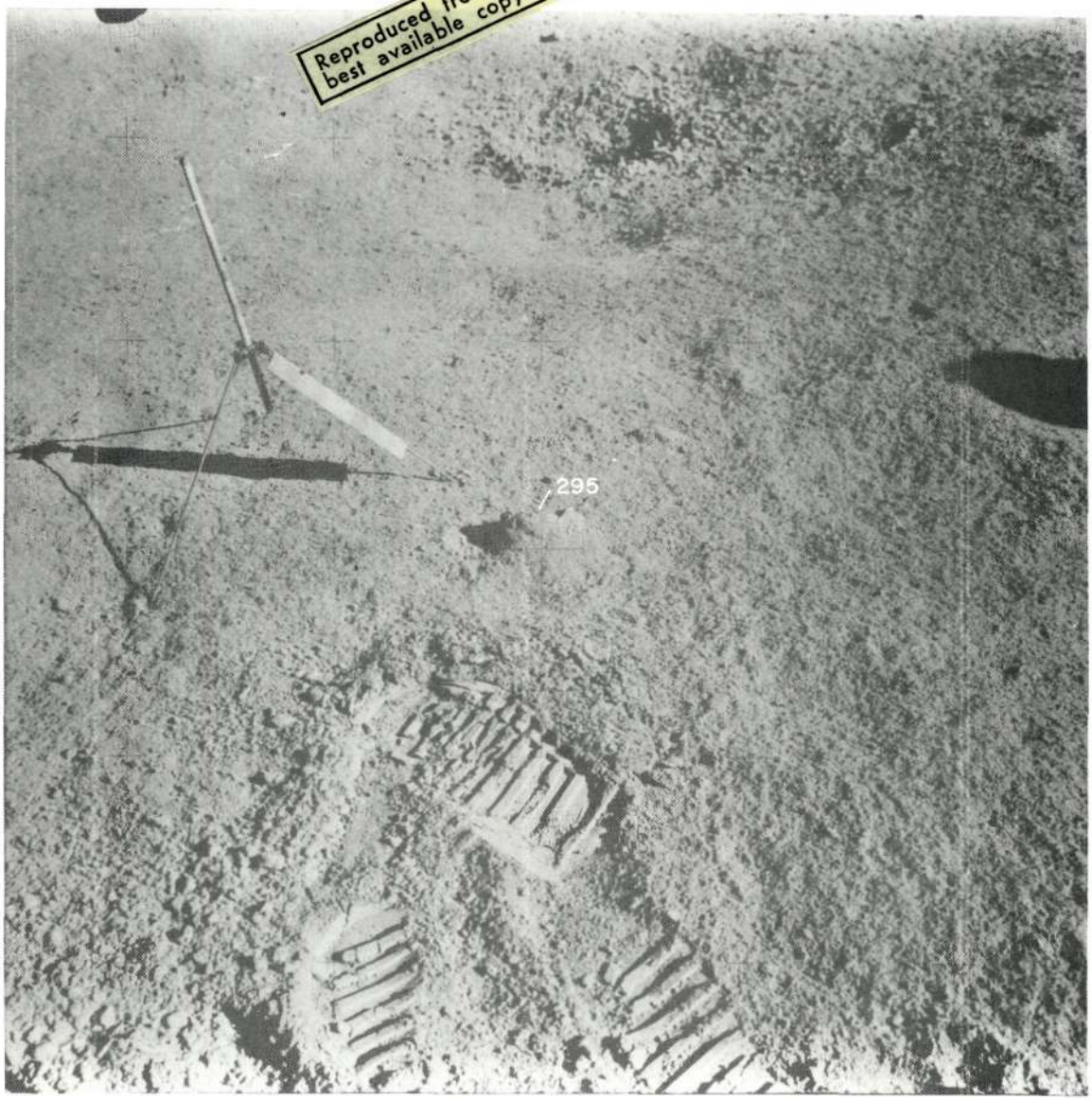

Figure 88. Samples 295 (and vicinity of 290-294) collected at station 6 from base of Hadley Delta. Pre-sampling, cross-sun, photograph AS15-86-11617, looking north.

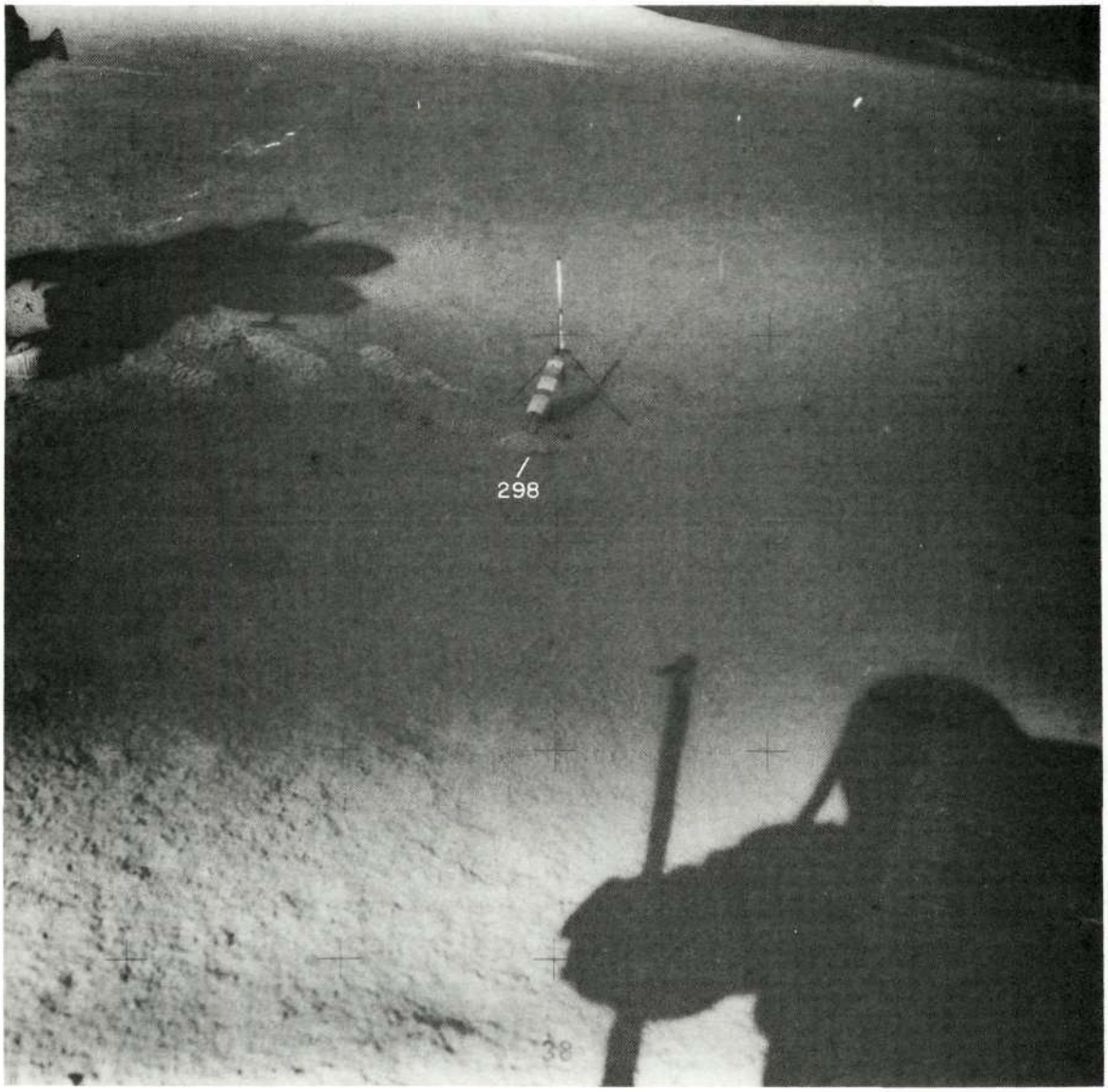

Figure 89. Sample 298 collected at station 6 from base of Hadley Delta. Pre-sampling, down-sun, photograph AS15-86-11504, looking west.

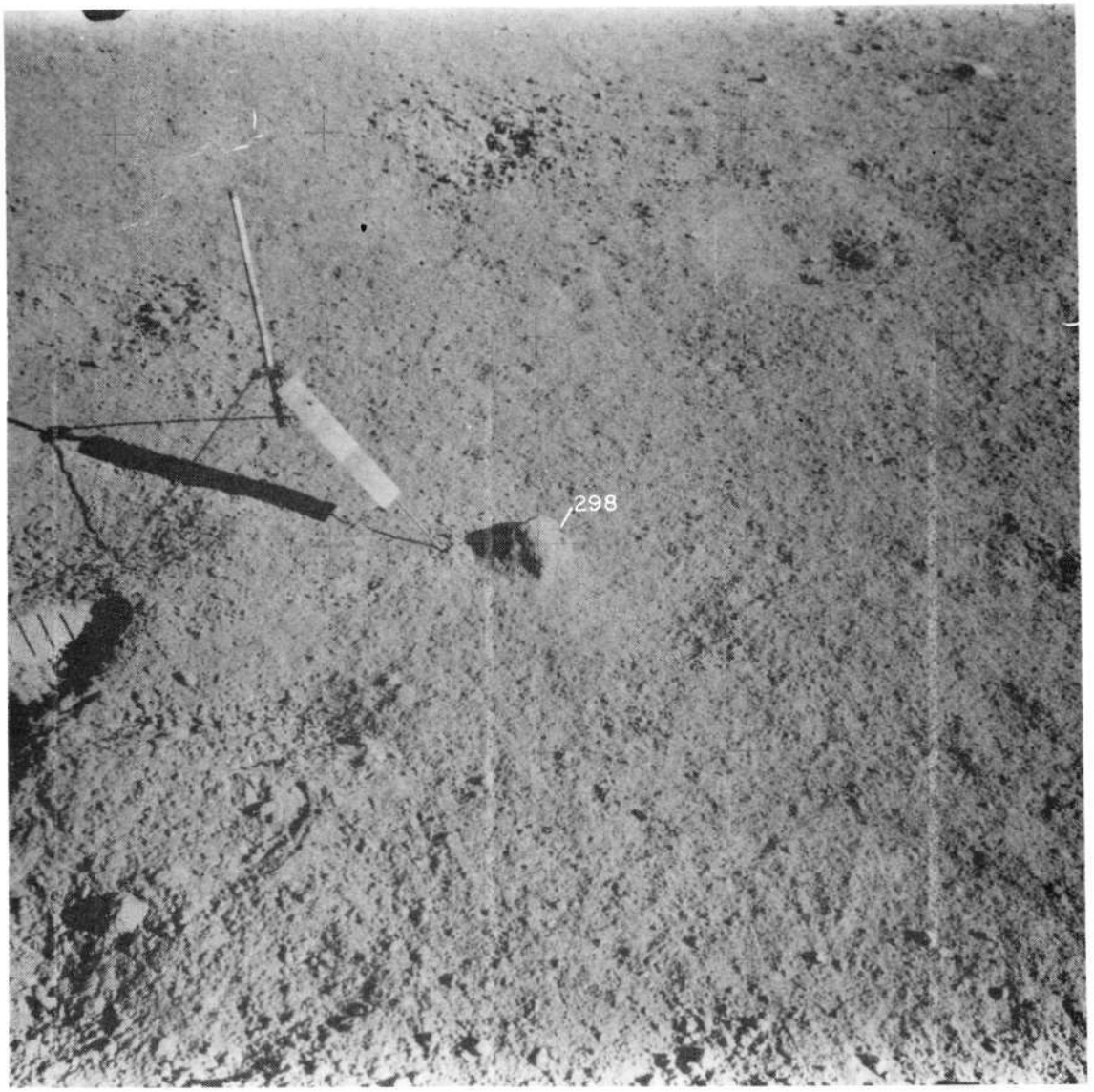

Figure 90. Sample 298 collected at station 6 from base of Hadley delta. Pre-sampling, cross-sun, photograph AS15-86-11622, looking north.

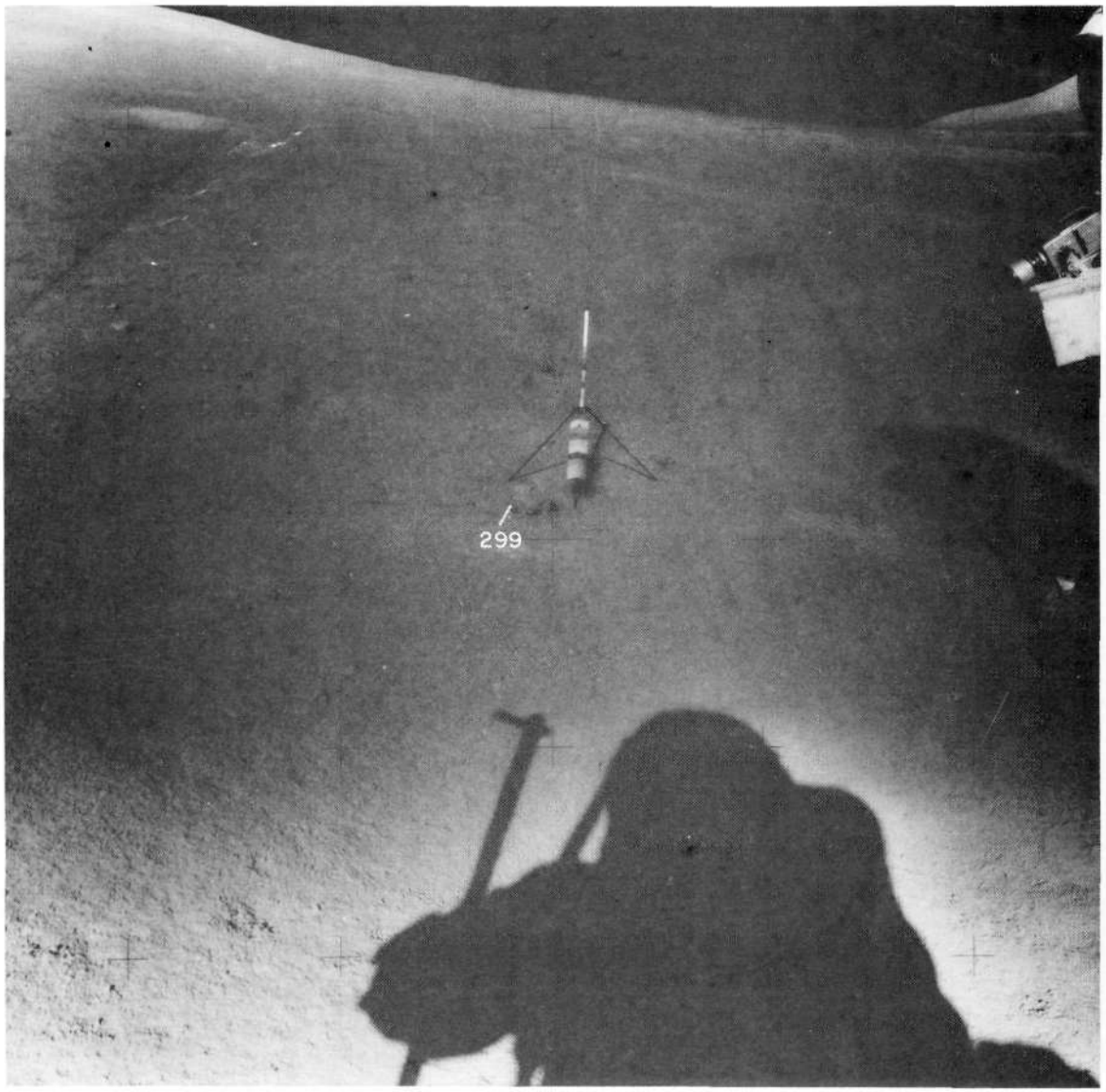

Figure 91. Sample 299 collected at station 6 from base of Hadley delta. Pre-sampling, down-sun photograph, AS15-85-11505, looking west.

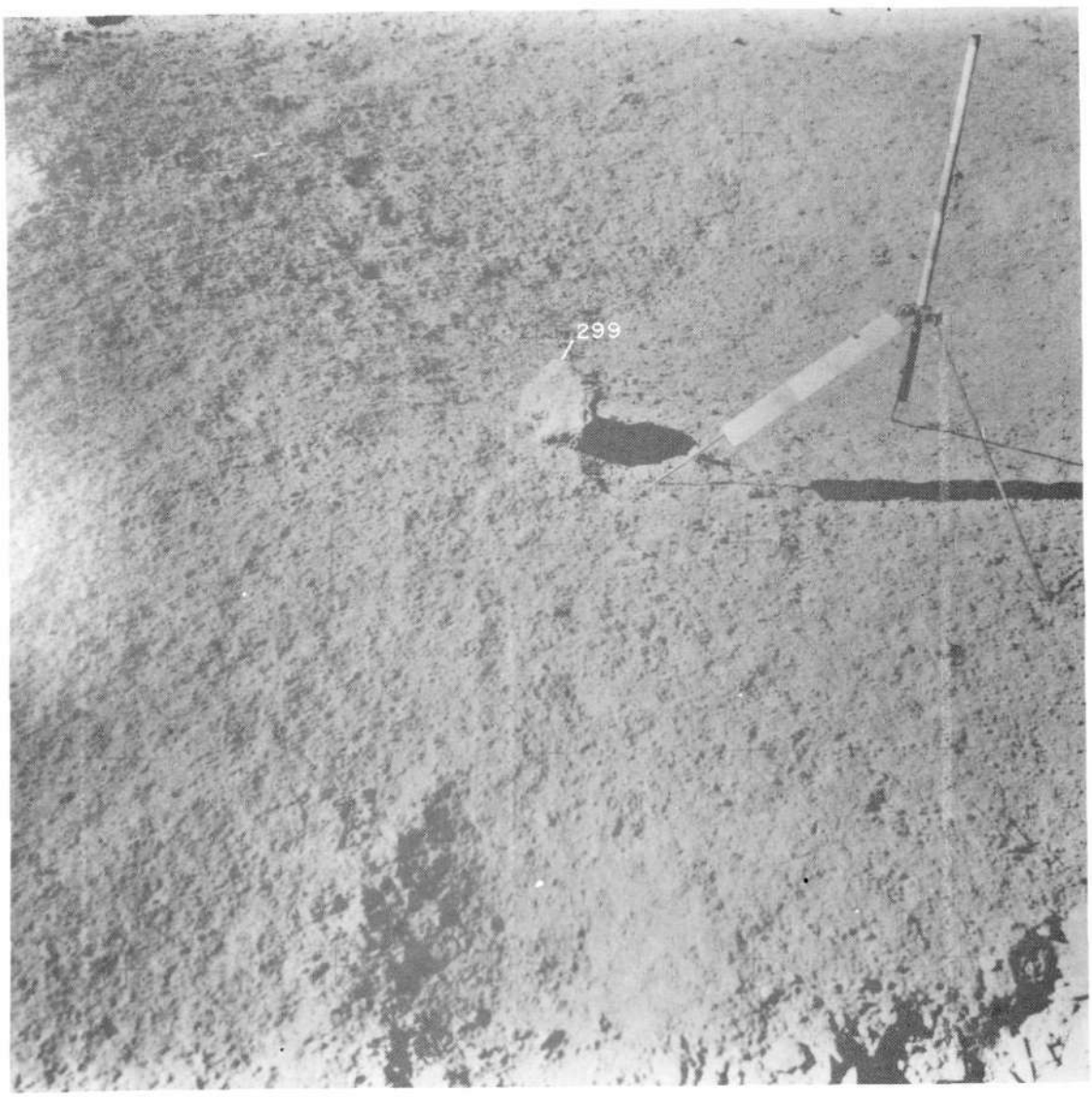

Figure 92. Sample 299 collected at station 6 from base of Hadley delta. Pre-sampling, cross-sun, photograph AS15-86-11624, looking south.

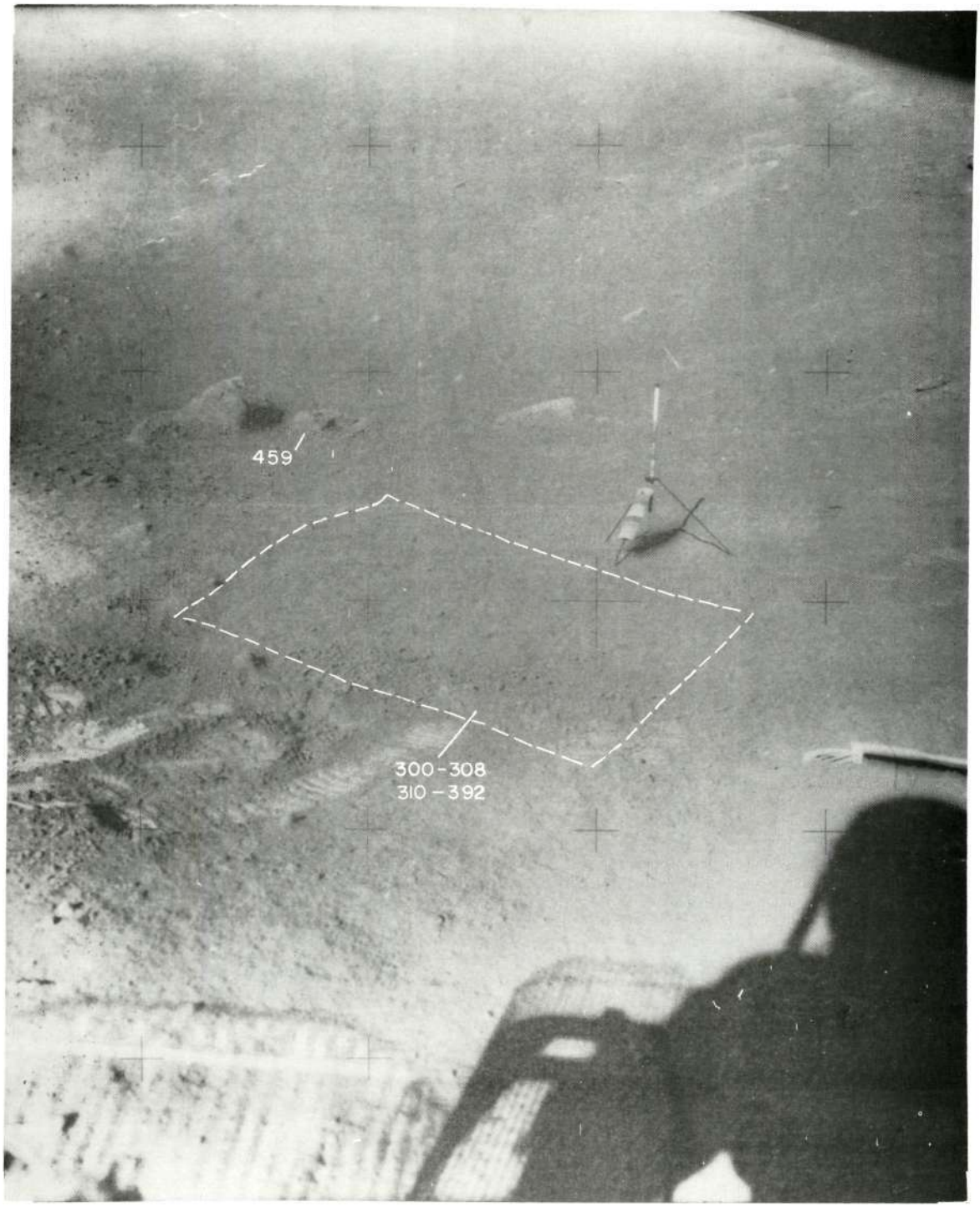

Figure 93. Sample 300-392 collected at station 7 as a comprehensive sample. Pre-sampling, down-sun, photograph AS15-90-12232, looking west.

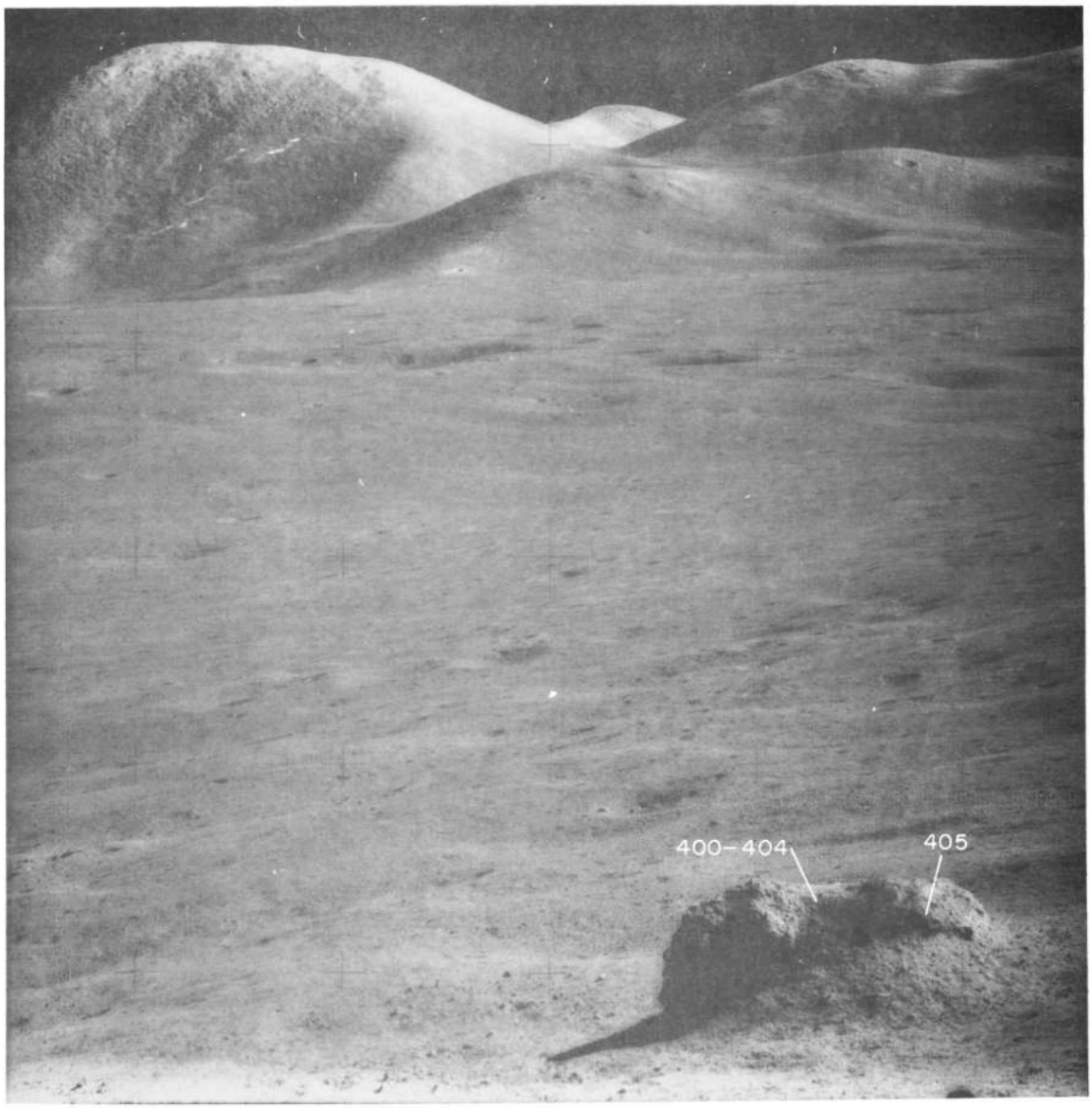

Figure 94. Samples 400-405 collected at station 6a. Pre-sampling, oblique-to-sun, photograph AS15-90-12187, looking northeast.

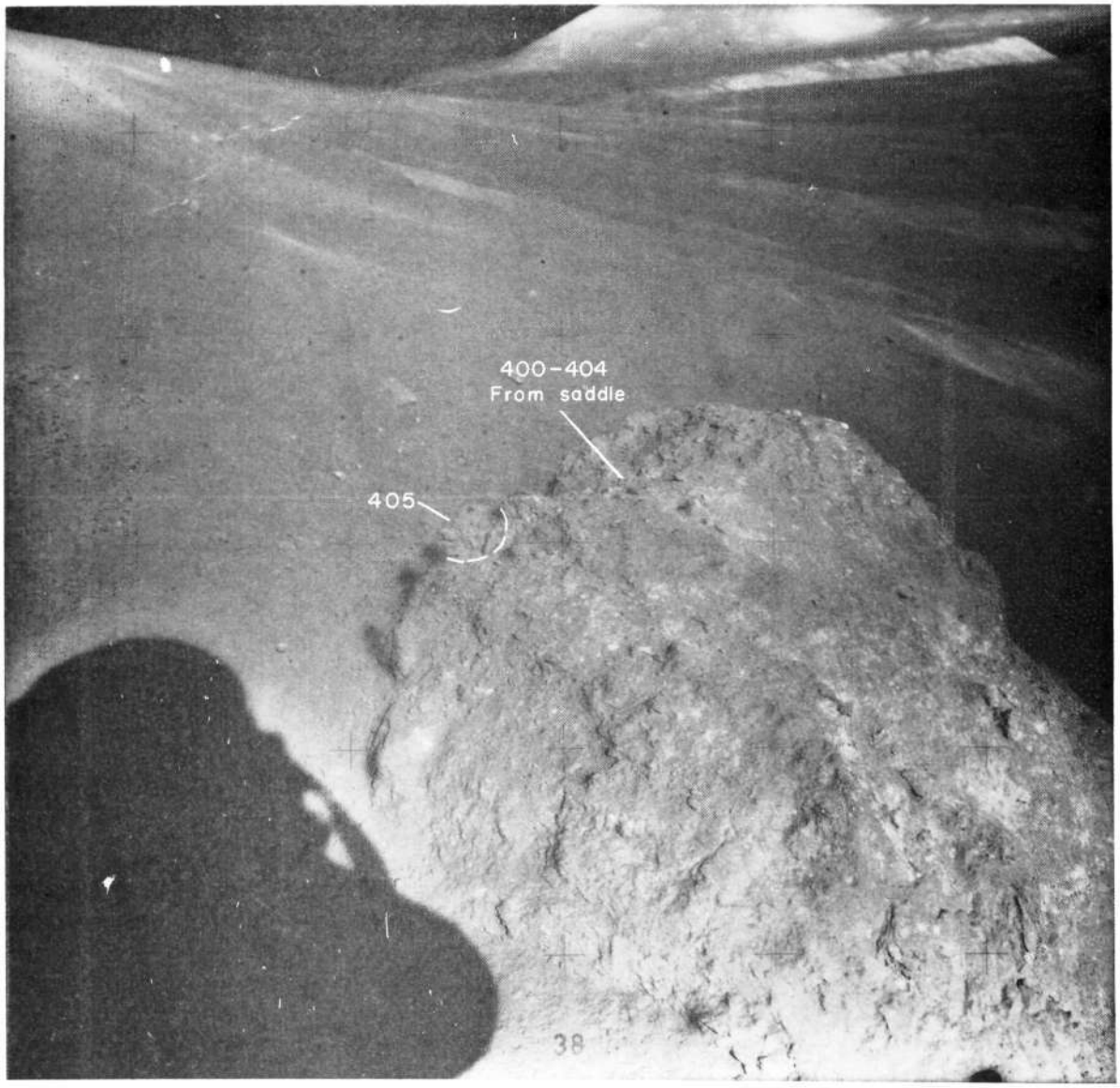

Figure 95. Samples 400-405 collected at station 6a. Pre-sampling, down-sun, photograph AS15-90-12199, looking west.

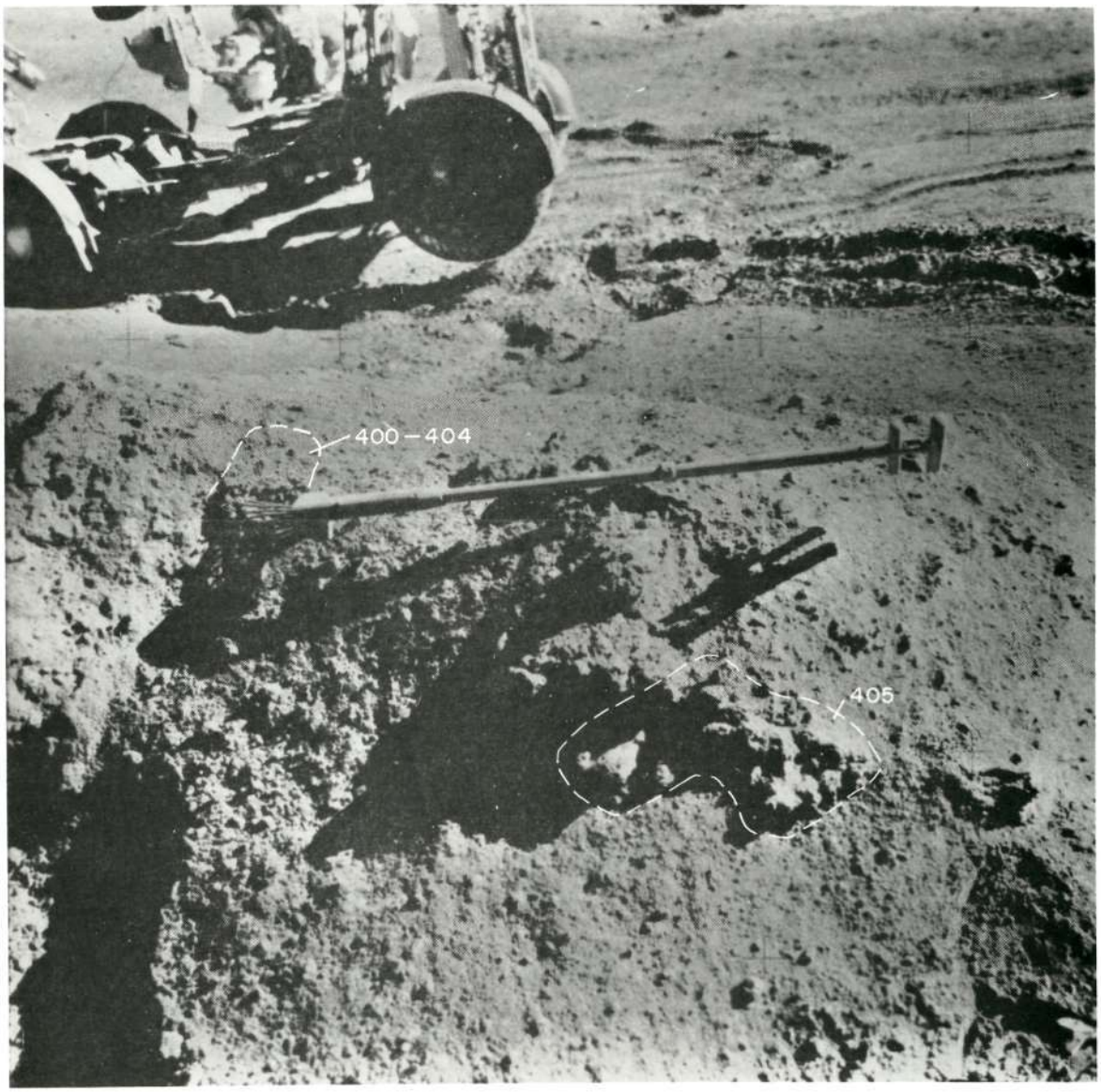

Figure 96. Samples 400-405. Pre-sampling, cross-sun, photograph AS15-86-11658, looking north.

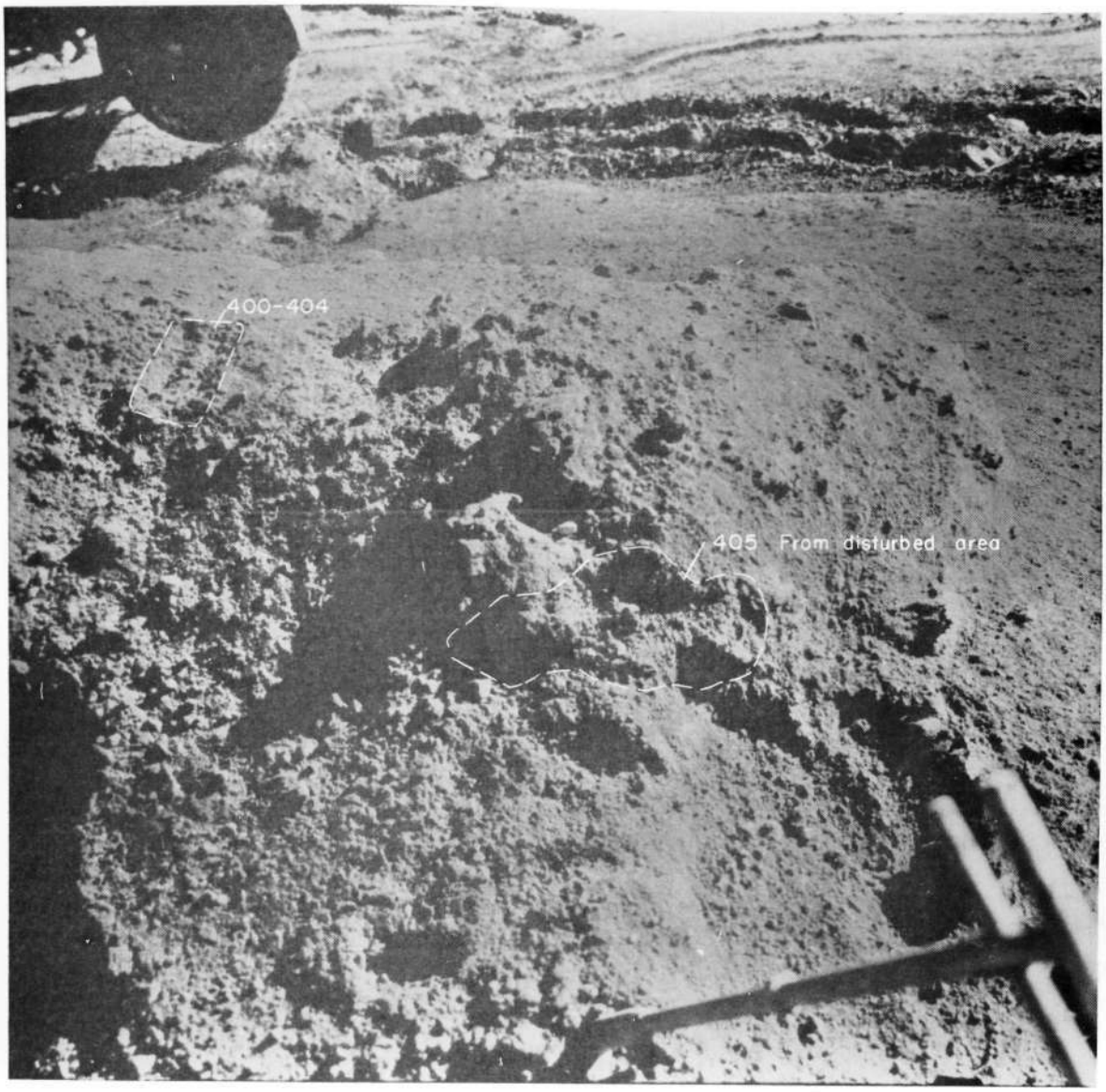

Figure 97. Samples 400-405. Post-sampling, cross-sun, photograph AS15-86-11661, looking north.

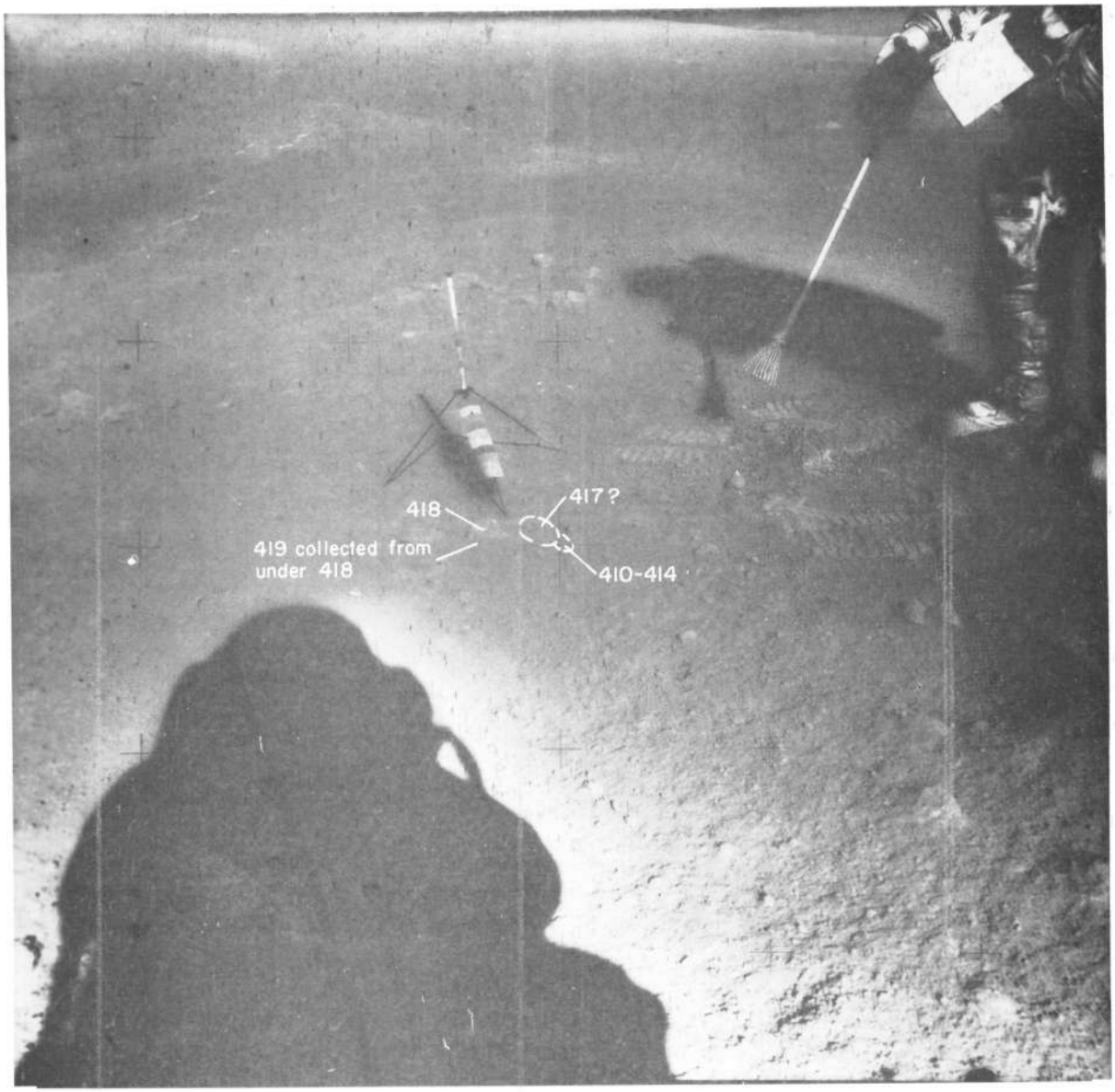

Figure 98. Samples 410-414, 417-419 collected at station 7 from rim of Spur crater. Pre-sampling, down-sun, photograph AS15-90-12223, looking west.

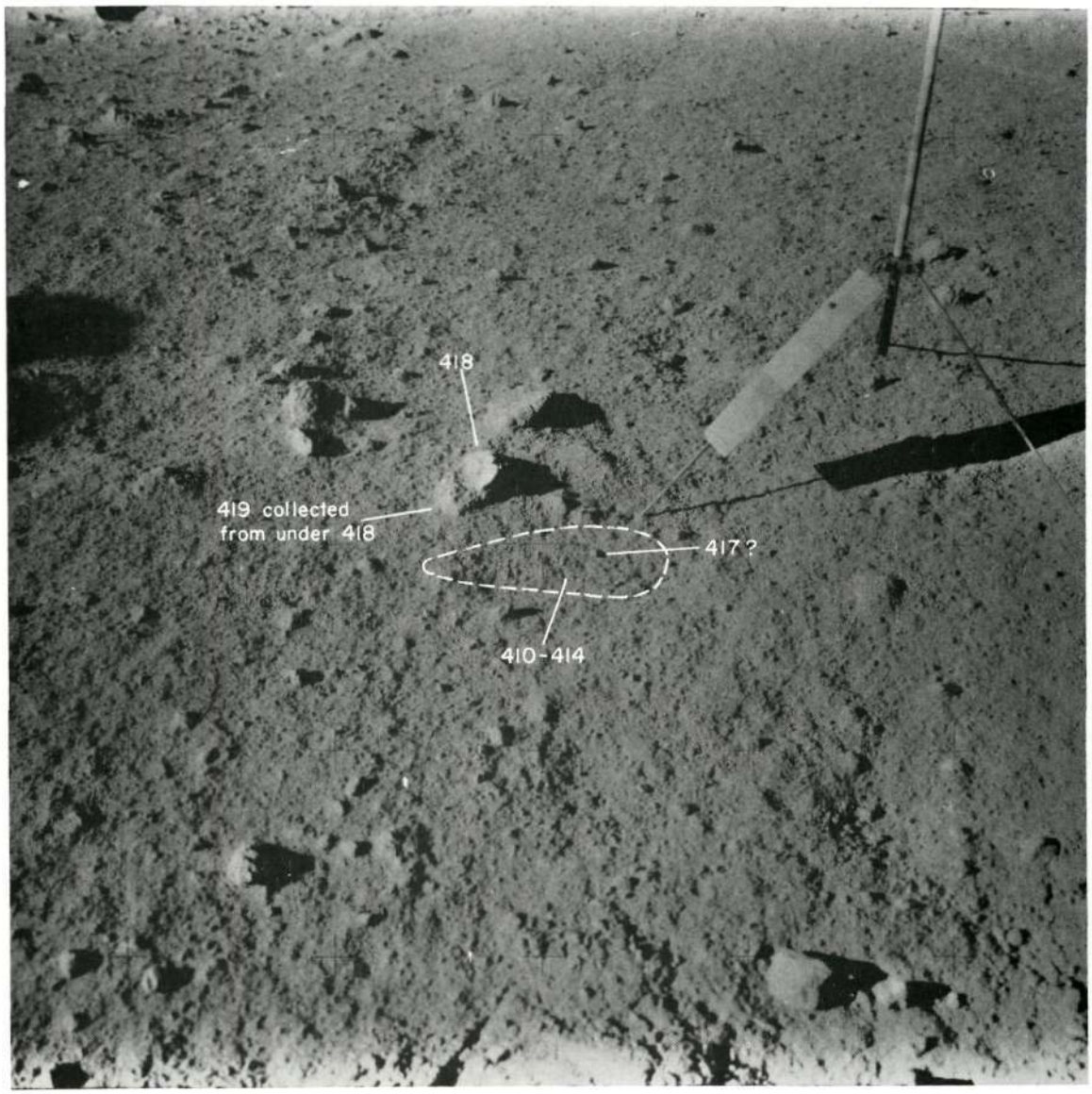

Figure 99. Samples 410-414, 417-419 collected at station 7 from rim of Spur crater. Post-sampling, cross-sun, photograph AS15-86-11663, looking south.

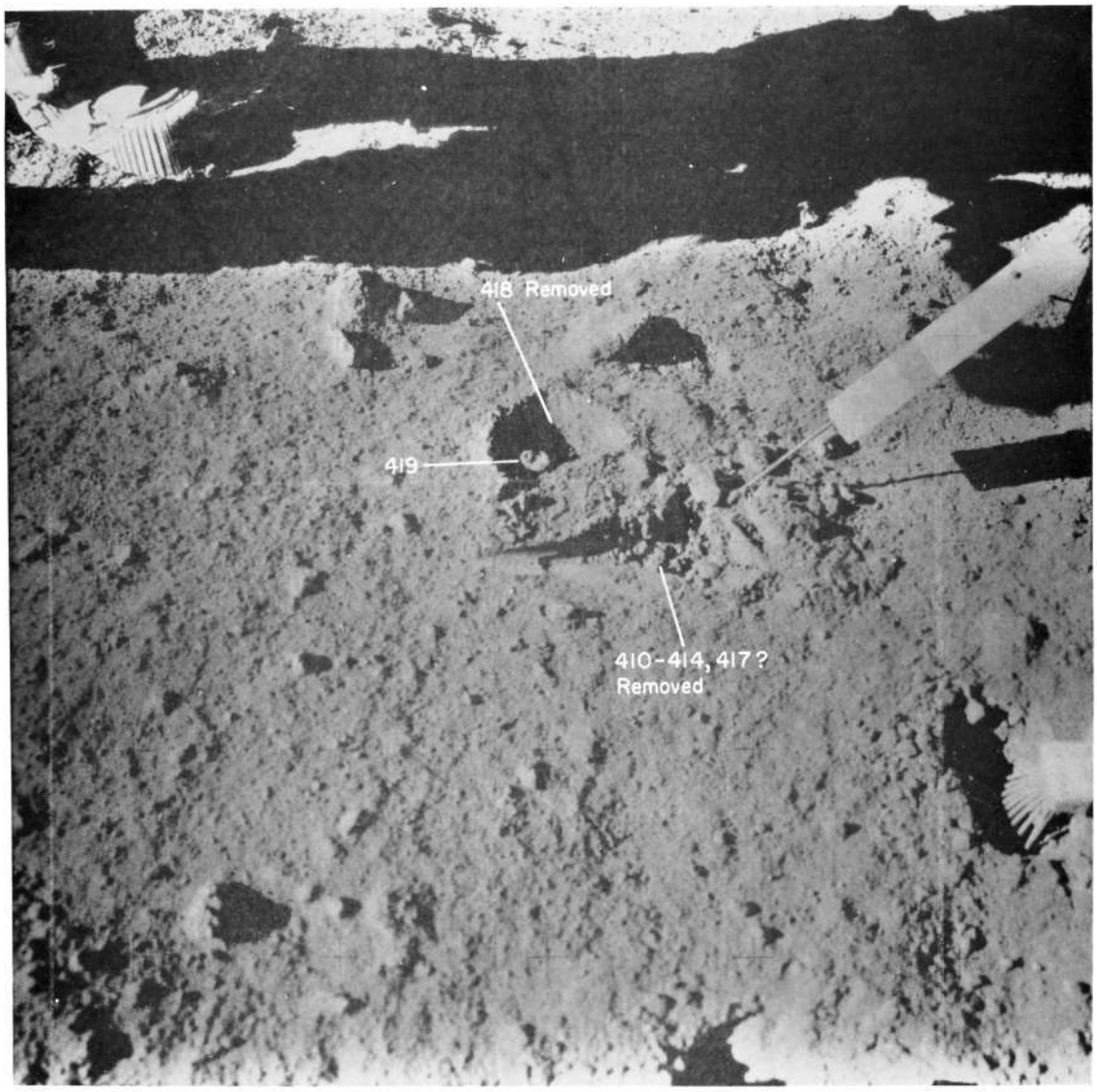

Figure 100. Samples 410-414, 417-419 collected at station 7 from rim of Spur crater. Post-sampling, cross-sun, photograph AS15-86-11664, looking south.

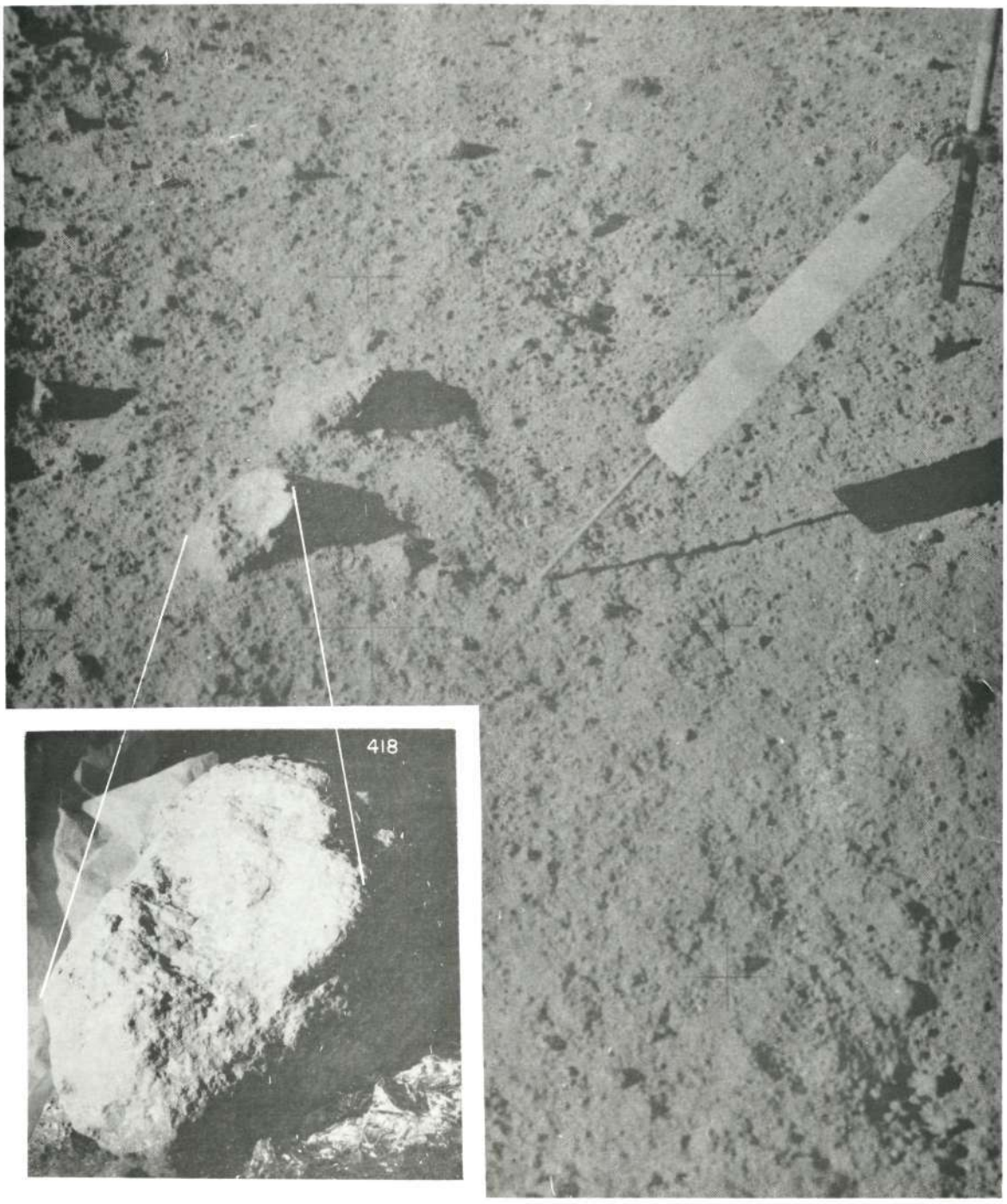

Figure 101. Sample 418 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-88-11663, taken cross-sun, looking south.

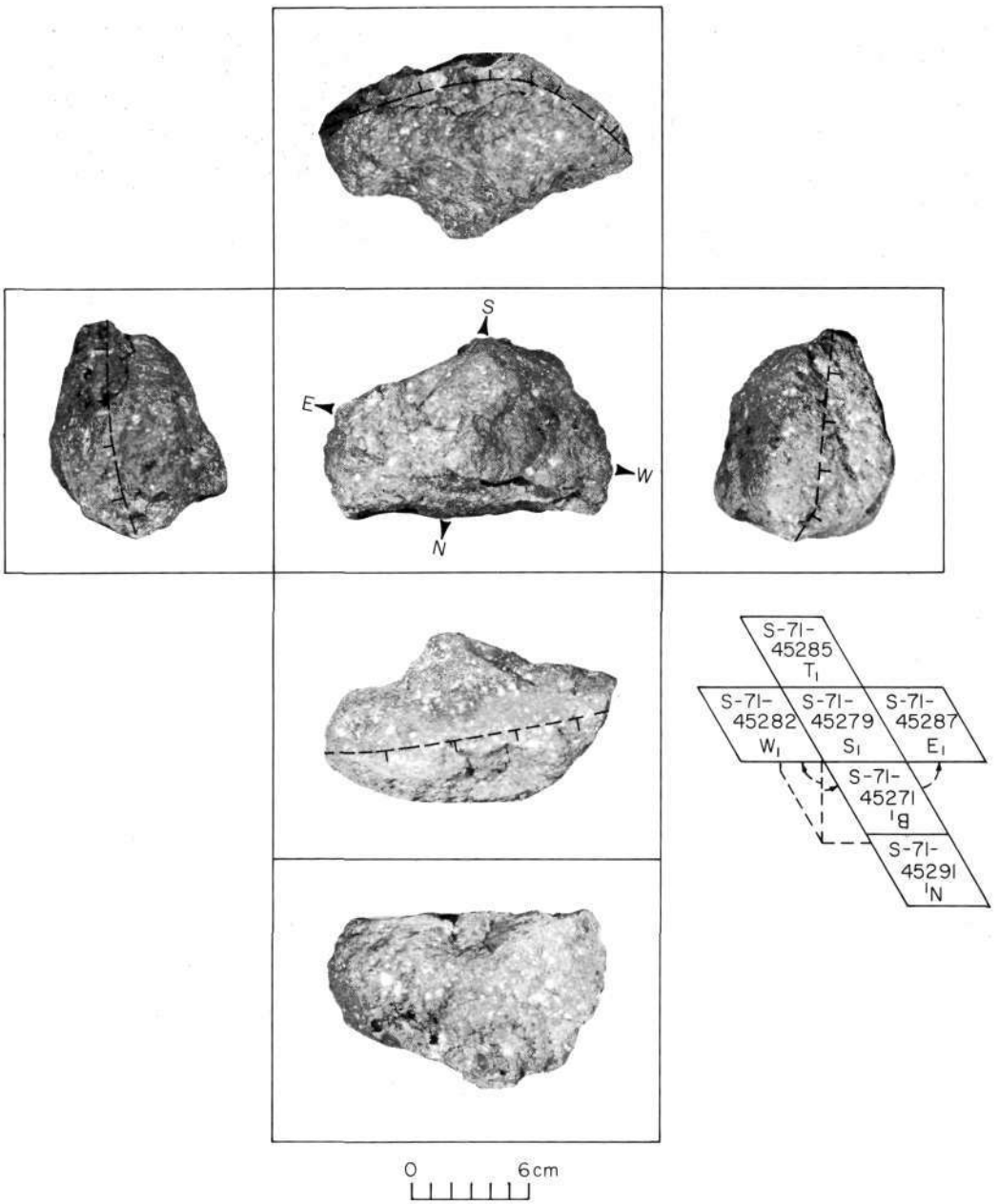

Figure 102. Orthogonal views of sample number 418.

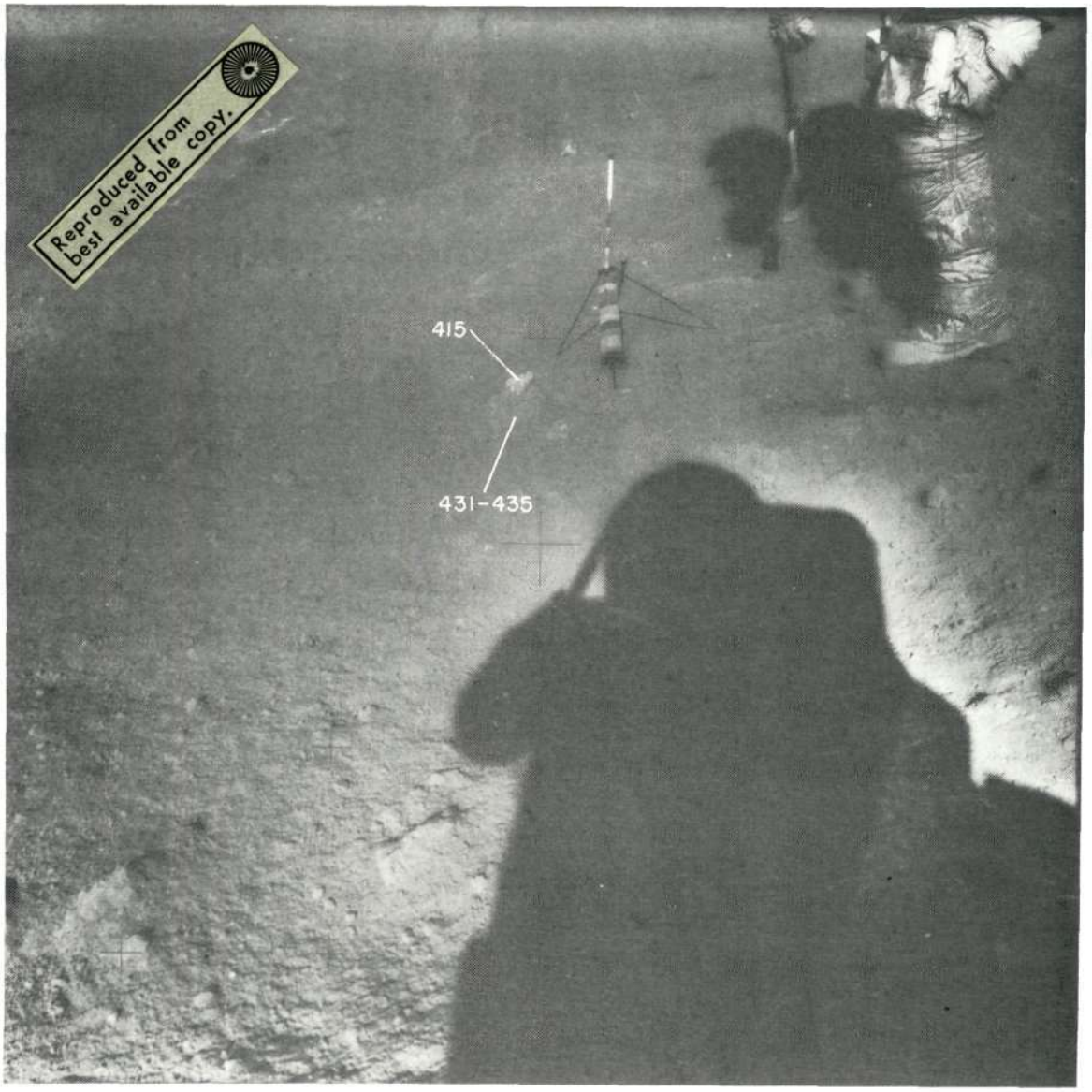

Figure 103. Samples 415; 431-435 collected at station 7 from rim of Spur crater. Pre-sampling, down-sun, photograph AS15-90-12227, looking west.

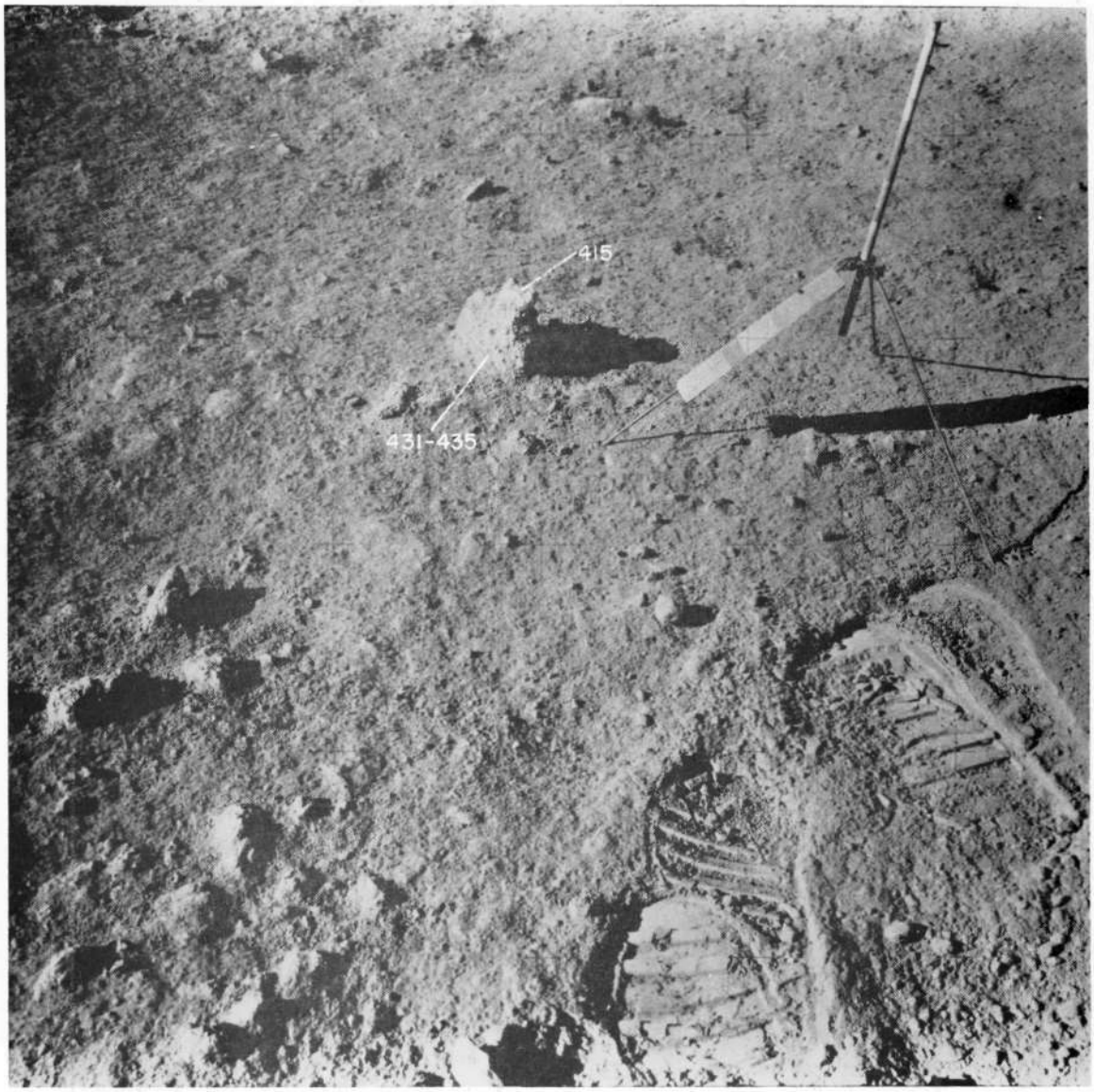

Figure 104. Samples 415; 431-435 collected at station 7 from rim of Spur crater. Pre-sampling, cross-sun, photograph AS15-86-11670, looking south.

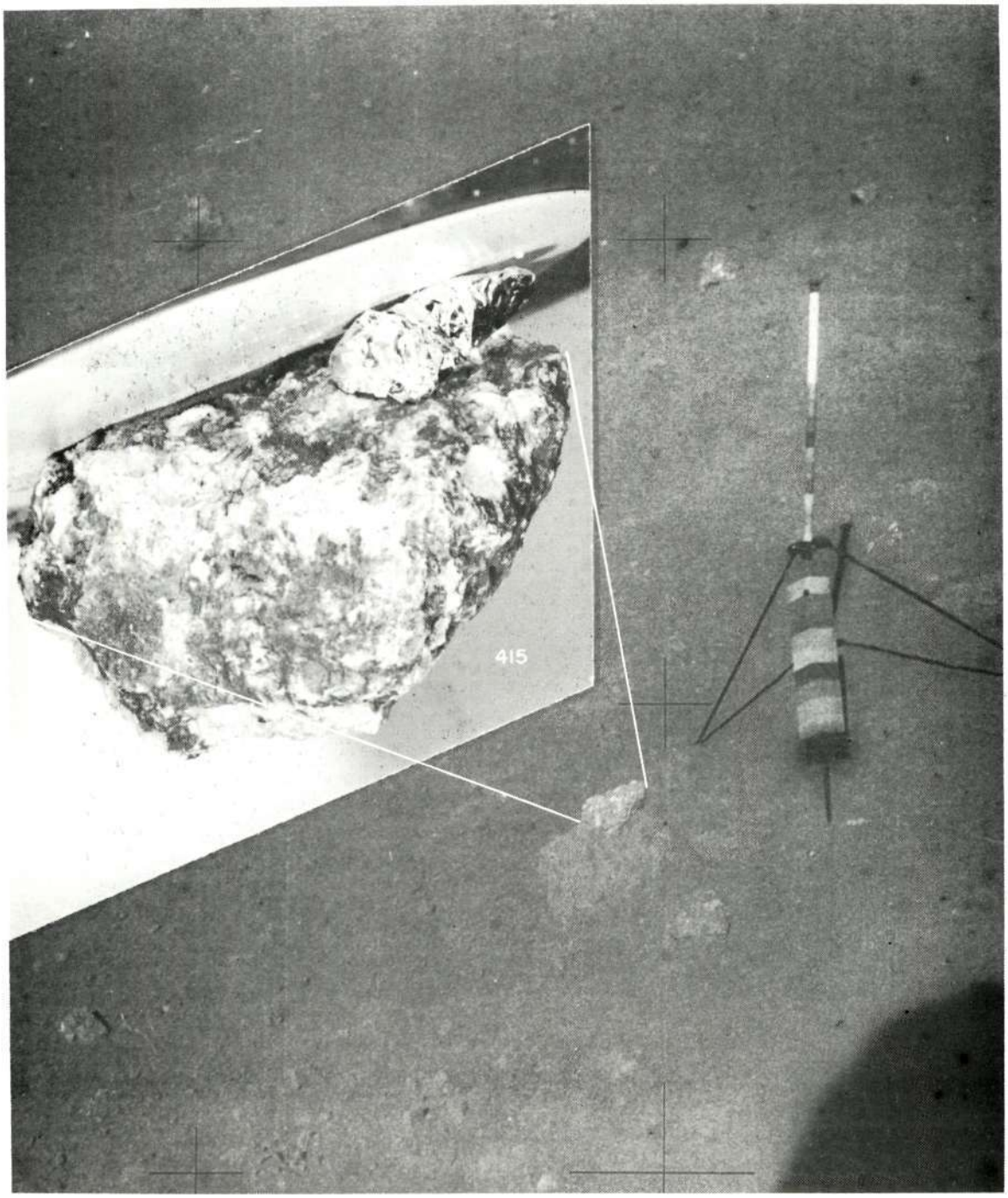

Figure 105. Sample 415 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-90-12227, down-sun, looking west.

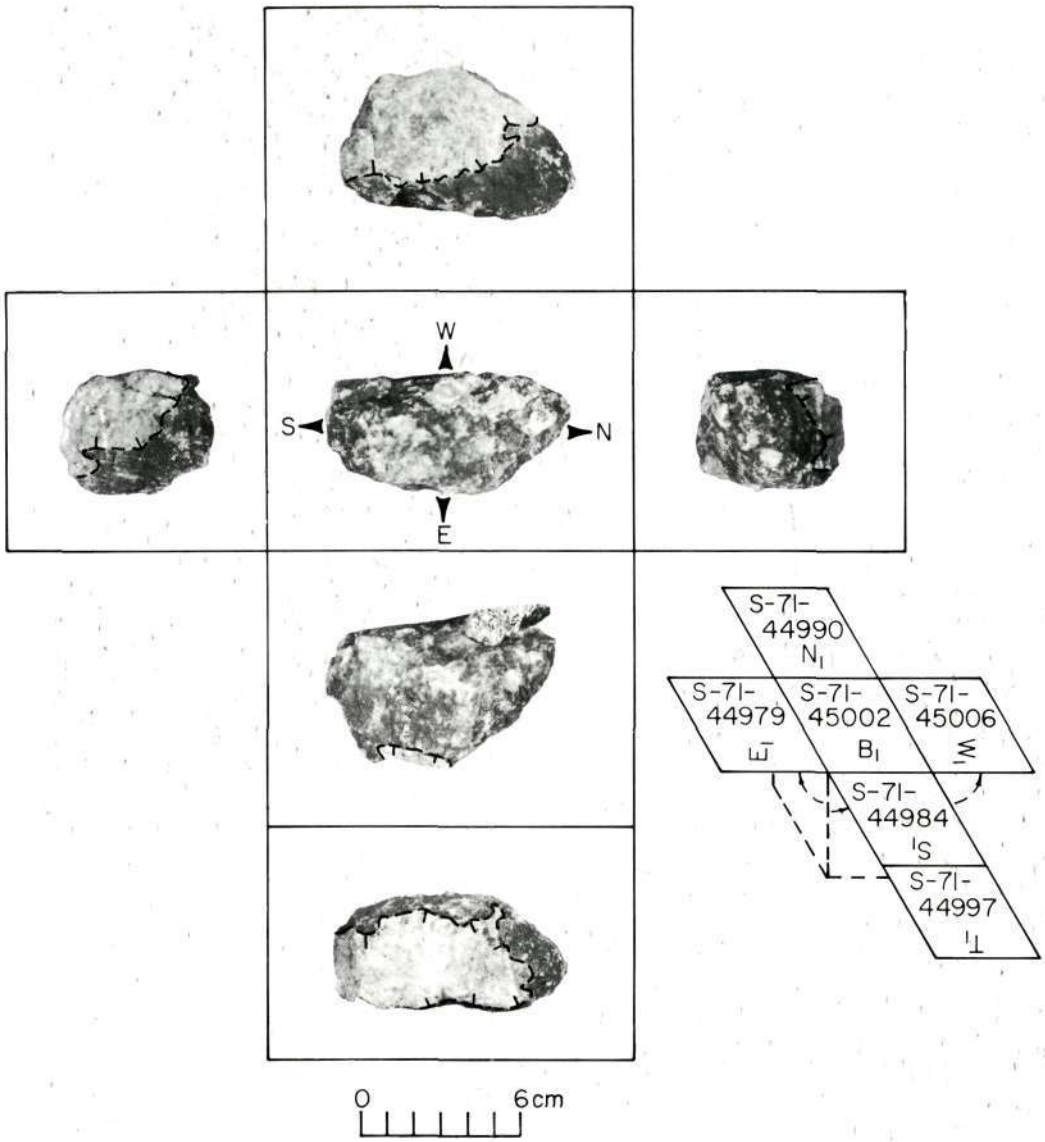

Figure 106. Orthogonal views of sample number 415.

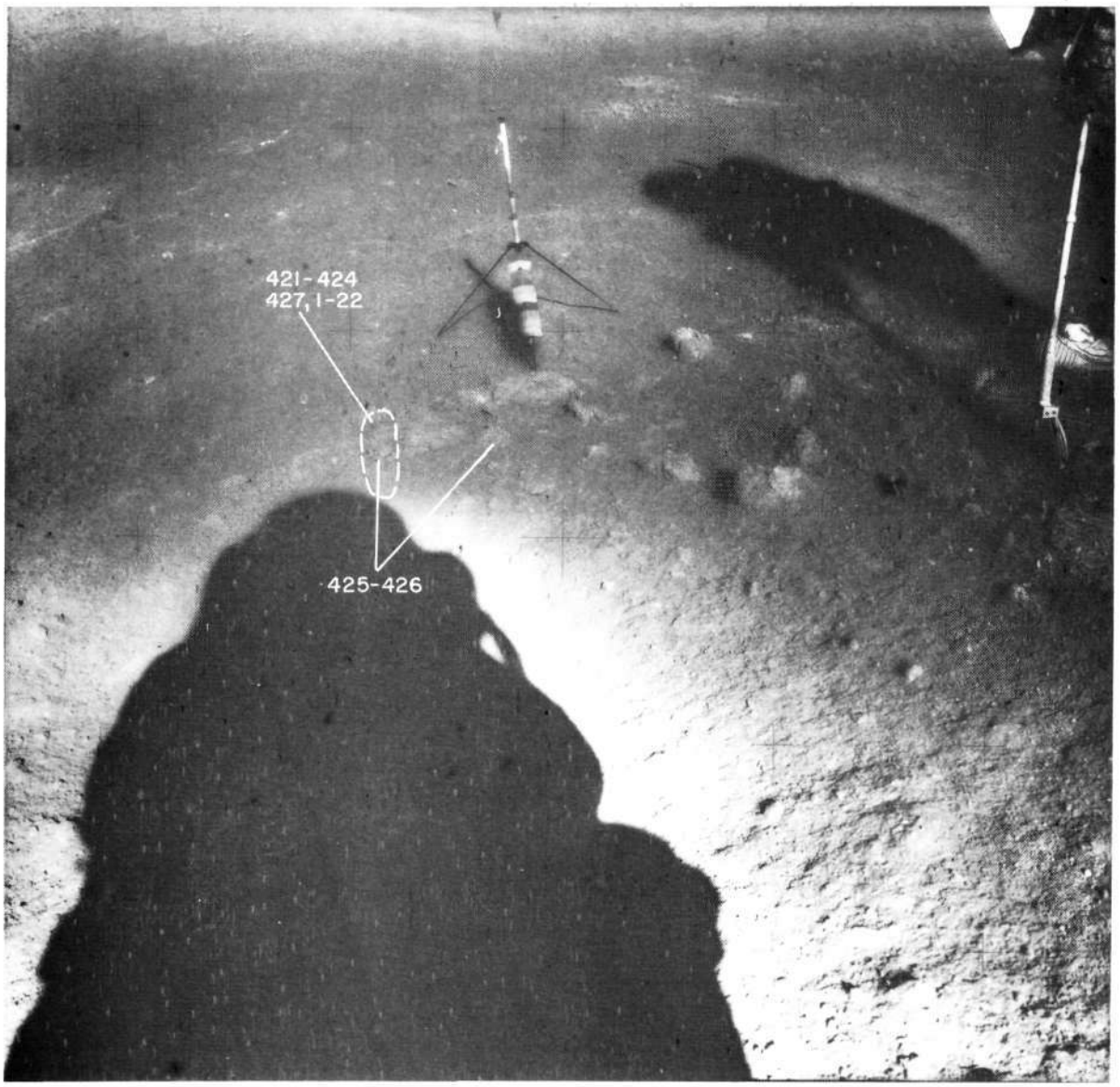

Figure 107. Samples 421-424, 425, 426, 427 collected at station 7 from rim of Spur crater. Pre-sampling, down-sun, photograph AS15-90-12225, looking west.

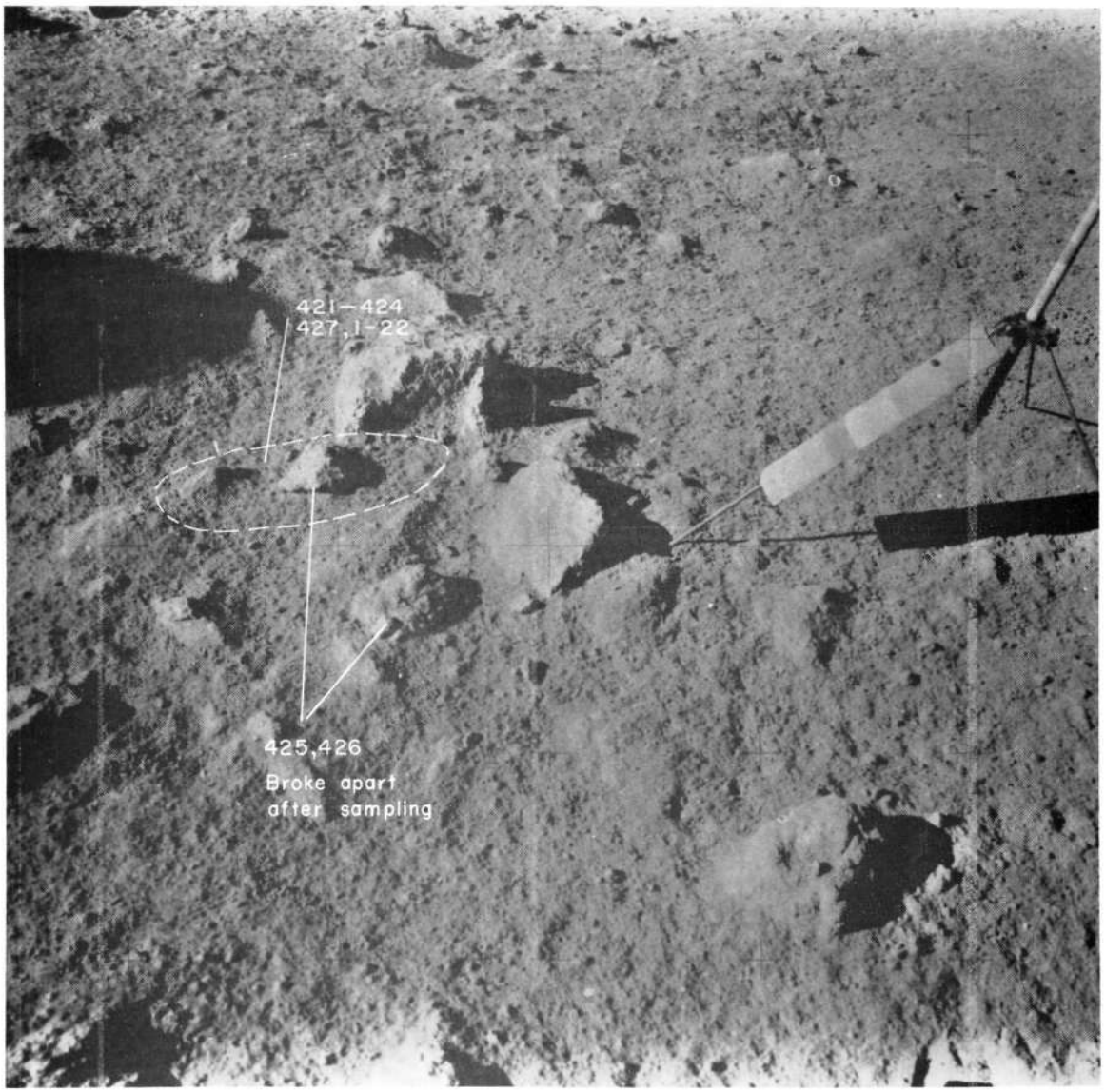

Figure 108. Samples 421-424, 425, 426, 427 collected at station 7 from rim of Spur crater. Pre-sampling, cross-sun, photograph AS15-86-11666, looking south.

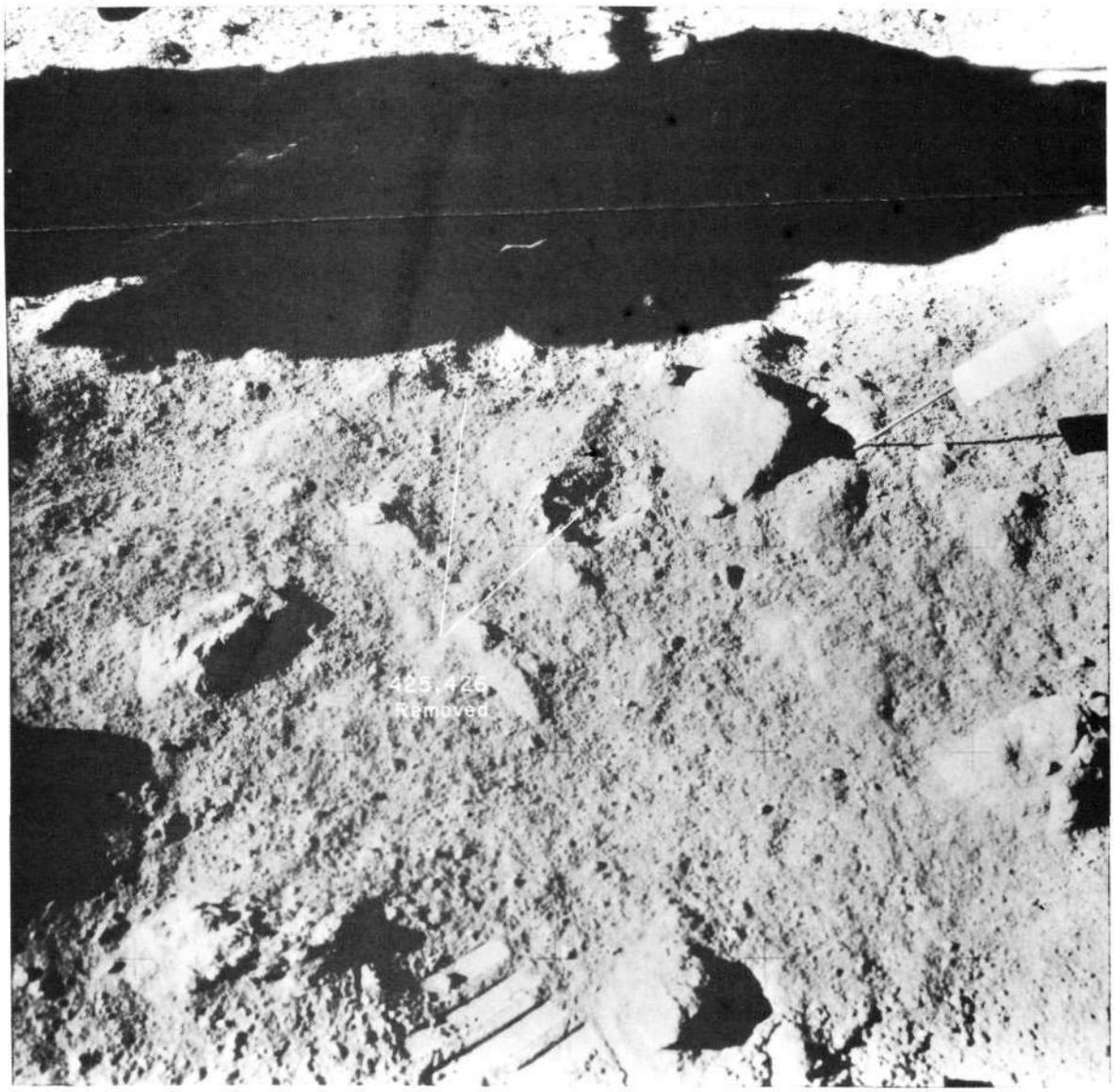

Figure 109. Samples 425, 426 collected at station 7 from rim of Spur crater. Post-sampling, cross-sun, photograph AS15-86-11668, looking south.

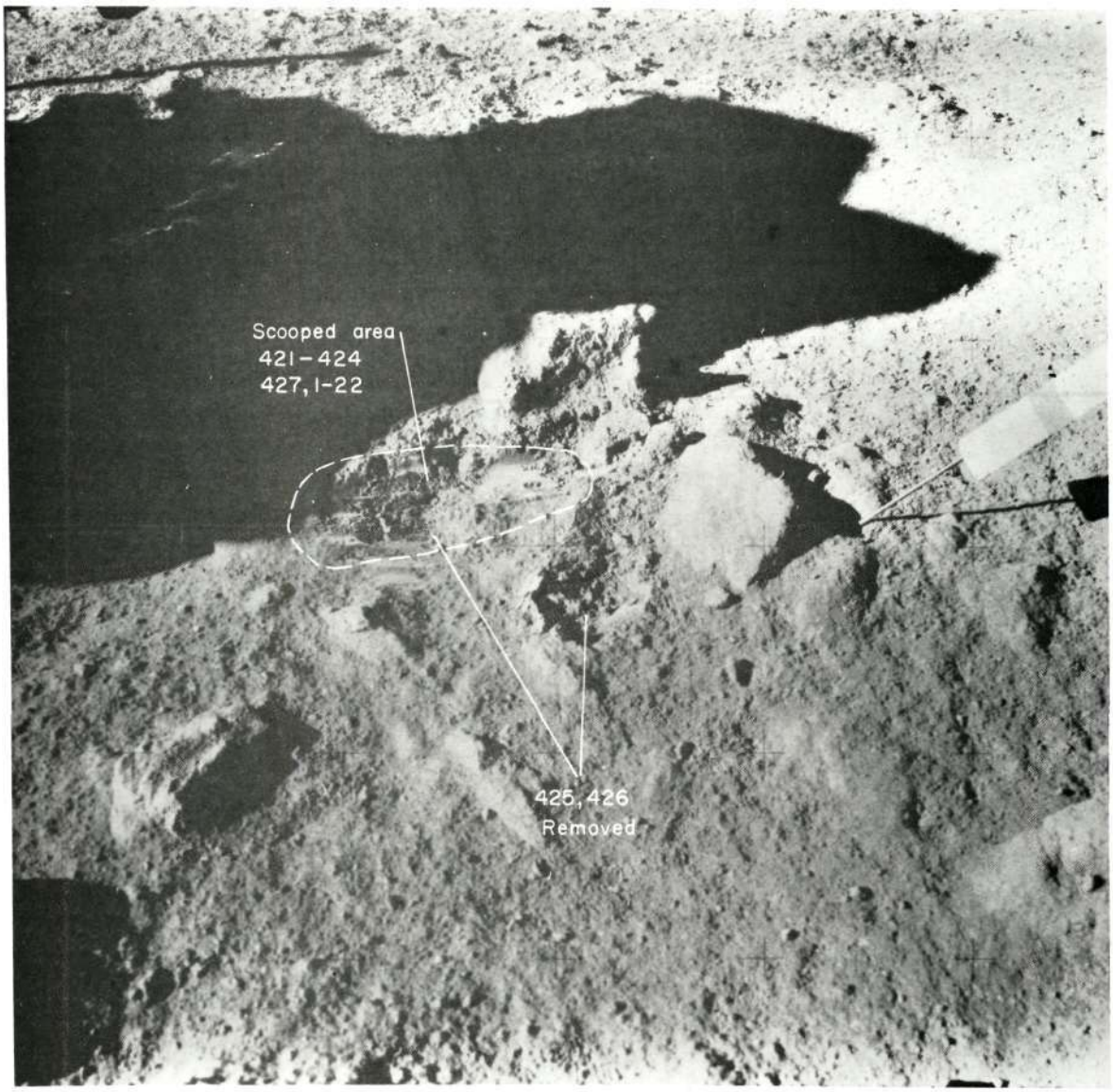

Figure 110. Samples 421-424, 425, 426, 427 collected at station 7 from rim of Spur crater. Post-sampling, cross-sun, photograph AS15-86-11669, looking south.

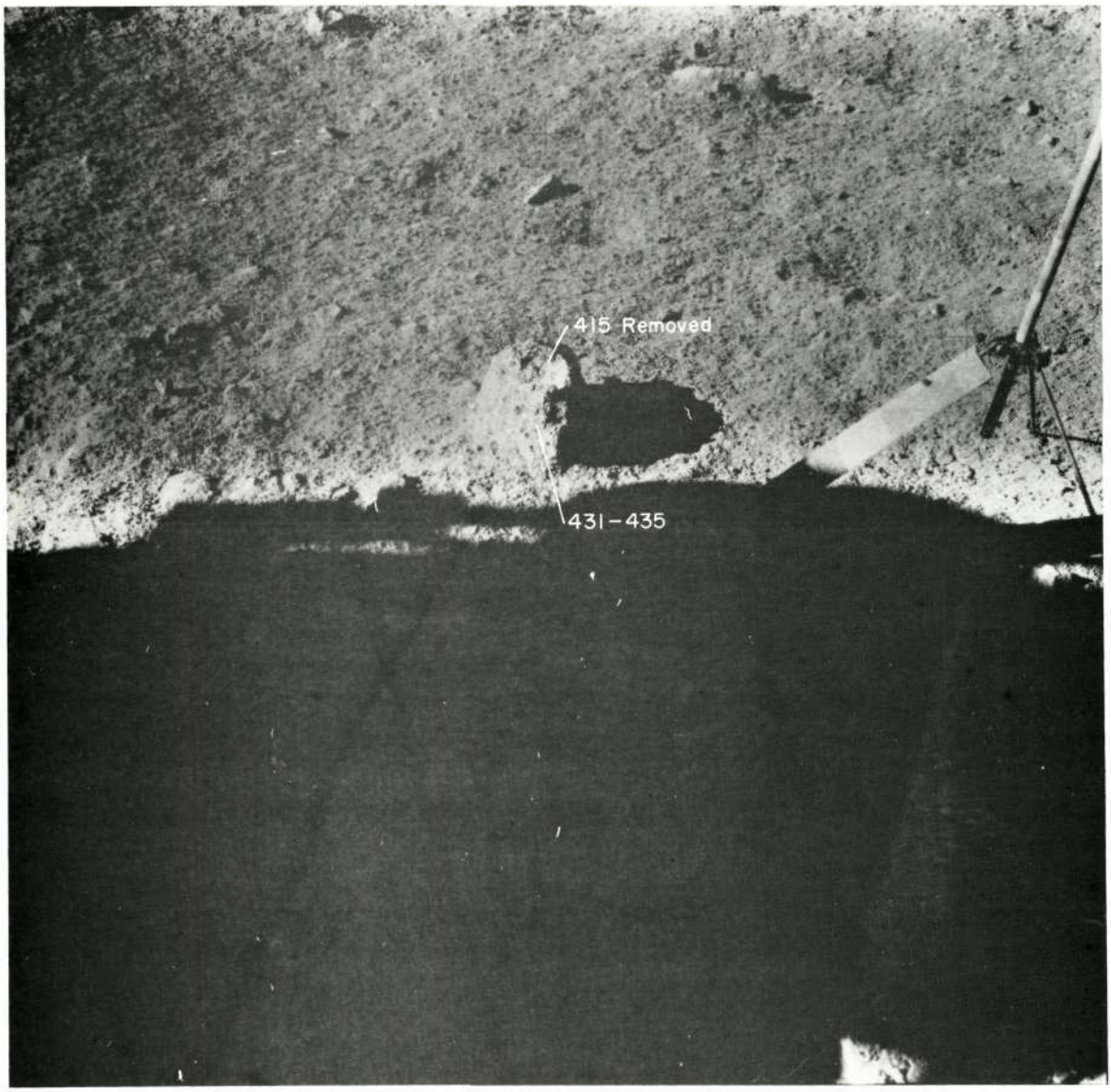

Figure 111. Samples 431-434, 435 collected at station 7 from rim of Spur crater. During sampling, cross-sun, photograph AS15-86-11673, looking south.

Figure 112. Samples 431-434, 435 (clod of poorly indurated breccia from which sample 415 was collected), collected at station 7 from rim of Spur crater. Pre-sampling, cross-sun, photograph AS15-86-11672, looking south.

Figure 113. Samples 431-434, 435 collected at station 7 from rim of Spur crater. Post-sampling, cross-sun, photograph AS15-86-11674, looking south.

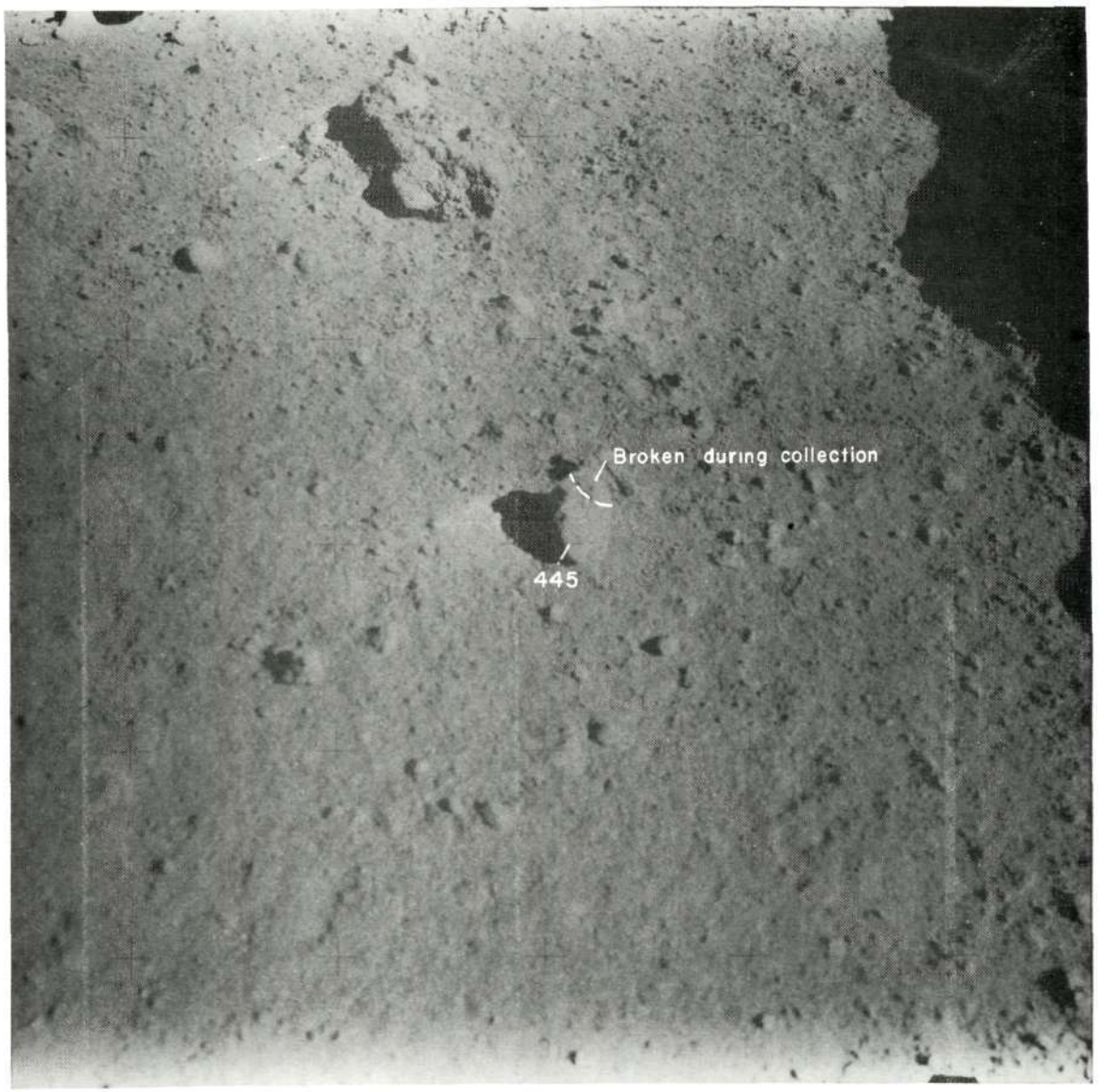

Figure 114. Sample 445 collected at station 7 from rim of Spur crater. Pre-sampling, cross-sun, photograph AS15-86-11691, looking north.

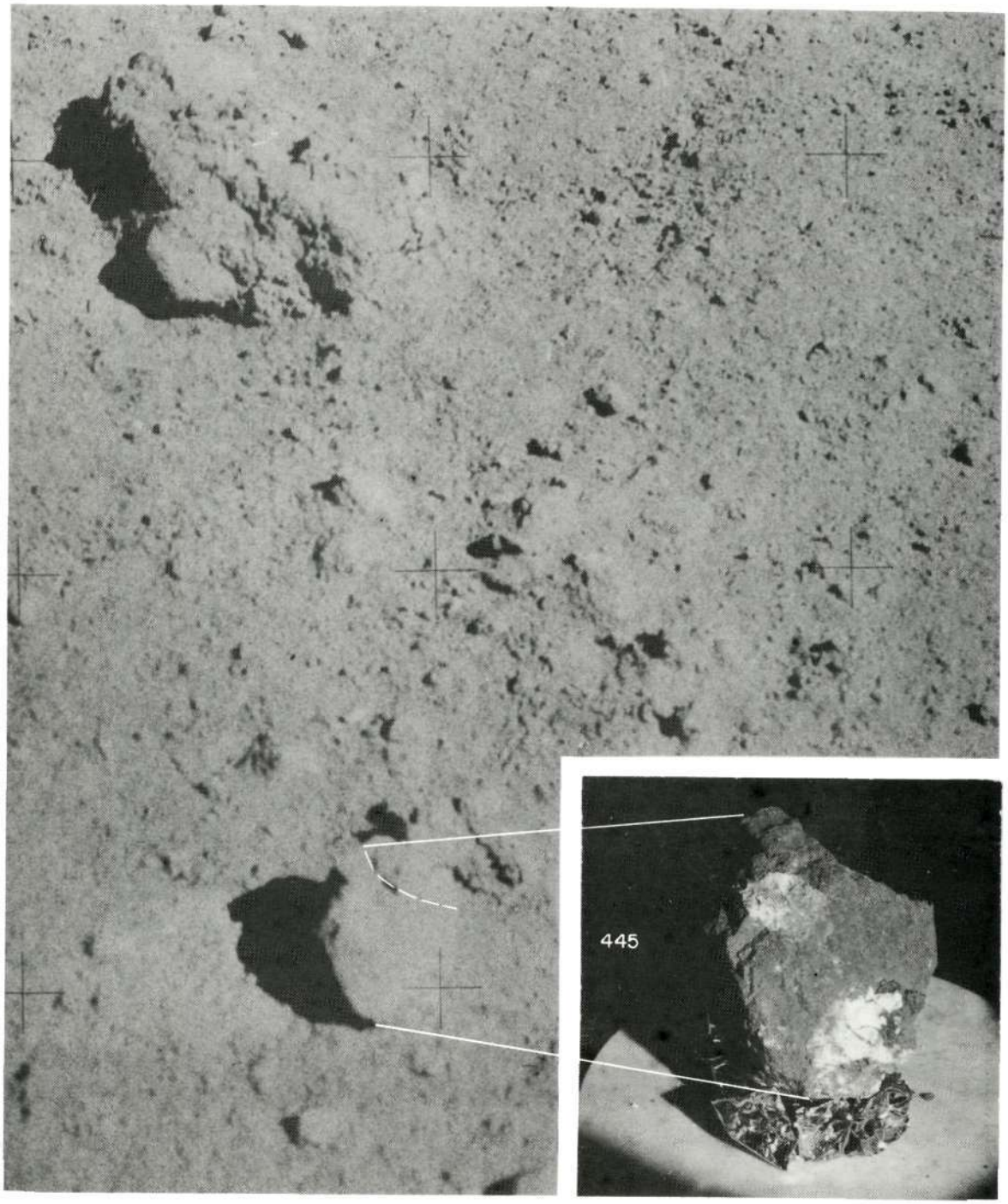

Figure 115. Sample 445 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-86-11690, taken cross-sun, looking north.

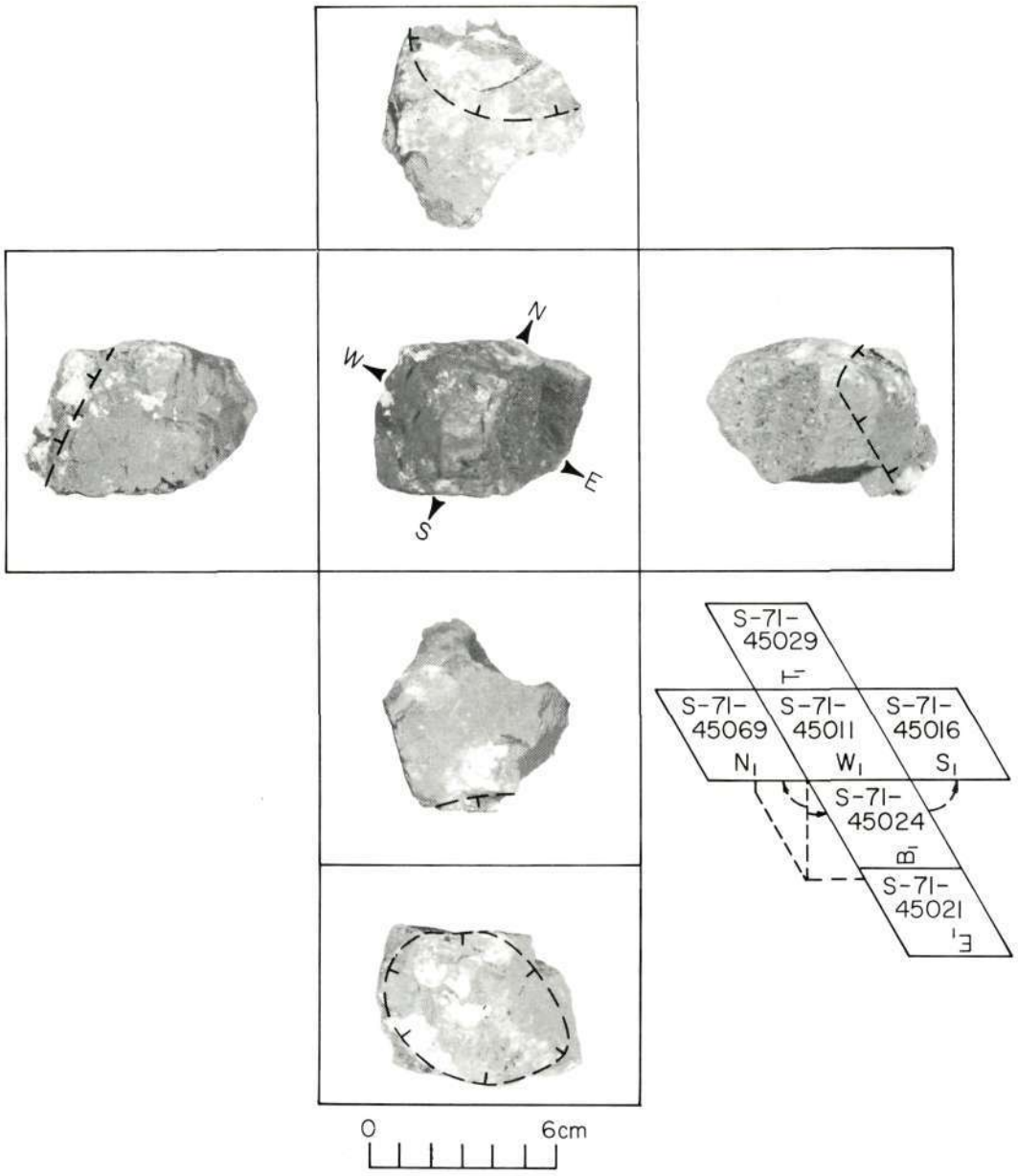

Figure 116. Orthogonal views of sample number 445.

Figure 117. Sample 455 (broke apart) collected at station 7 from rim of Spur crater. Pre-sampling, down-sun, photograph AS15-90-12229, looking west.

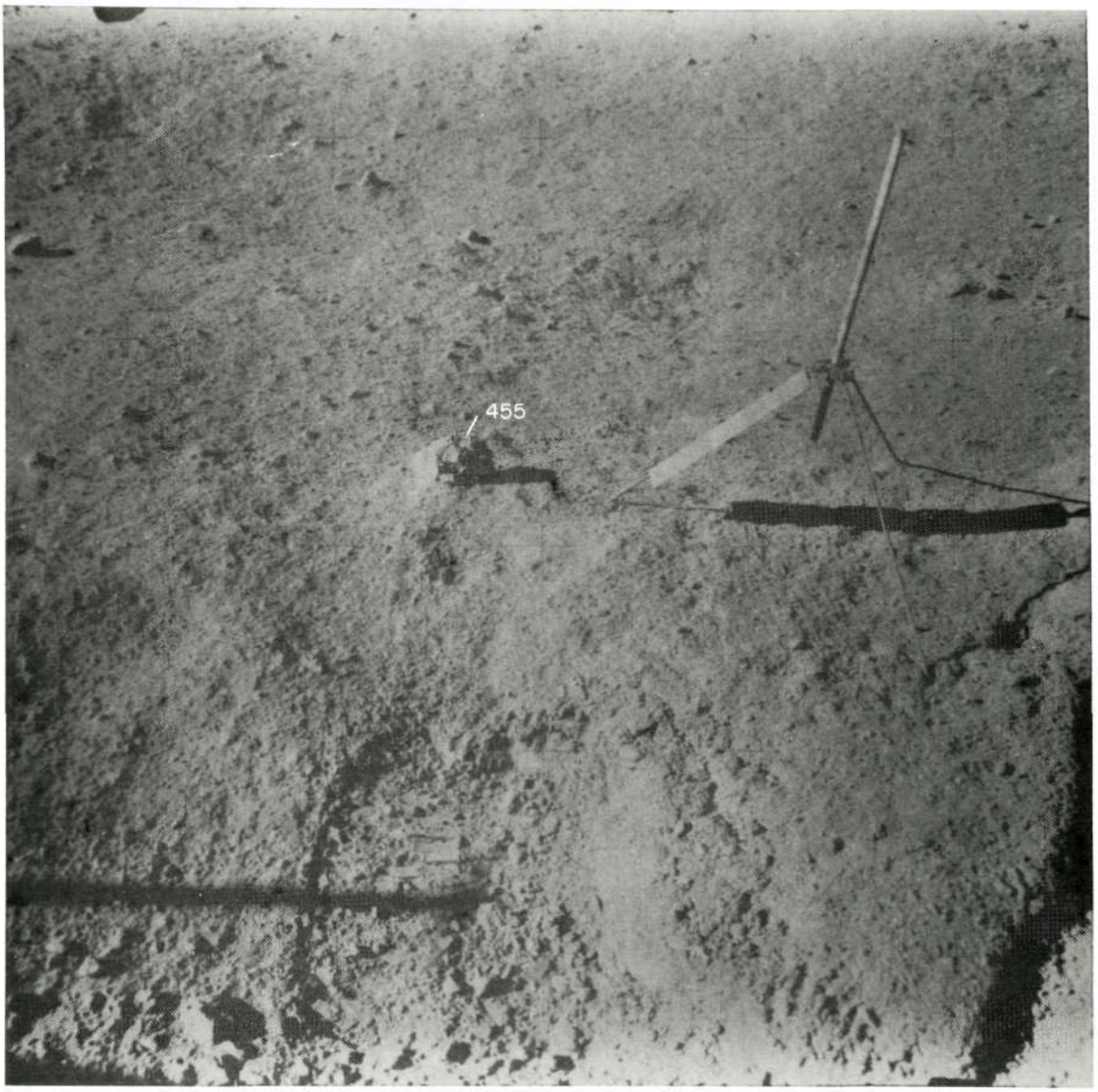

Figure 118. Sample 455 collected at station 7 from rim of Spur crater. Pre-sampling, cross-sun photograph AS15-86-11675, looking south.

Figure 119. Sample 459 collected at station 7 from rim of Spur crater. Pre-sampling, cross-sun photograph AS15-90-12232, looking south.

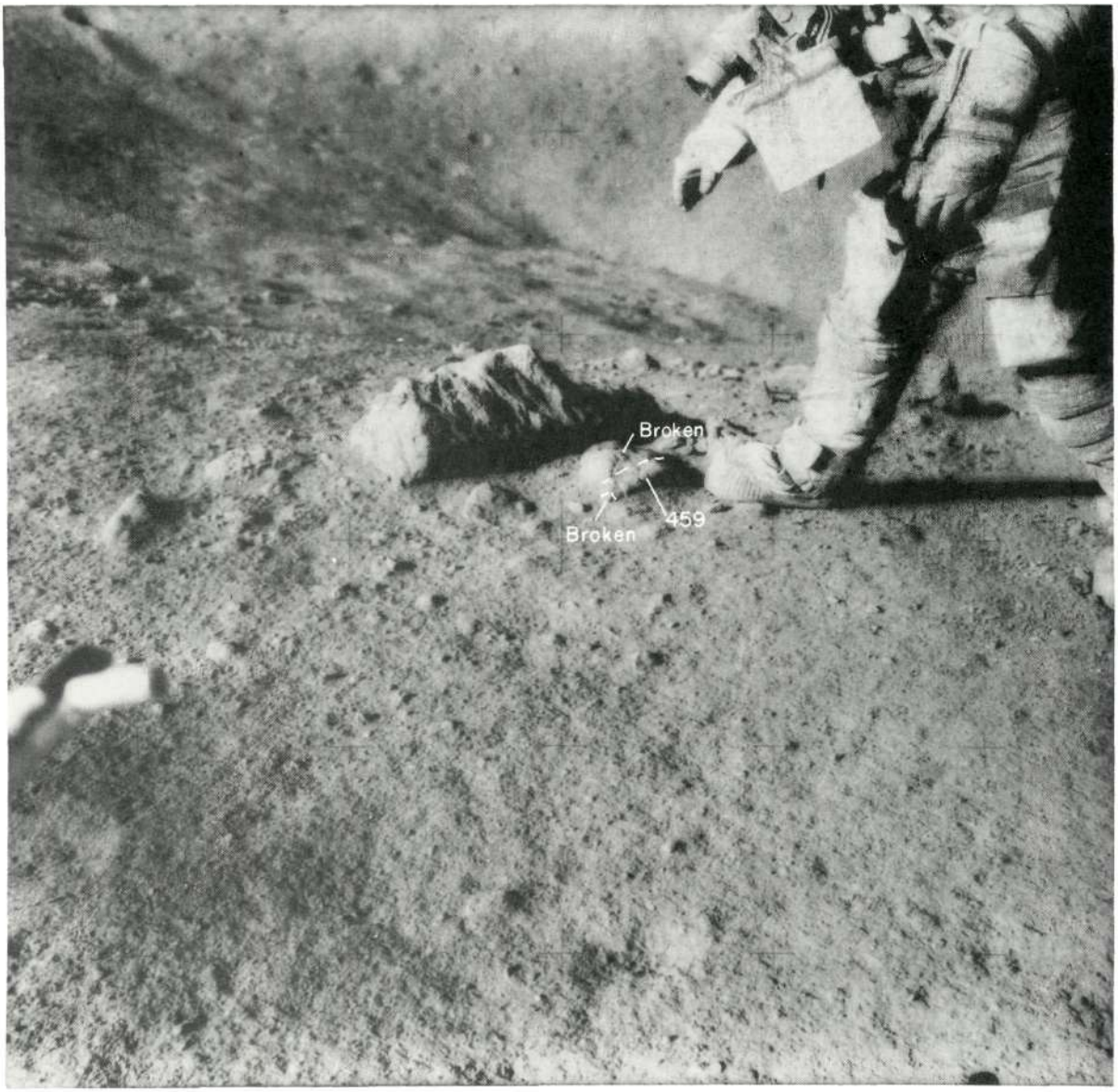

Figure 120. Sample 459 collected at station 7 from rim of Spur crater. Pre-sampling, cross-sun photograph AS15-90-12232, looking south.

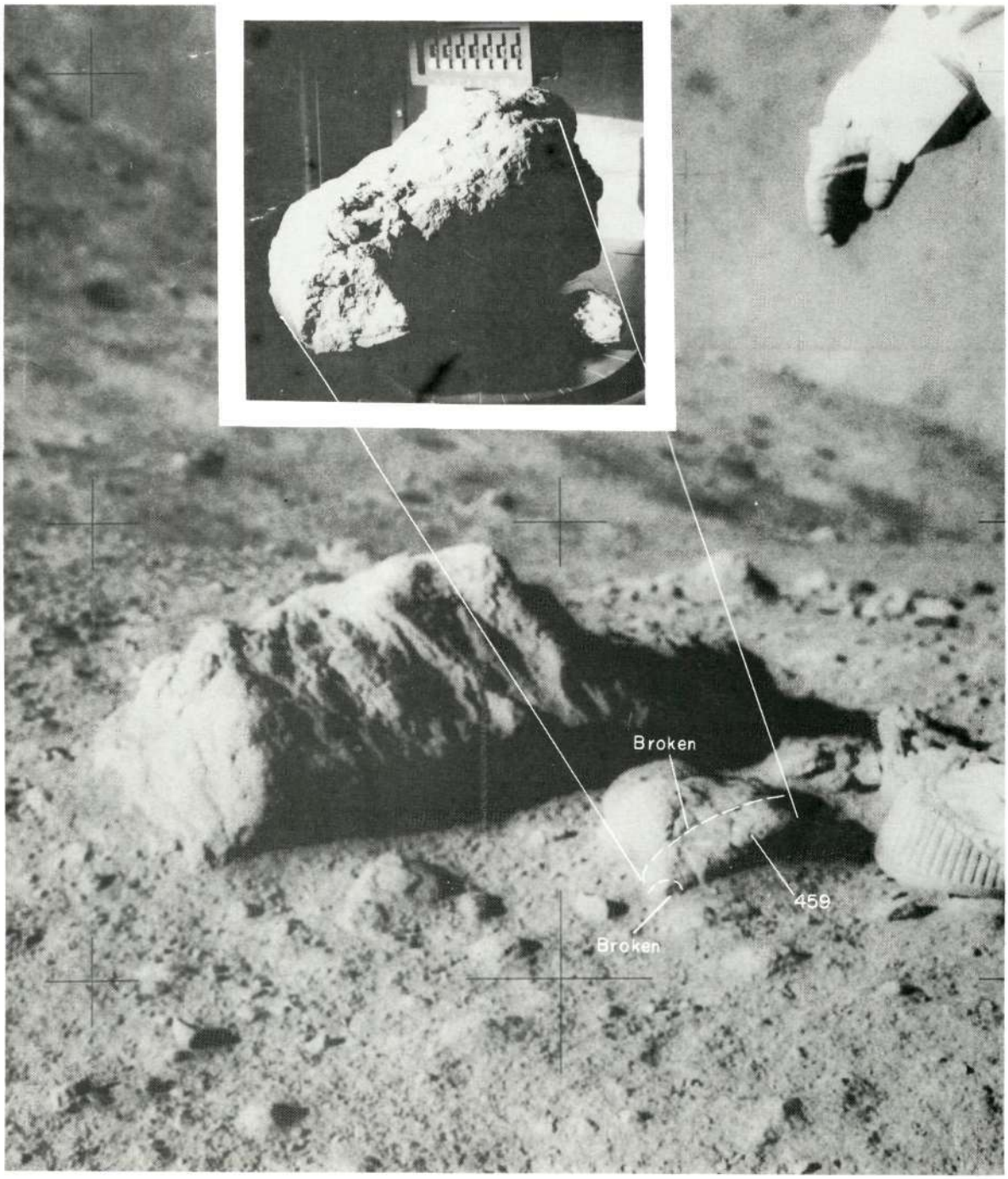

Figure 121. Sample 459 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-90-12236, taken cross-sun, looking south. The identification and orientation as shown are tentative; the viewing angle in the LRL photograph (inset) appears to be much lower than the viewing angle to sample 459 on the surface, which probably explains the difference in the profiles of the sample.

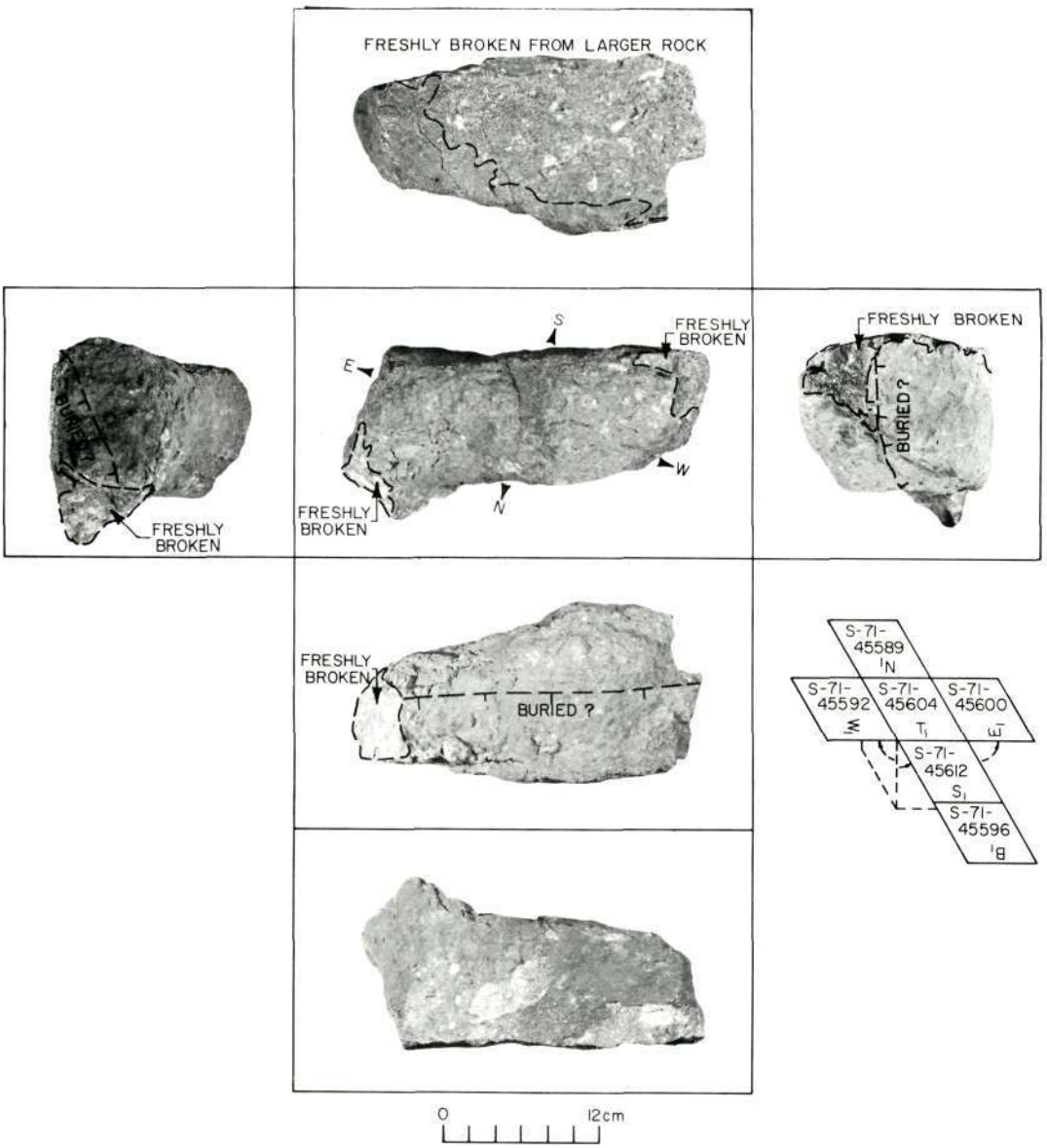

Figure 122. Orthogonal views of sample number 459.

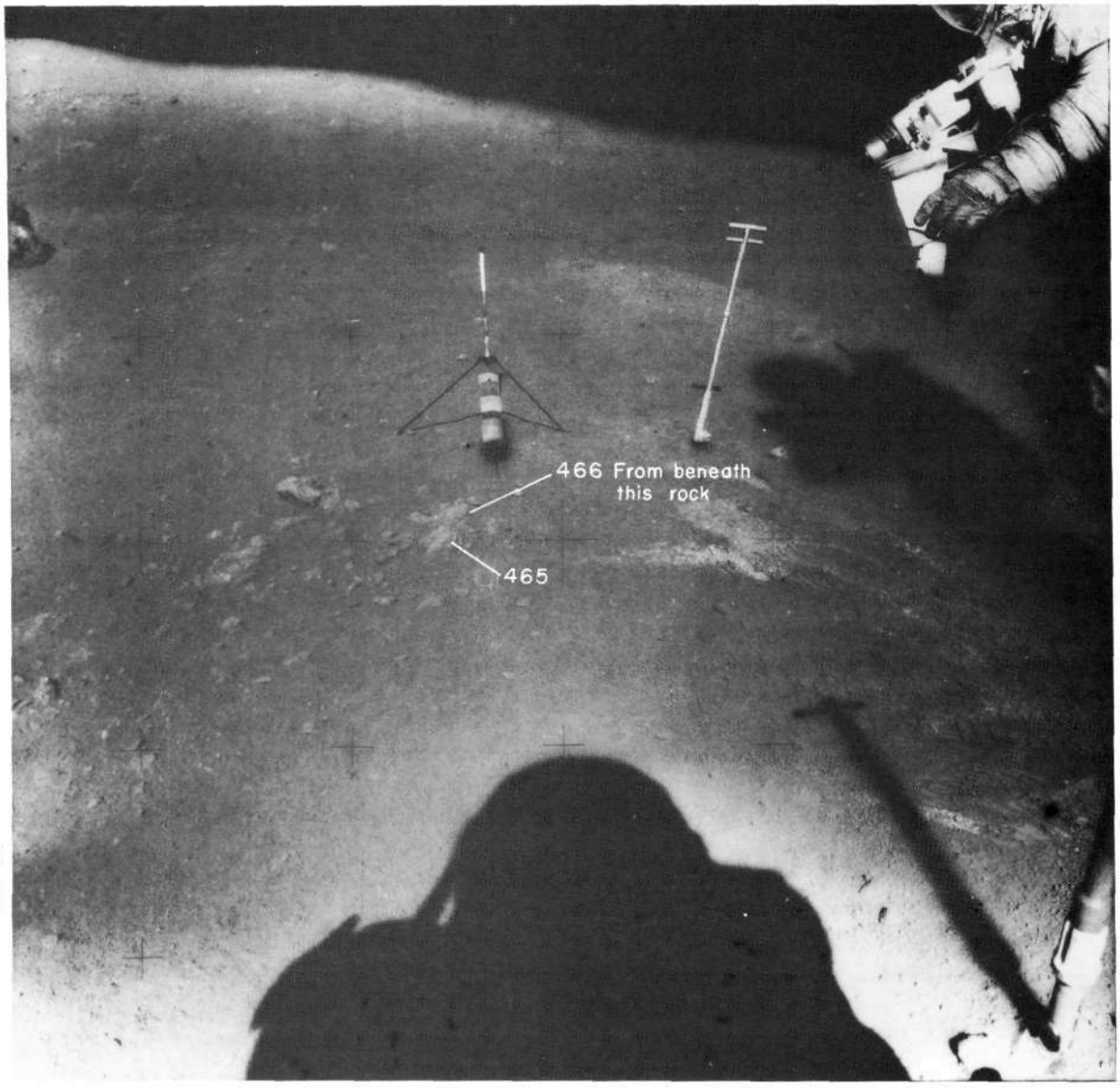

Figure 123. Sample 465 collected at station 7 from the rim of Spur crater. Pre-sampling, down-sun photograph AS15-90-12230, looking west.

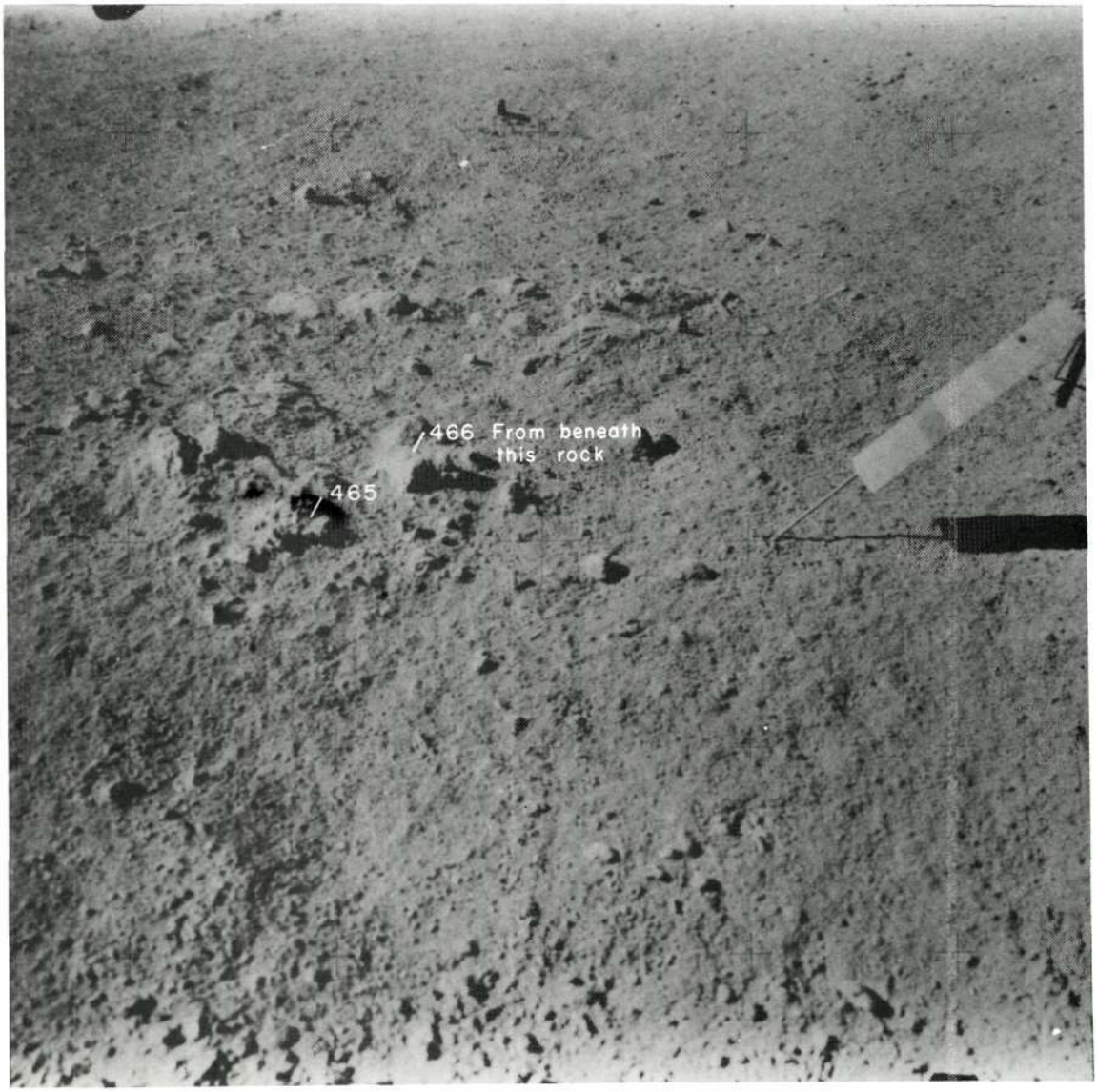

Figure 124. Sample 465 collected at station 7 from rim of Spur crater. Pre-sampling, cross-sun photograph AS15-86-11678, looking south.

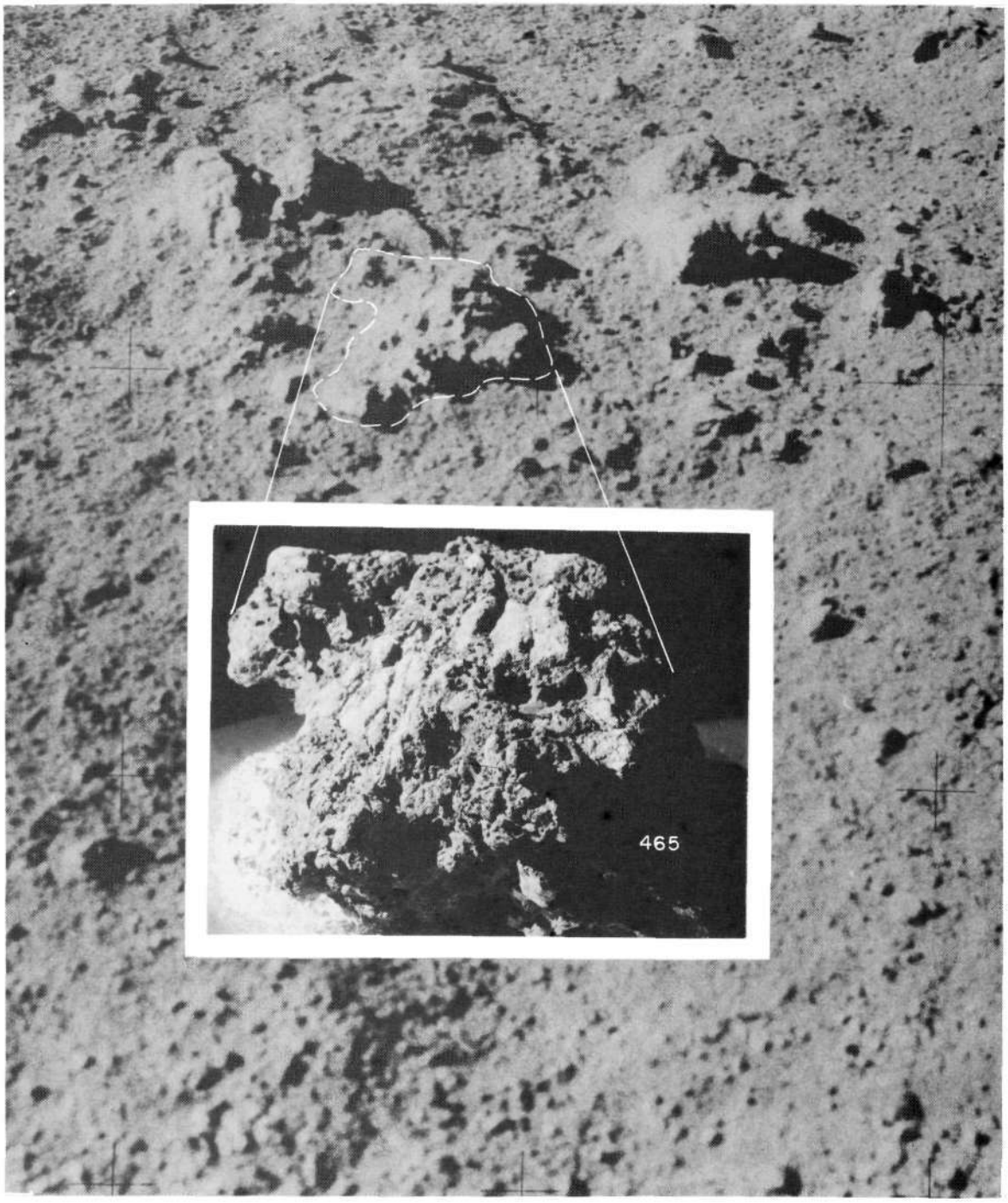

Figure 125. Sample 465 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-86-11678, taken cross-sun, looking south.

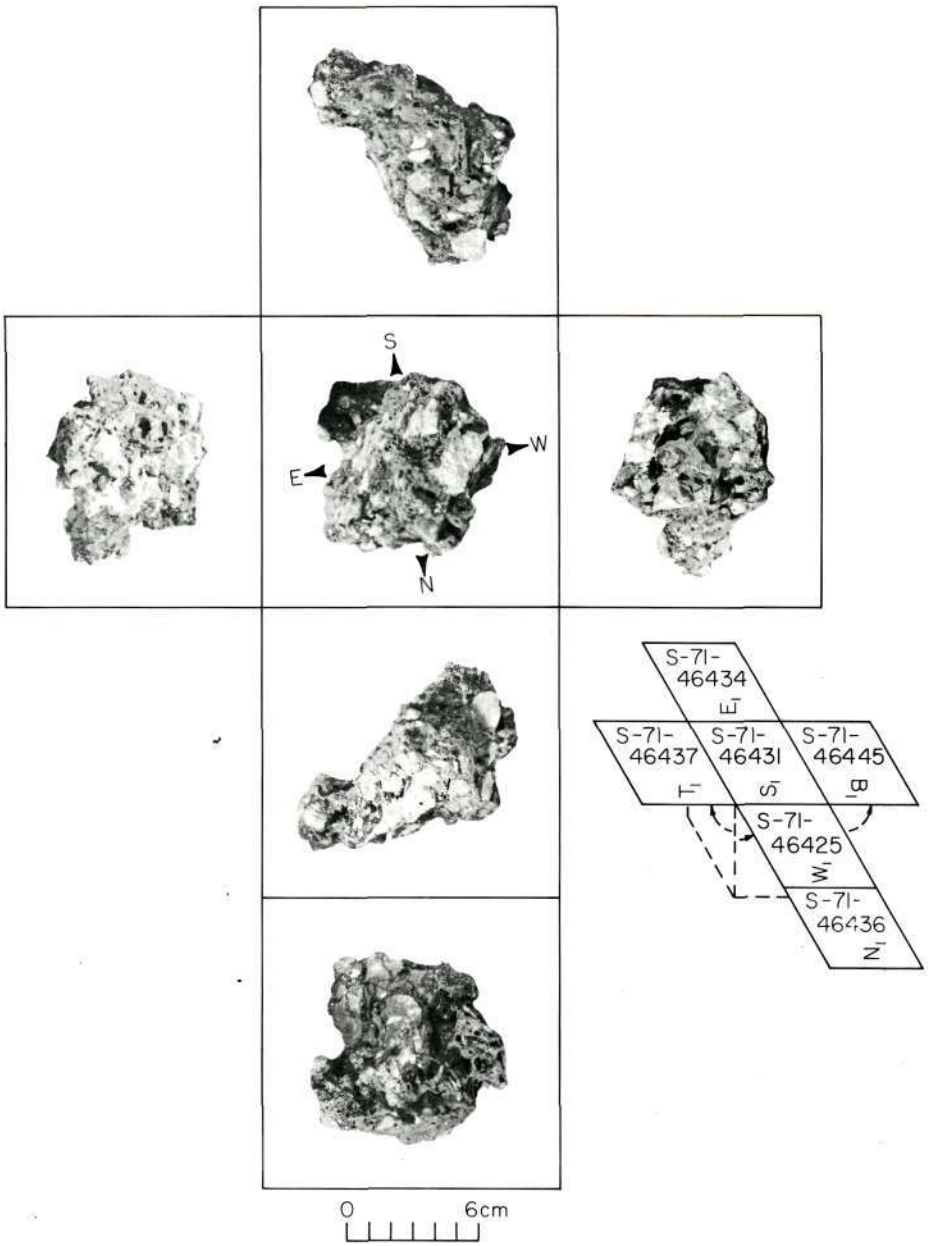

Figure 126. Orthogonal views of sample number 465.

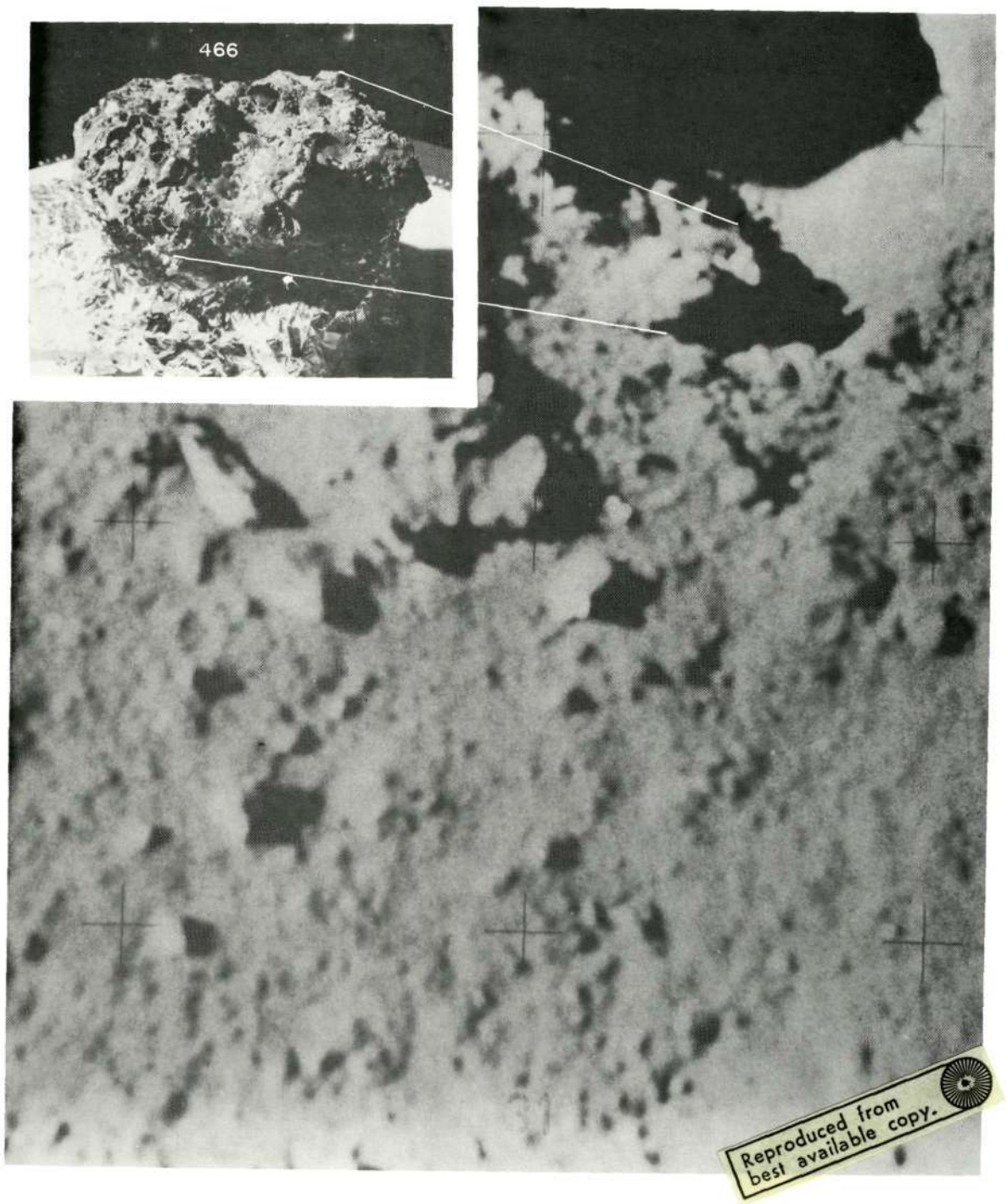

Figure 127. Sample 466 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-86-11680, taken cross-sun, looking south.

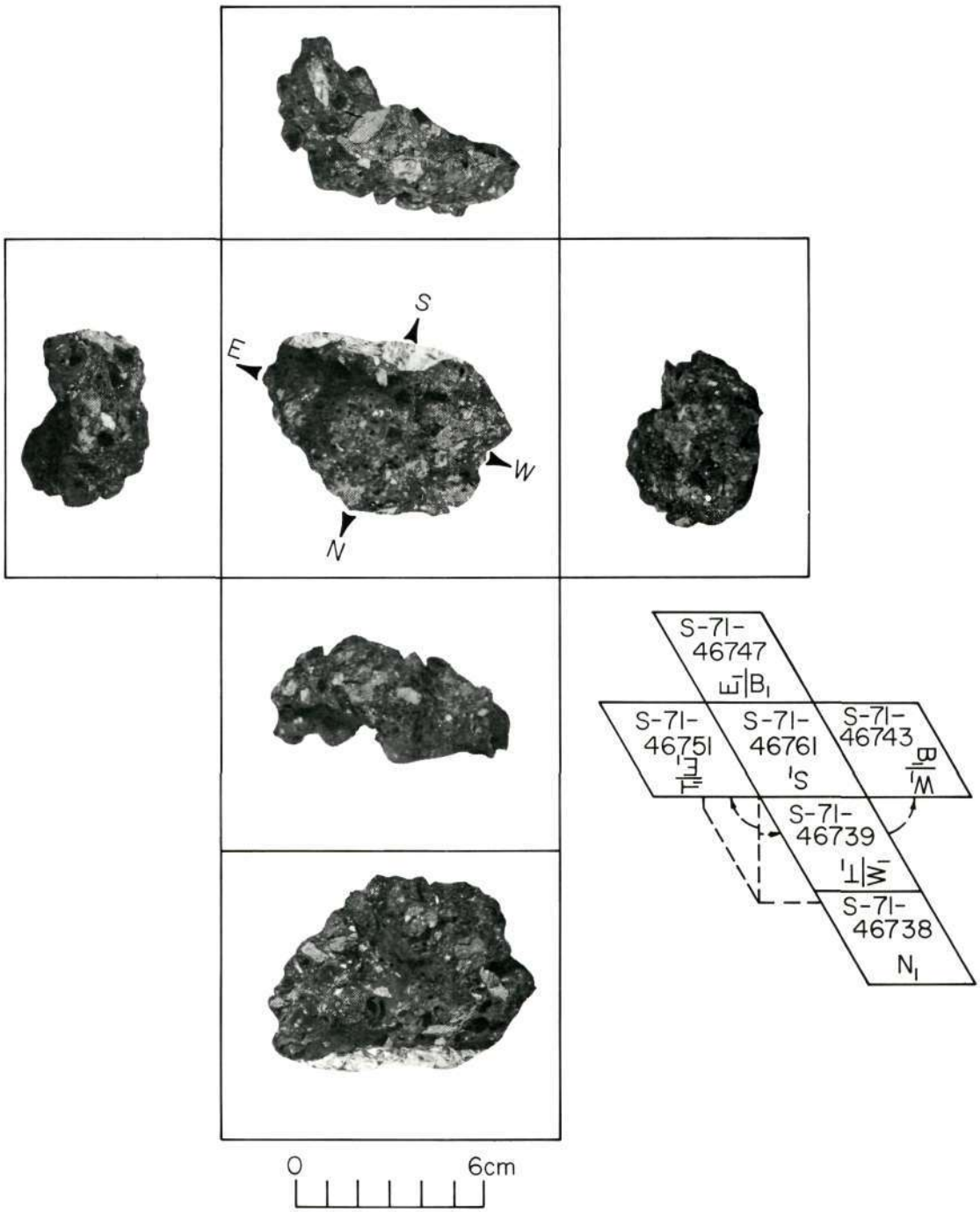

Figure 128. Orthogonal views of sample number 466.

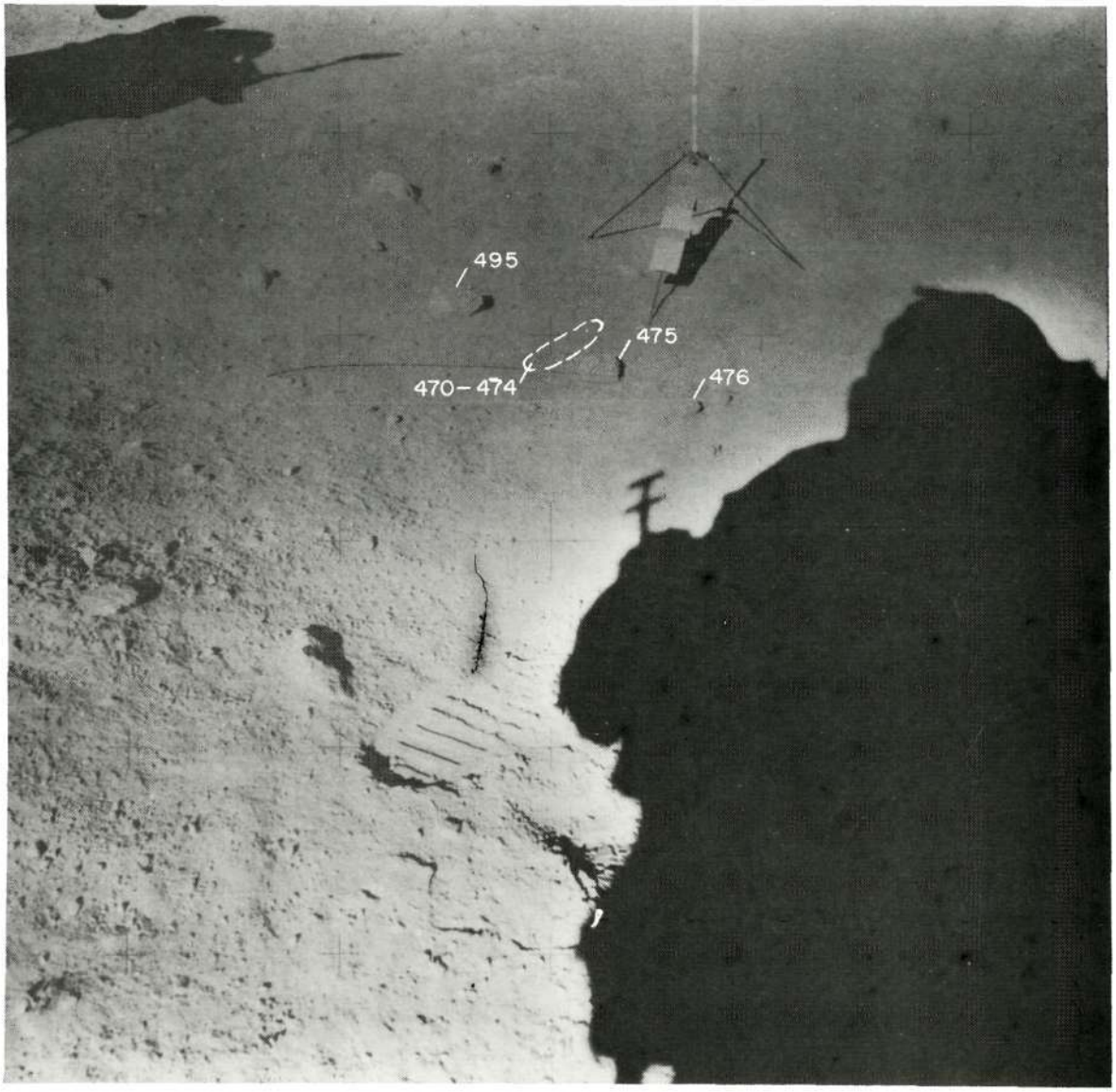

Figure 129. Samples 470-474, 475, 476, 495 collected at station 4 (exact place with relation to big boulder not known). Pre-sampling, down-sun photograph AS15-87-11761, looking west.

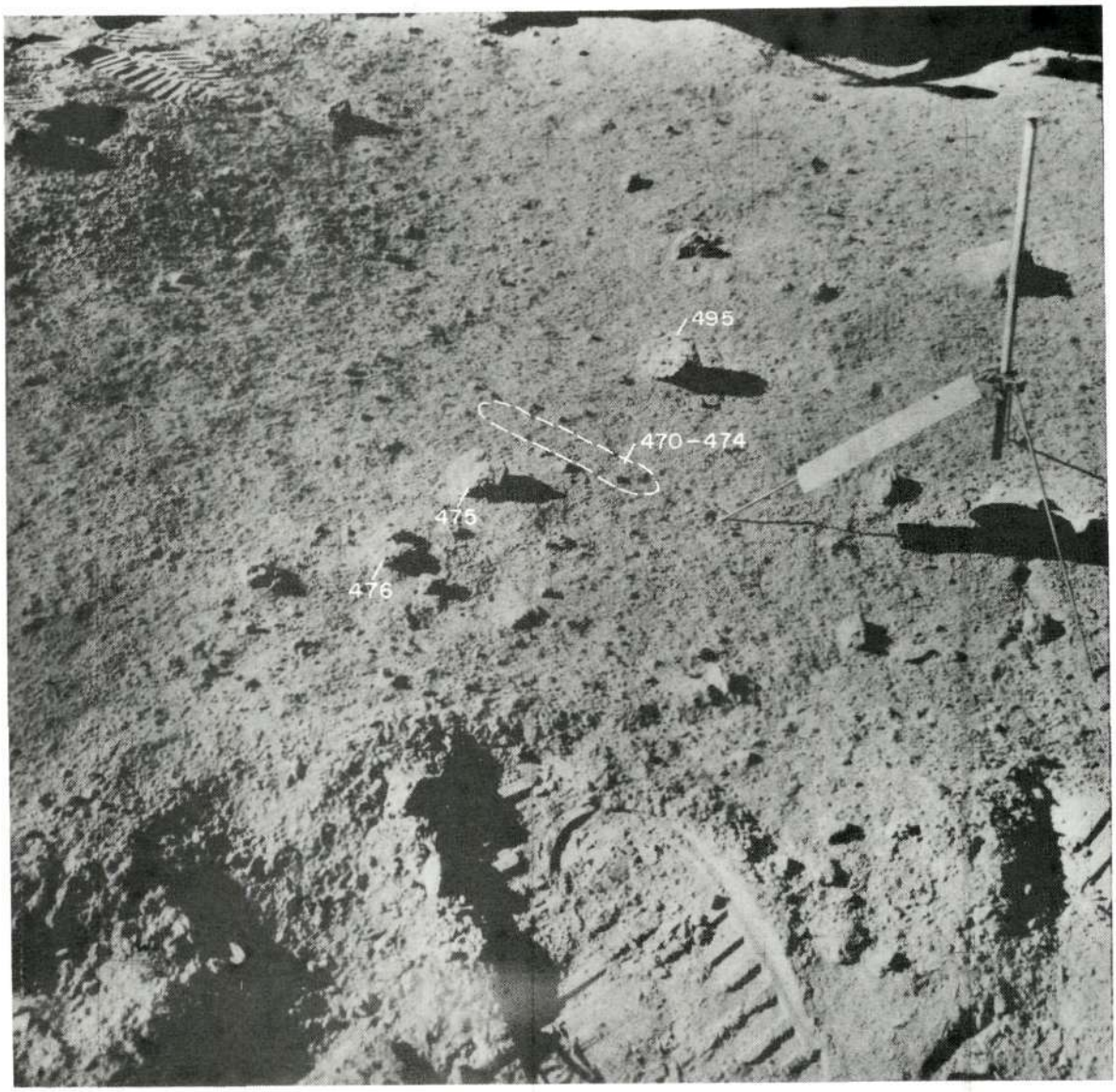

Figure 130. Samples 470-474, 475, 476, 495 collected at station 4. Pre-sampling, cross-sun photograph AS15-87-11759, looking south.

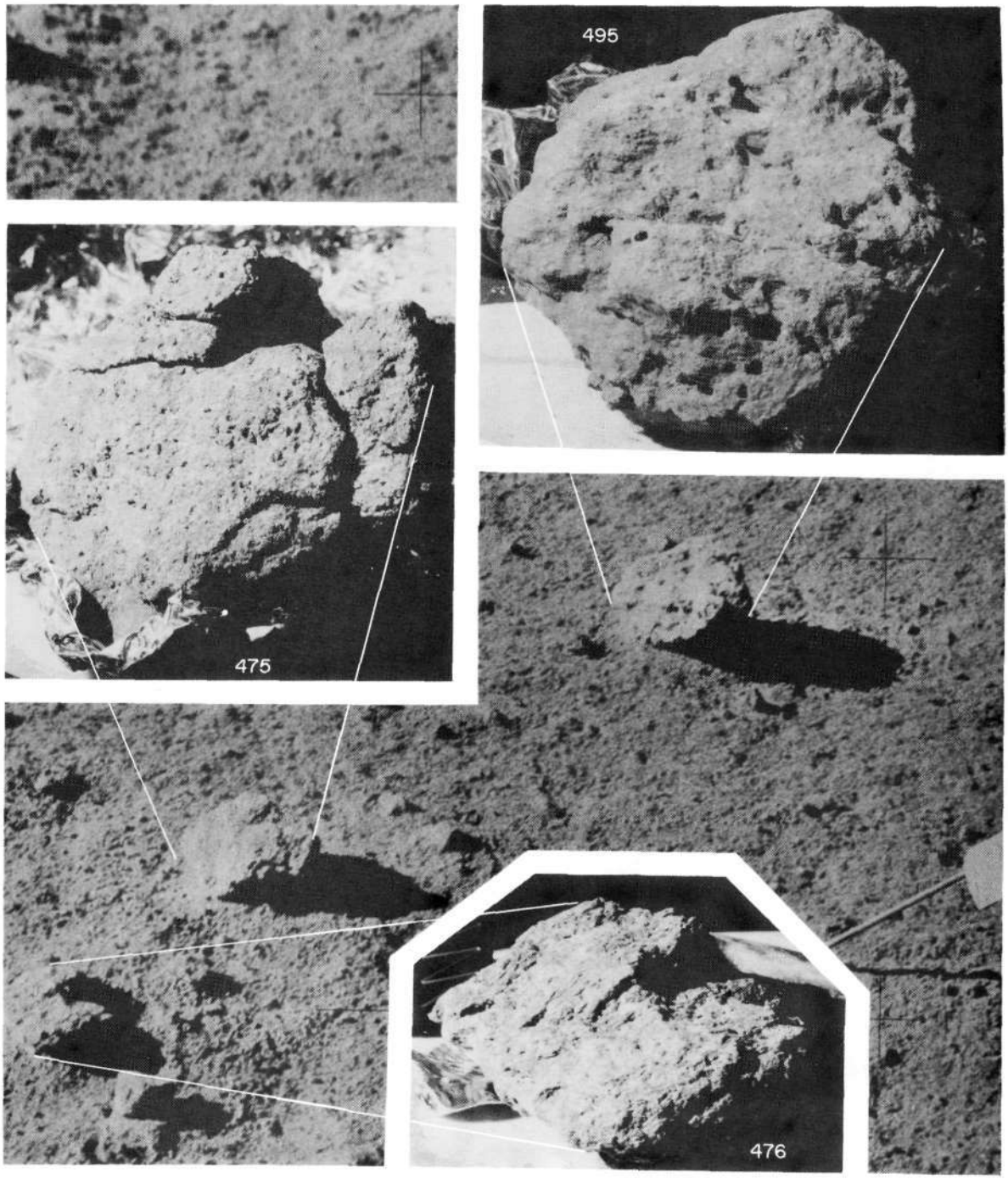

Figure 131. Samples 475, 476, 495 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-87-11759, taken cross-sun, looking south.

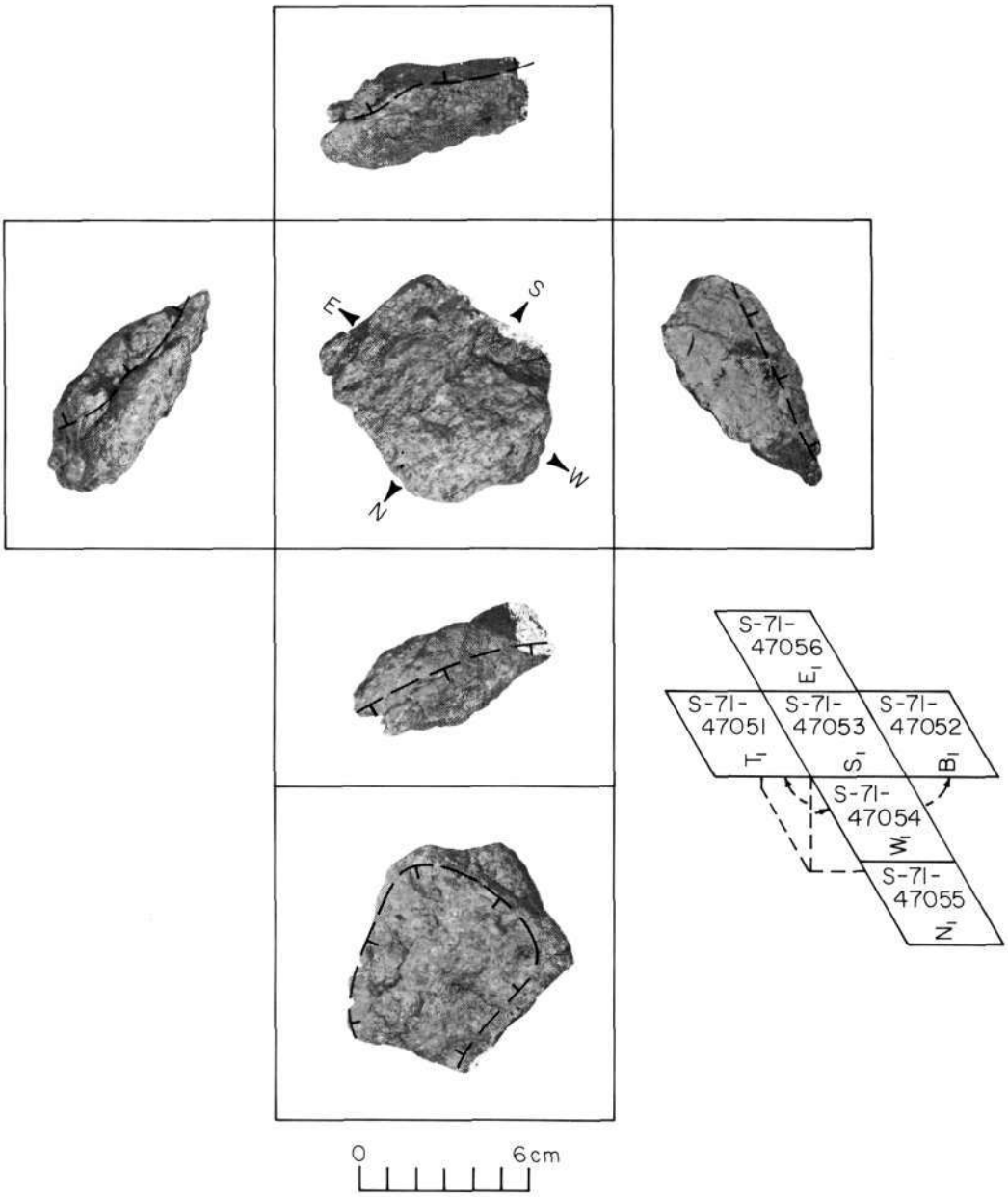

Figure 132. Orthogonal views of sample number 476.

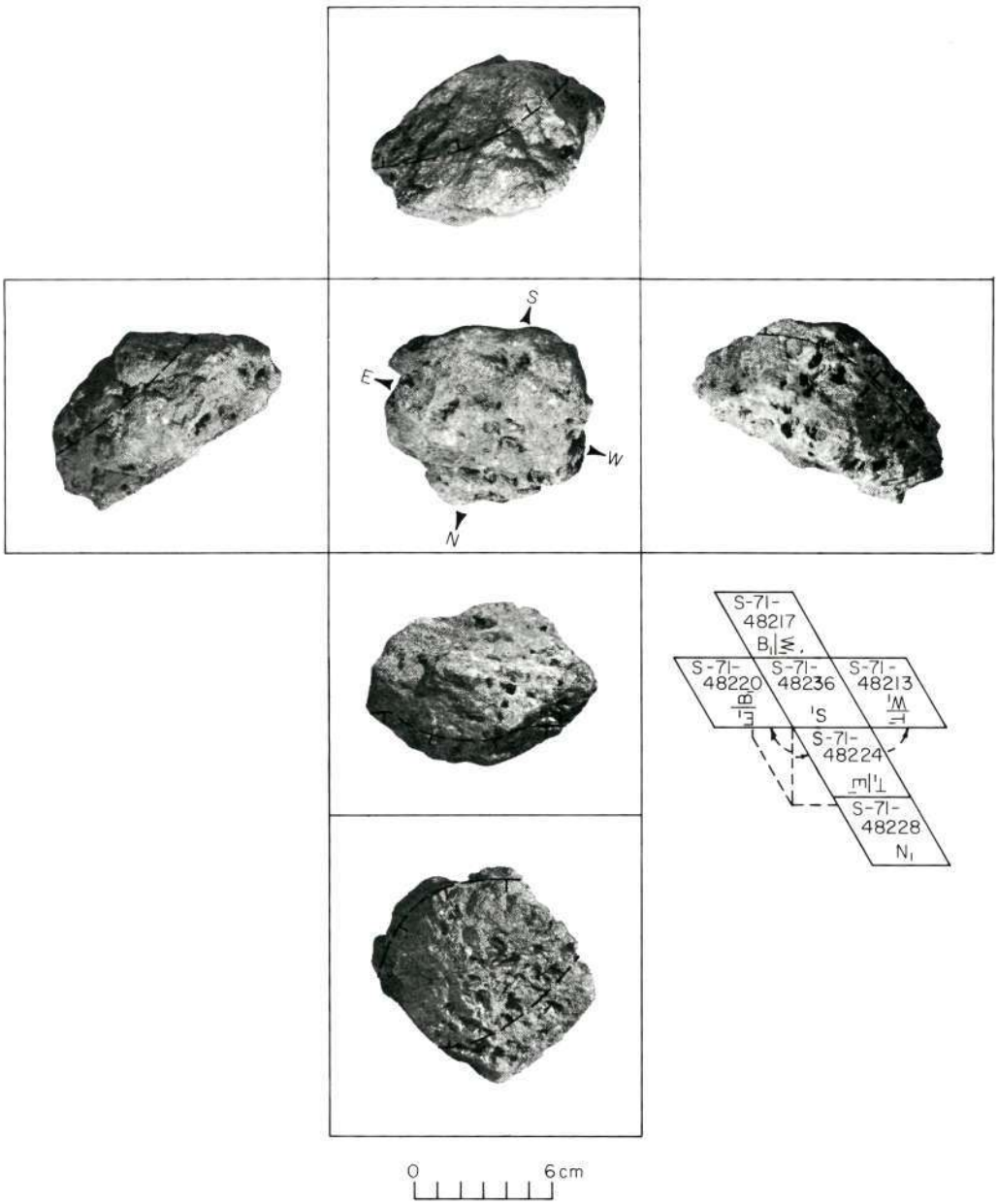

Figure 133. Orthogonal views of sample number 495.

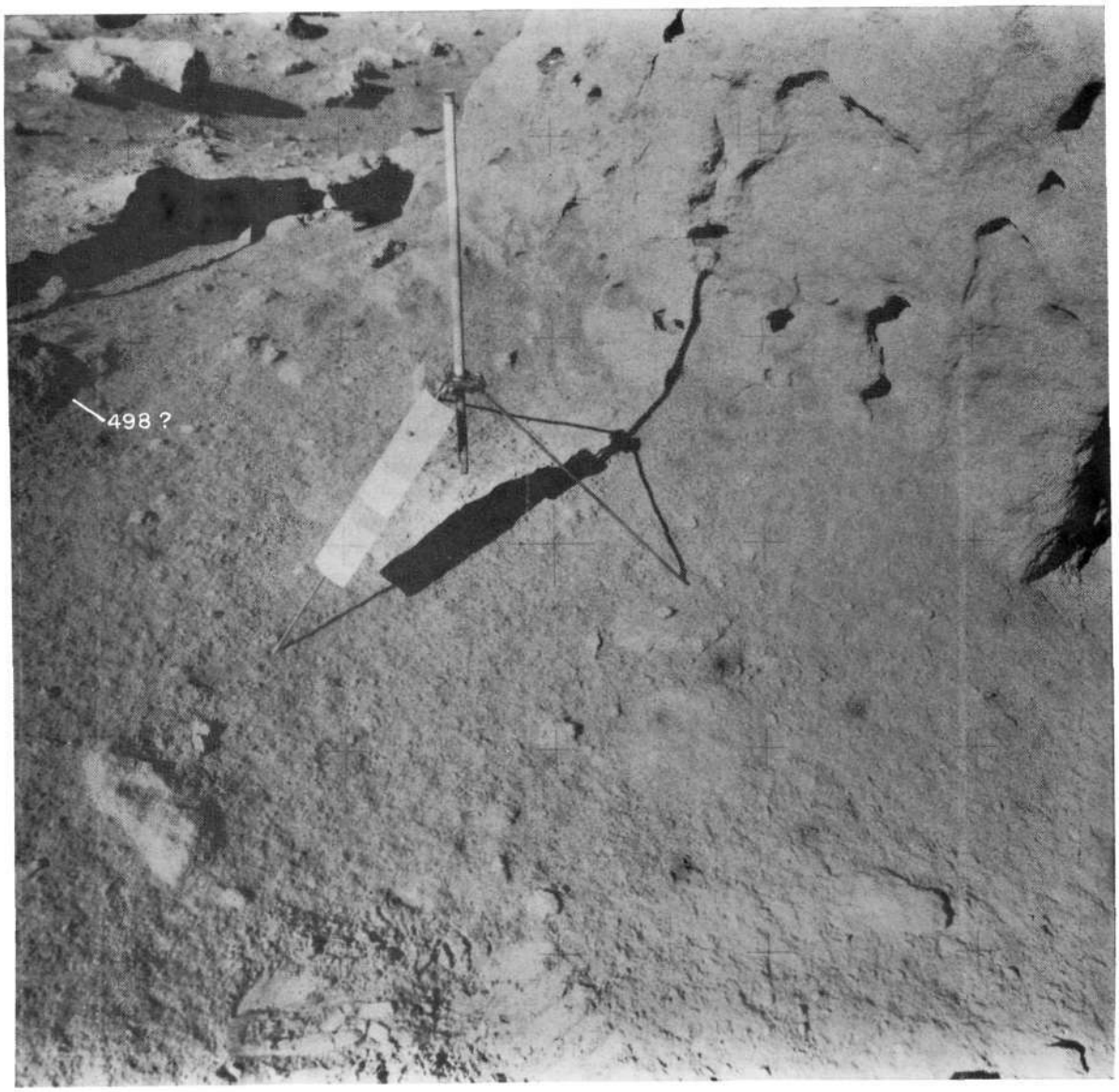

Figure 134. Sample 498(?) collected at station 4 from near boulder on rim of Dune crater. Pre-sampling, cross-sun photograph AS15-87-11765, looking southwest.

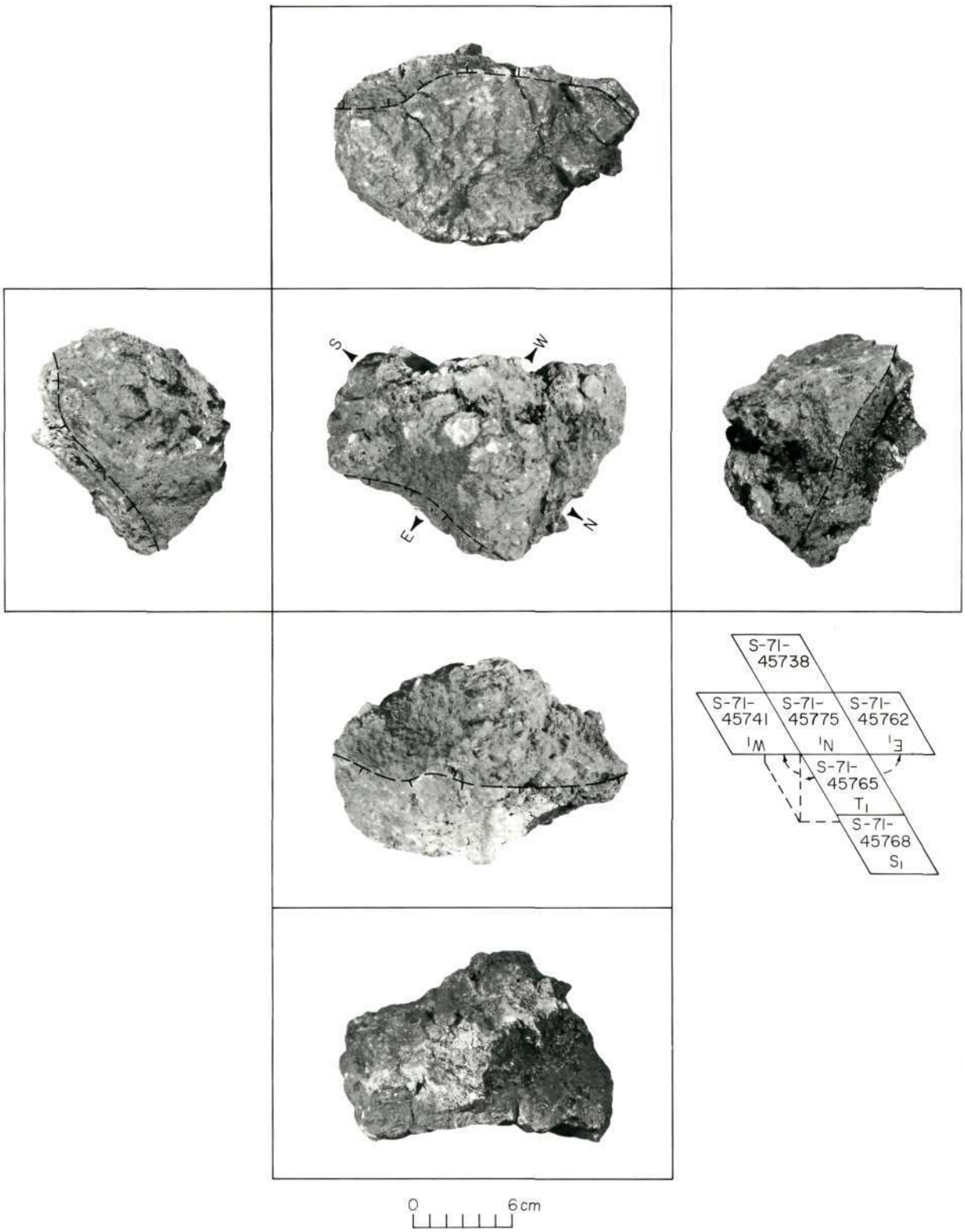

Figure 134a. Orthogonal view of sample number 498.

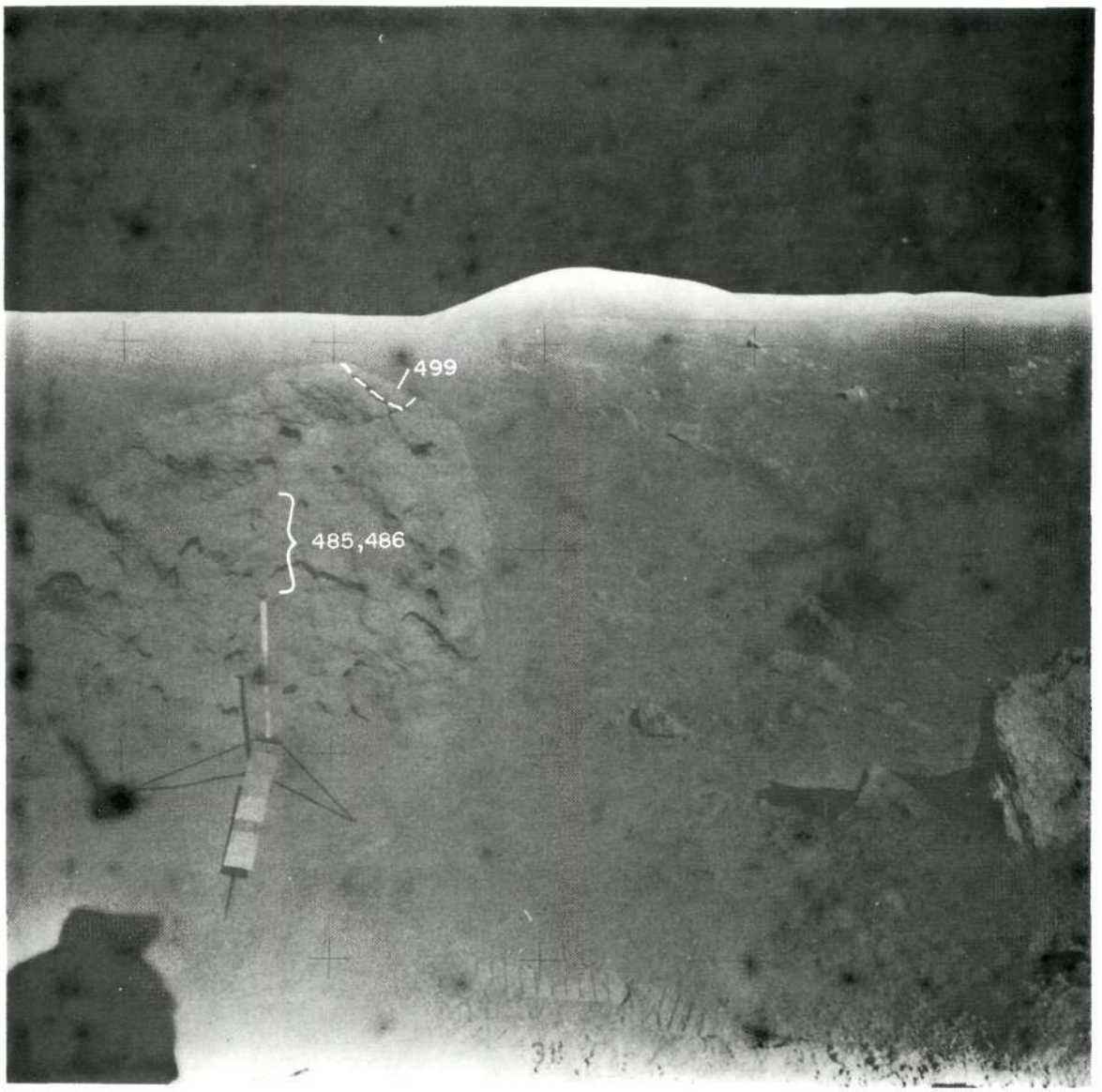

Figure 135. Sample 499 (485 and 486 were also chipped from large boulder; location not precisely known) collected at station 4 from top of large boulder near rim of Dune crater. Pre-sampling, down-sun, photograph AS15-89-11768, looking west.

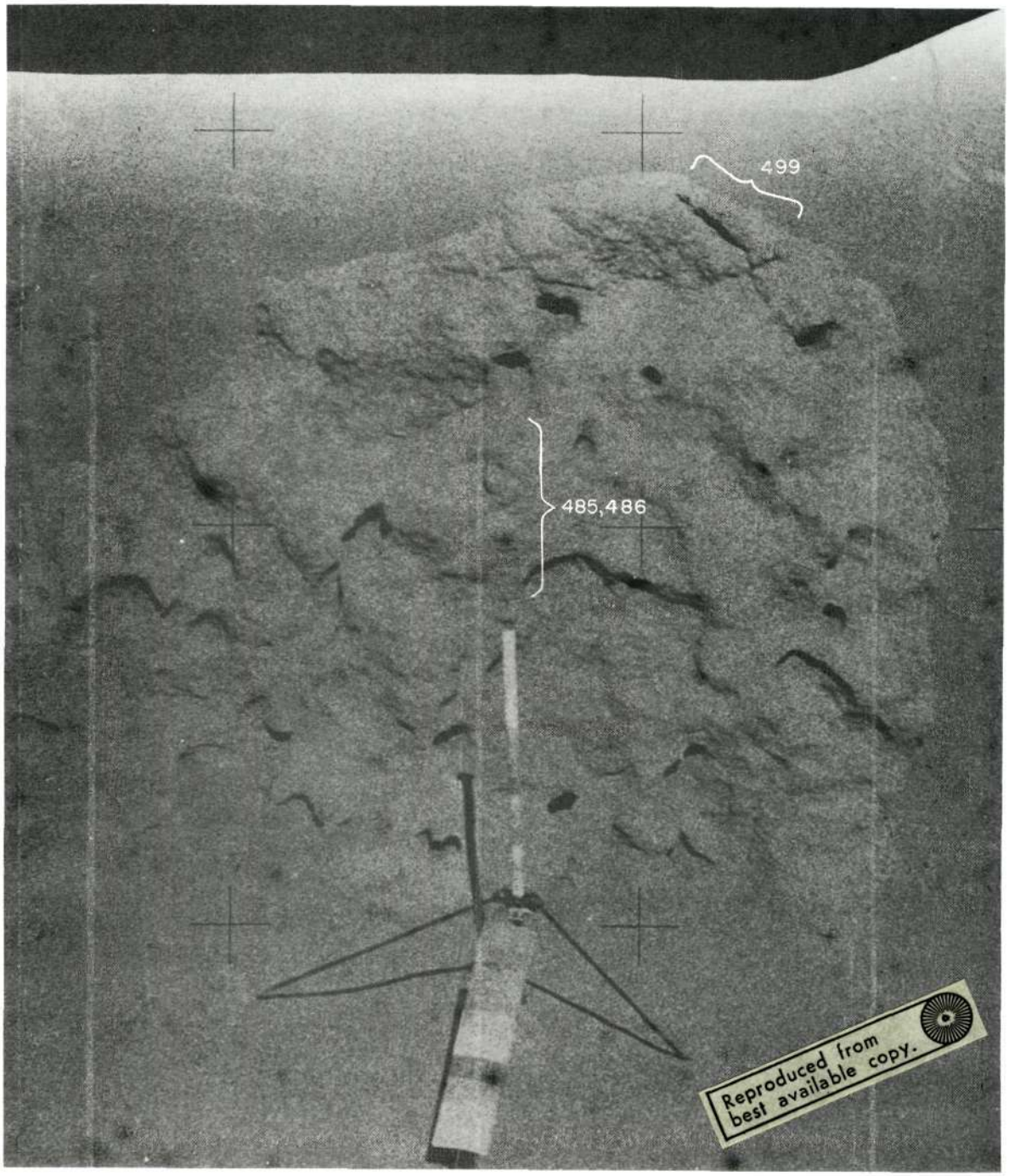

Figure 136. Sample 499 collected at station 4 from top of large boulder on rim of Dune crater. Pre-sampling, down-sun, photographic enlargement of photograph AS15-87-11768, looking west.

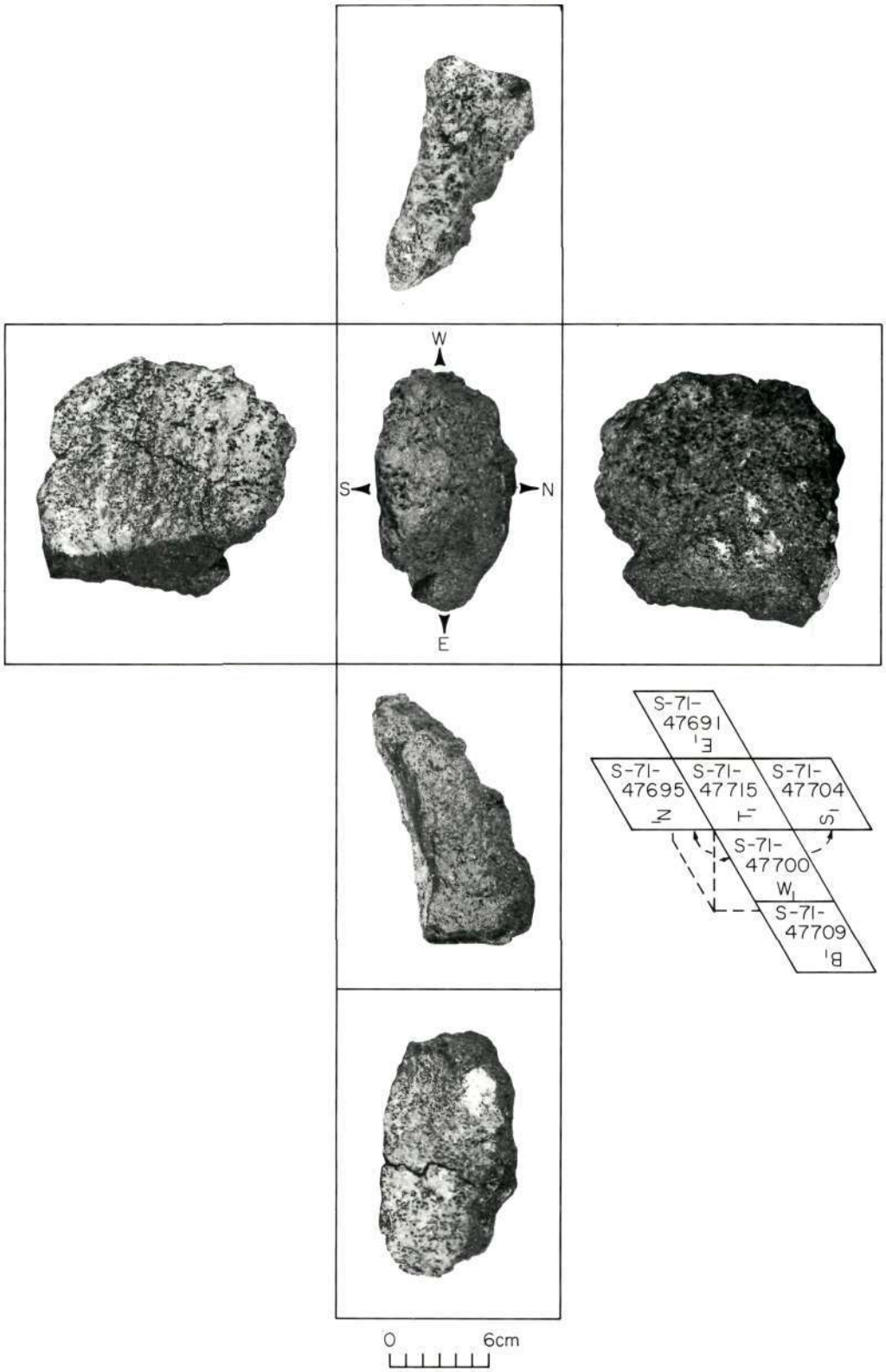

Figure 137. Orthogonal views of sample number 499.

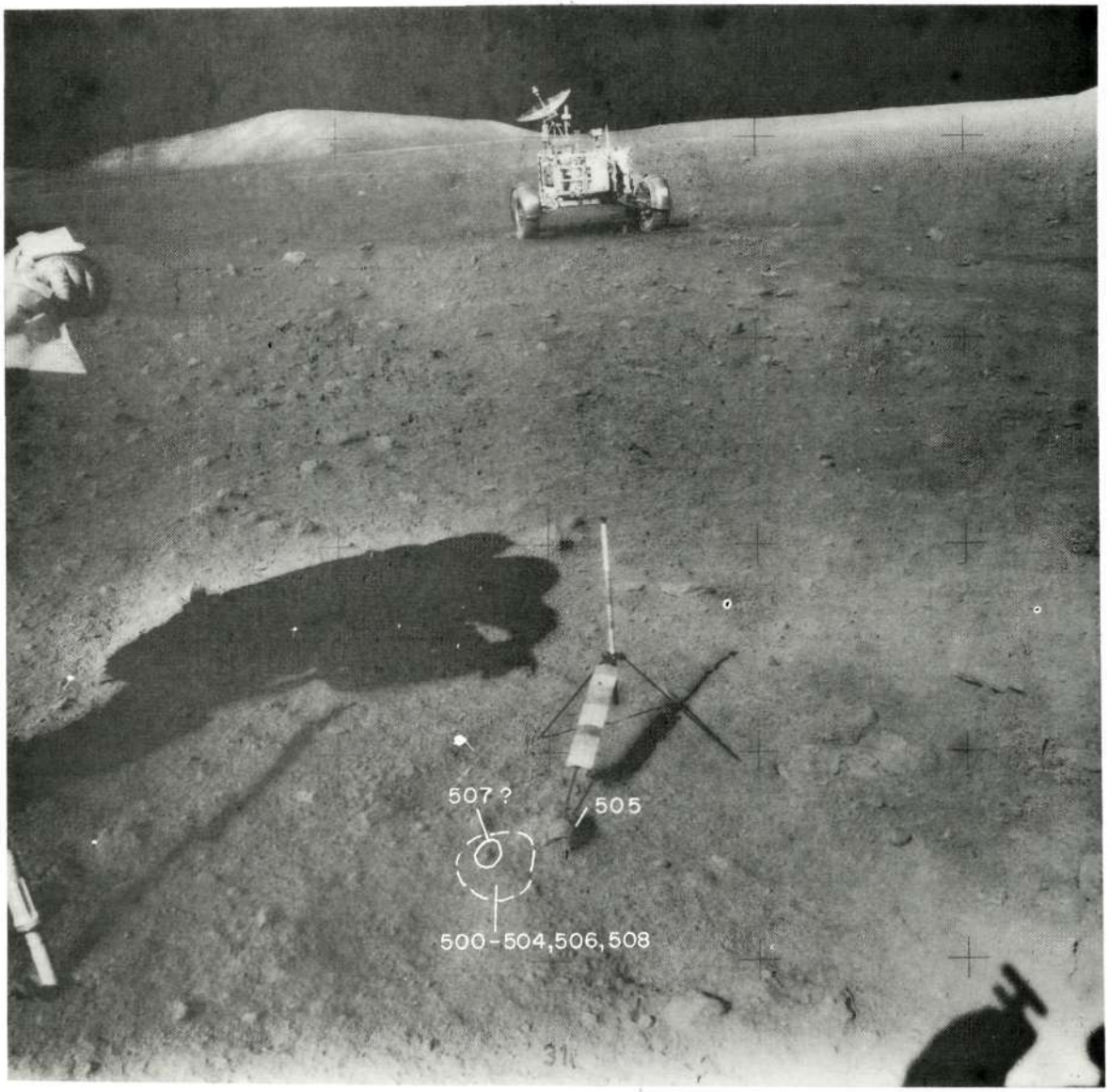

Figure 138. Samples 500-508 (506, 508 may have broken from 505) collected at station 9 from ejecta of small fresh crater. Pre-sampling, cross-sun photograph AS15-82-12108, looking southwest.

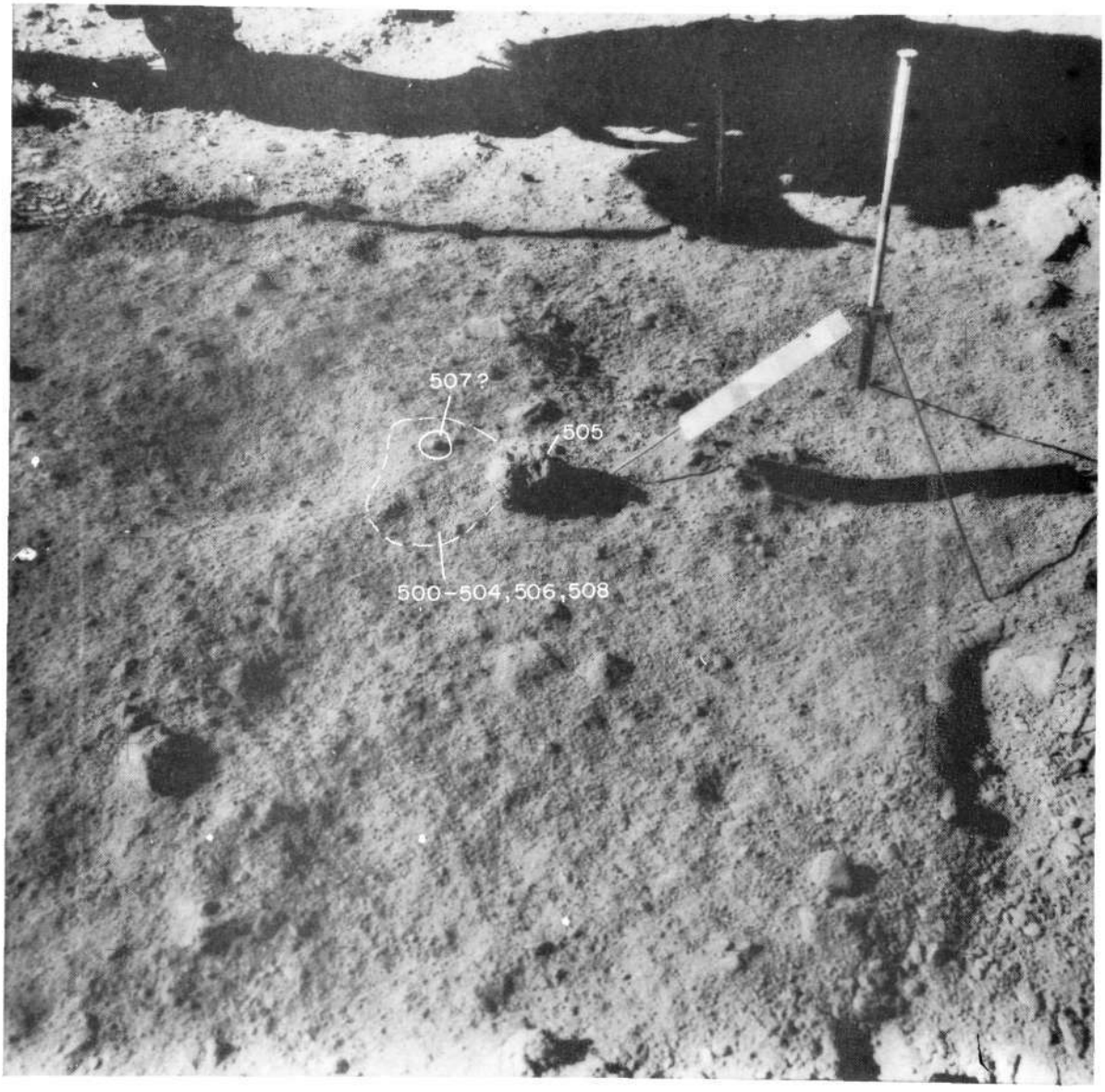

Figure 139. Samples 500-508 collected at station 9 from ejecta of small fresh crater. Pre-sampling, cross-sun photograph AS15-82-11105, looking south.

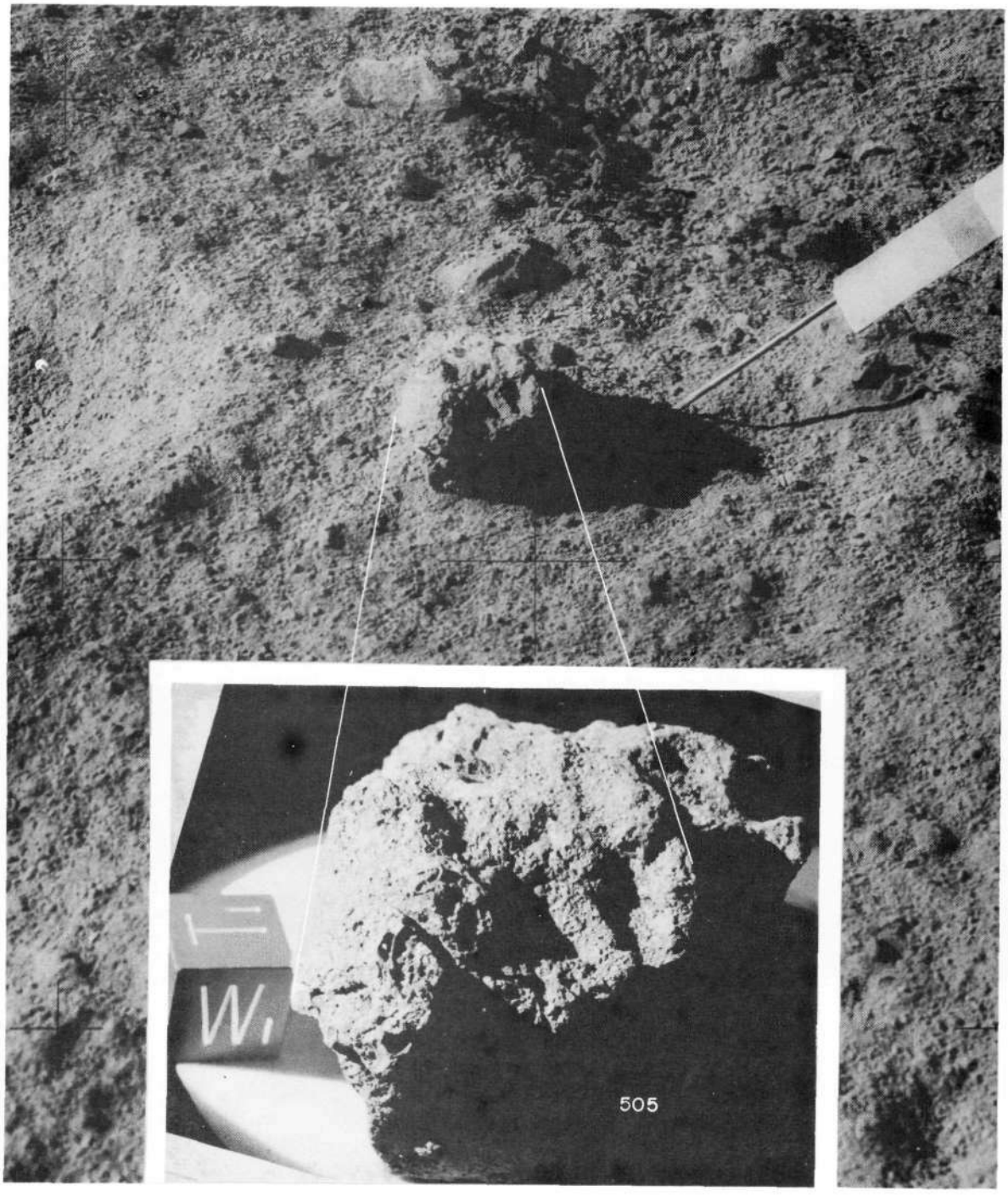

Figure 140. Sample 505 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-82-12105, taken cross-sun, looking south.

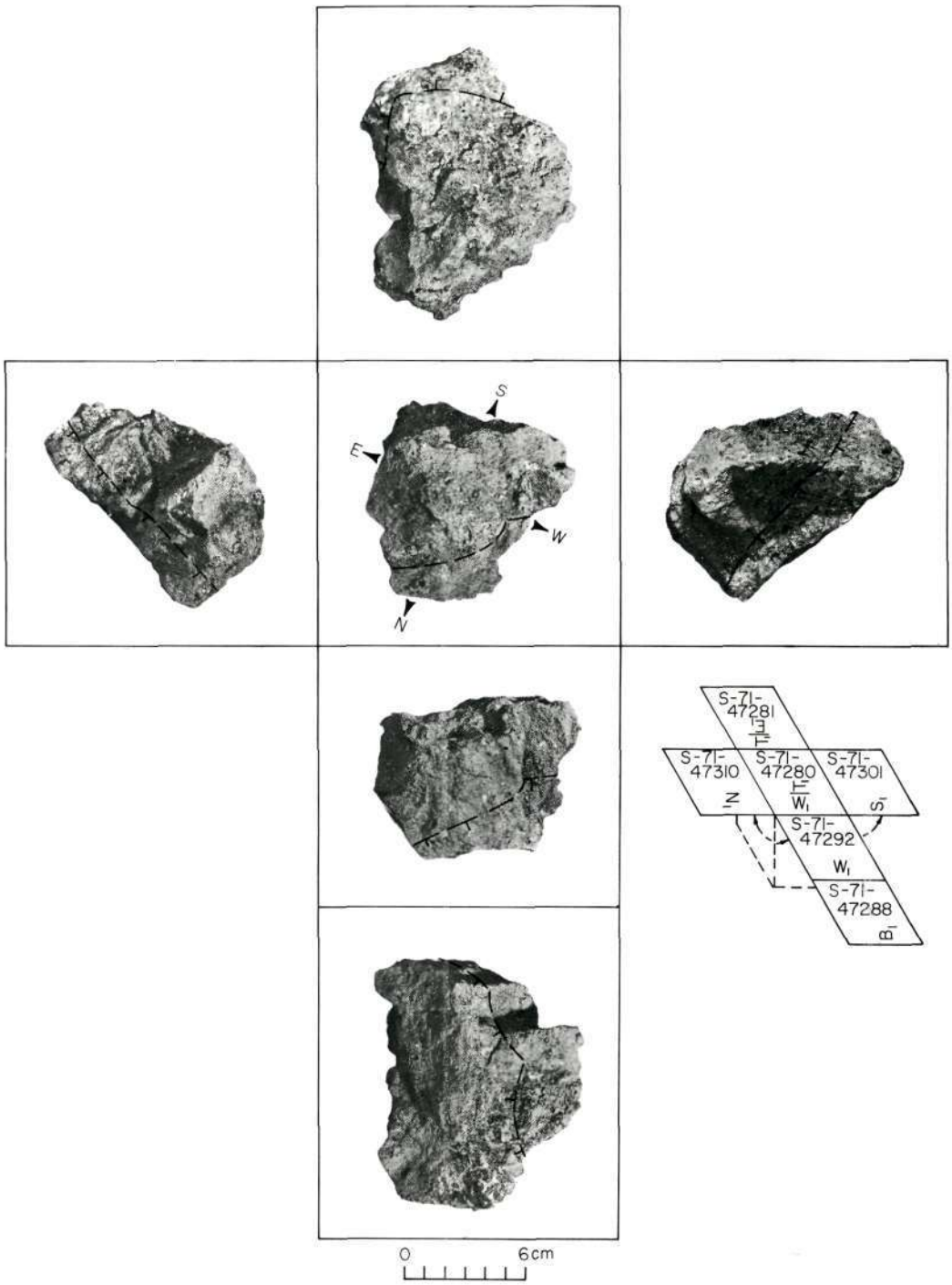

Figure 141. Orthogonal views of sample number 505.

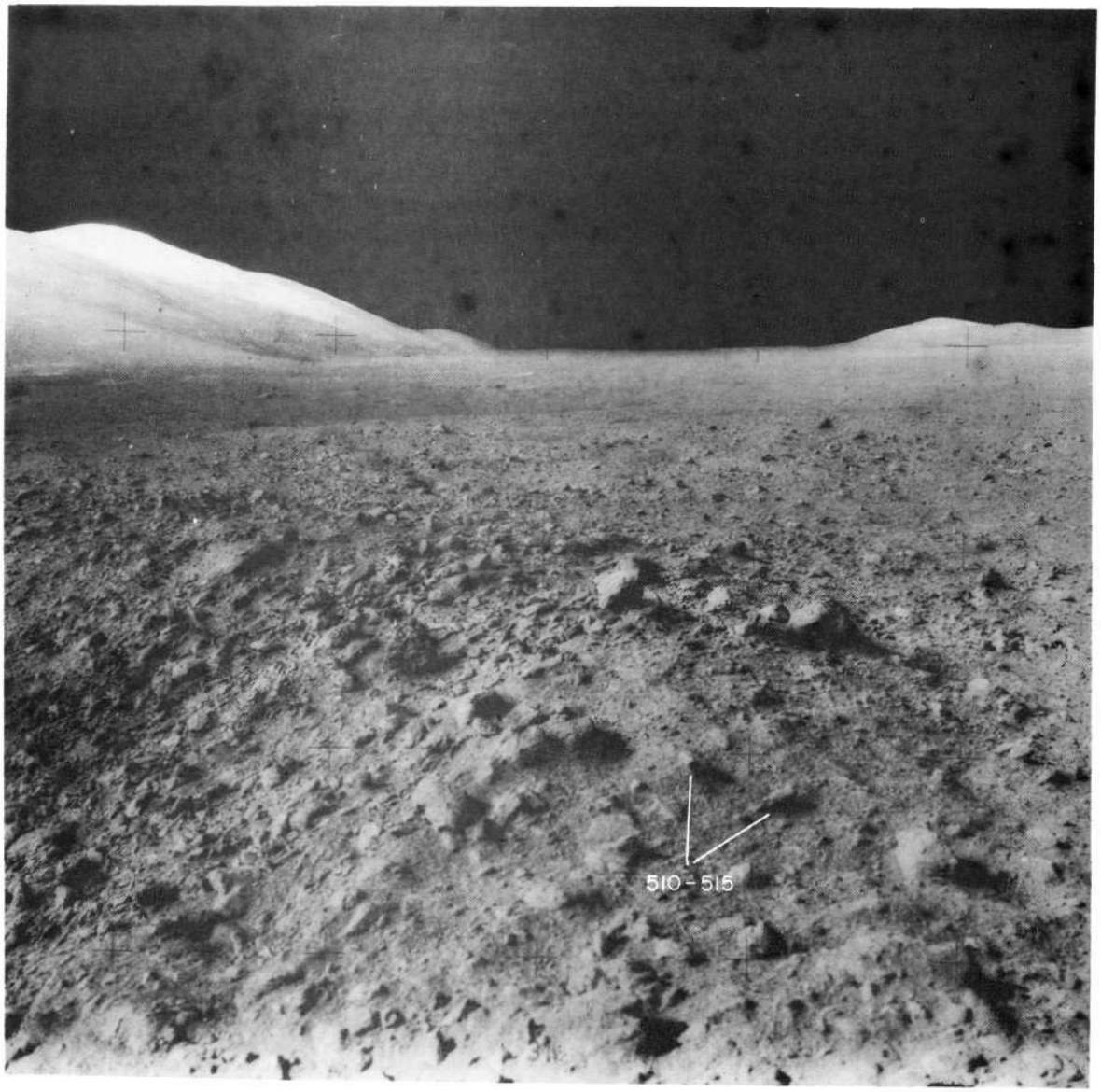

Figure 142. Samples 510-515 (clods that broke apart) collected at station 9 from rim of fresh crater. Pre-sampling, cross-sun photograph AS15-82-11089, looking southwest.

Figure 143. Samples 510-515 collected at station 9. Pre-sampling, cross-sun photograph AS15-82-11098, looking south.

Figure 144. Sample 529 (and vicinity of 528, not identified) collected at station 9a near Hadley Rille. Pre-sampling, down-sun photograph AS15-82-11128, looking west.

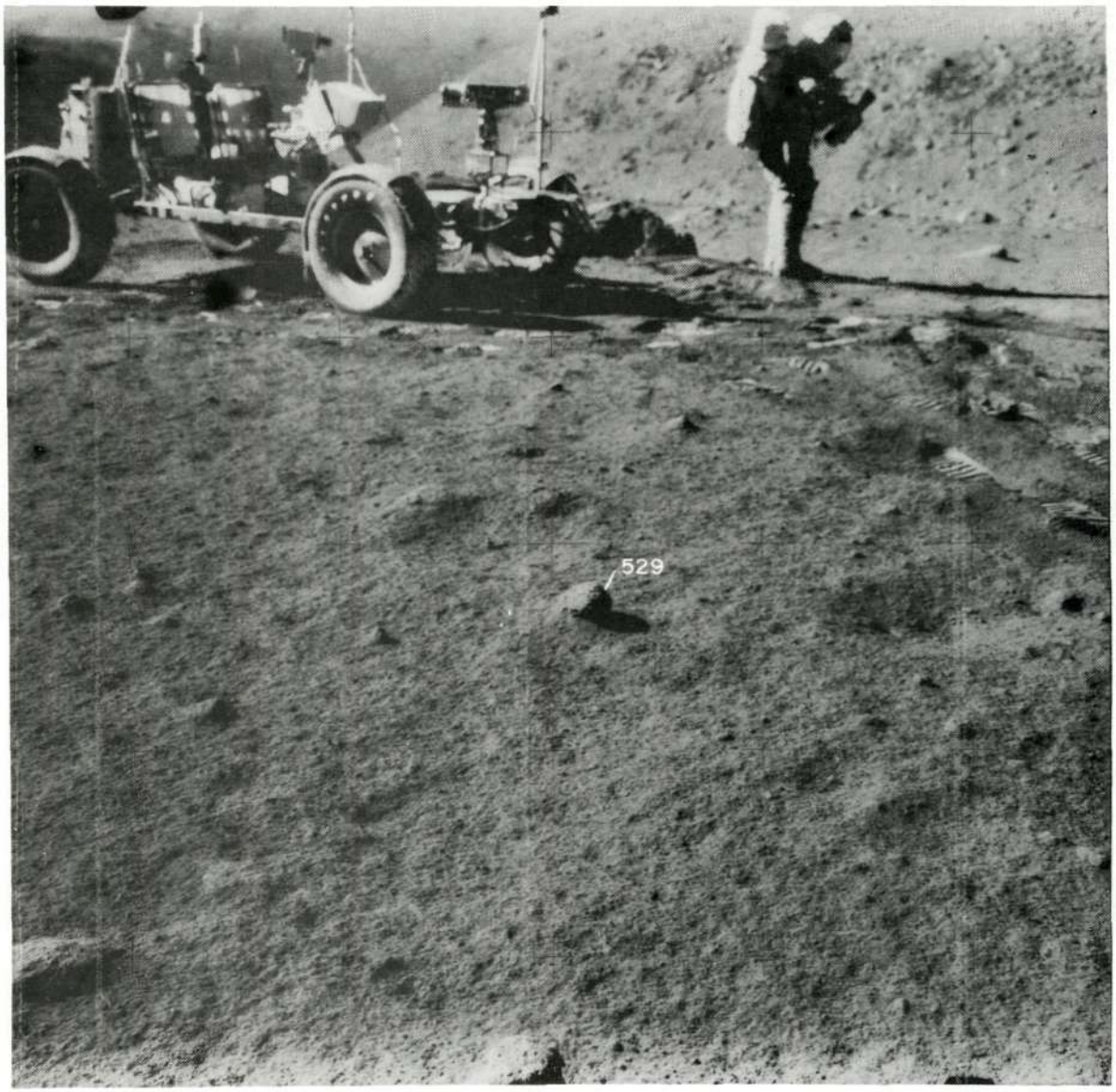

Figure 145. Sample 529 collected at station 9a near Hadley Rille. Pre-sampling, cross-sun photograph AS15-82-11129, looking south.

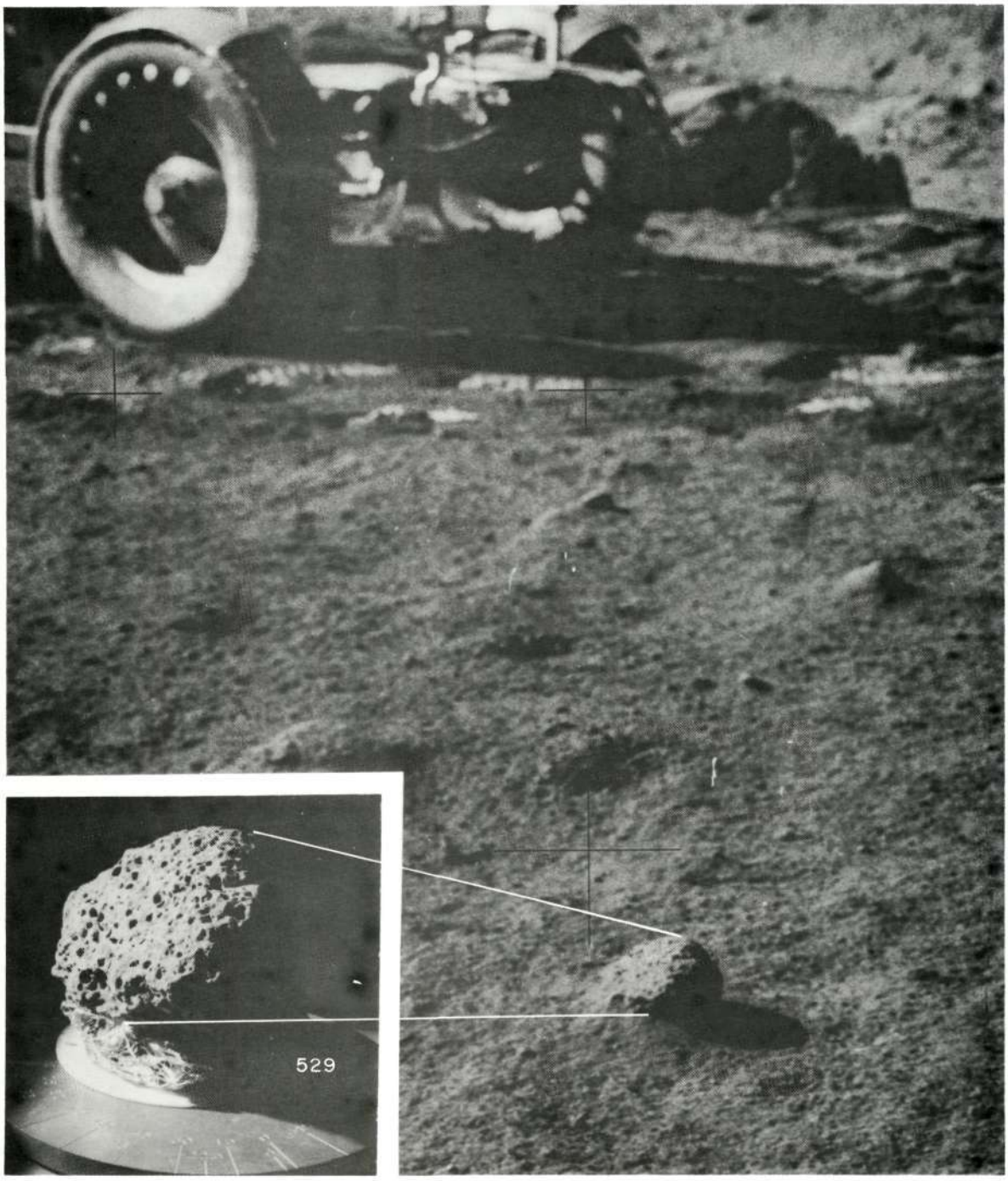

Figure 146. Sample 529 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-82-11129, taken cross-sun, looking south.

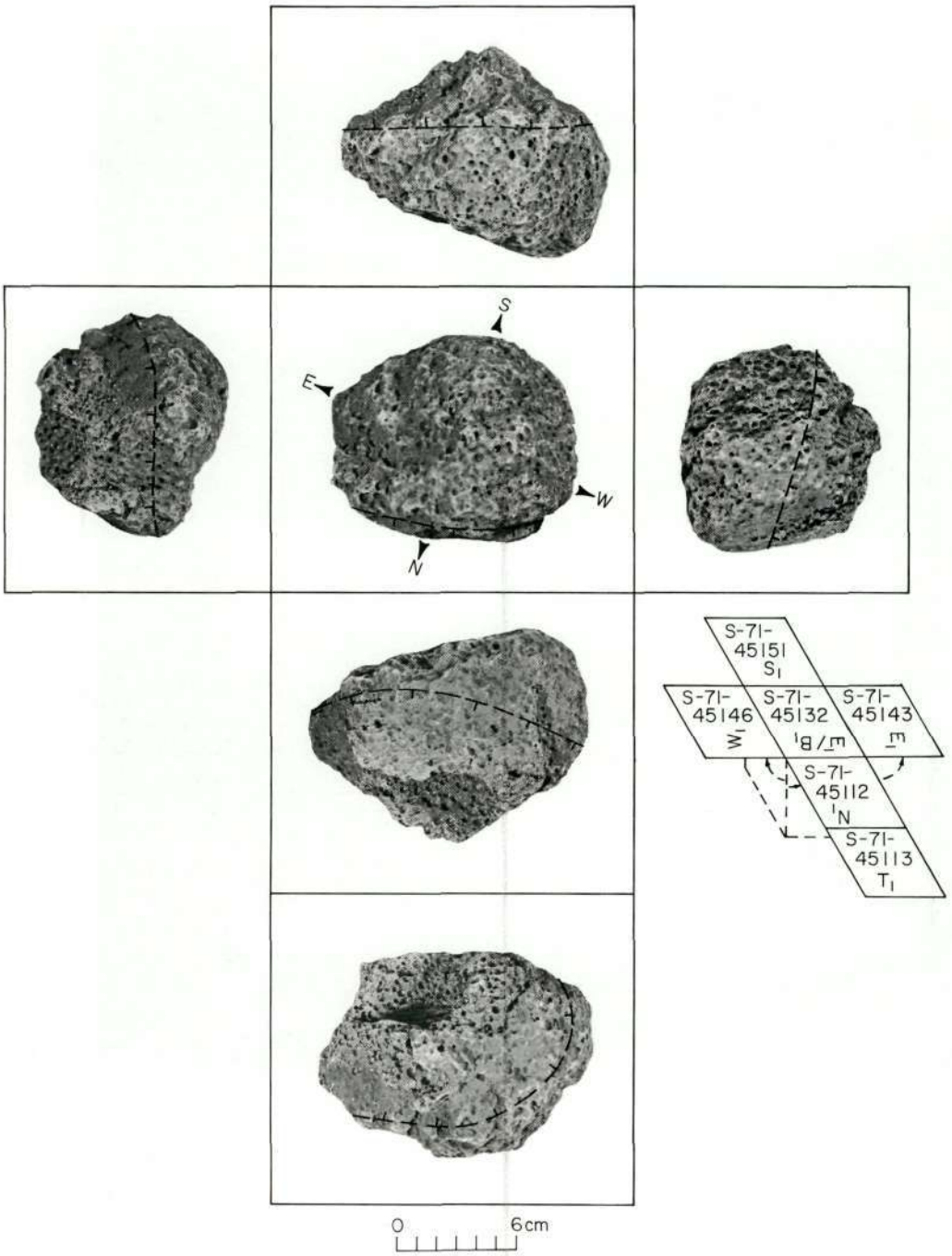

Figure 147. Orthogonal views of sample number 529.

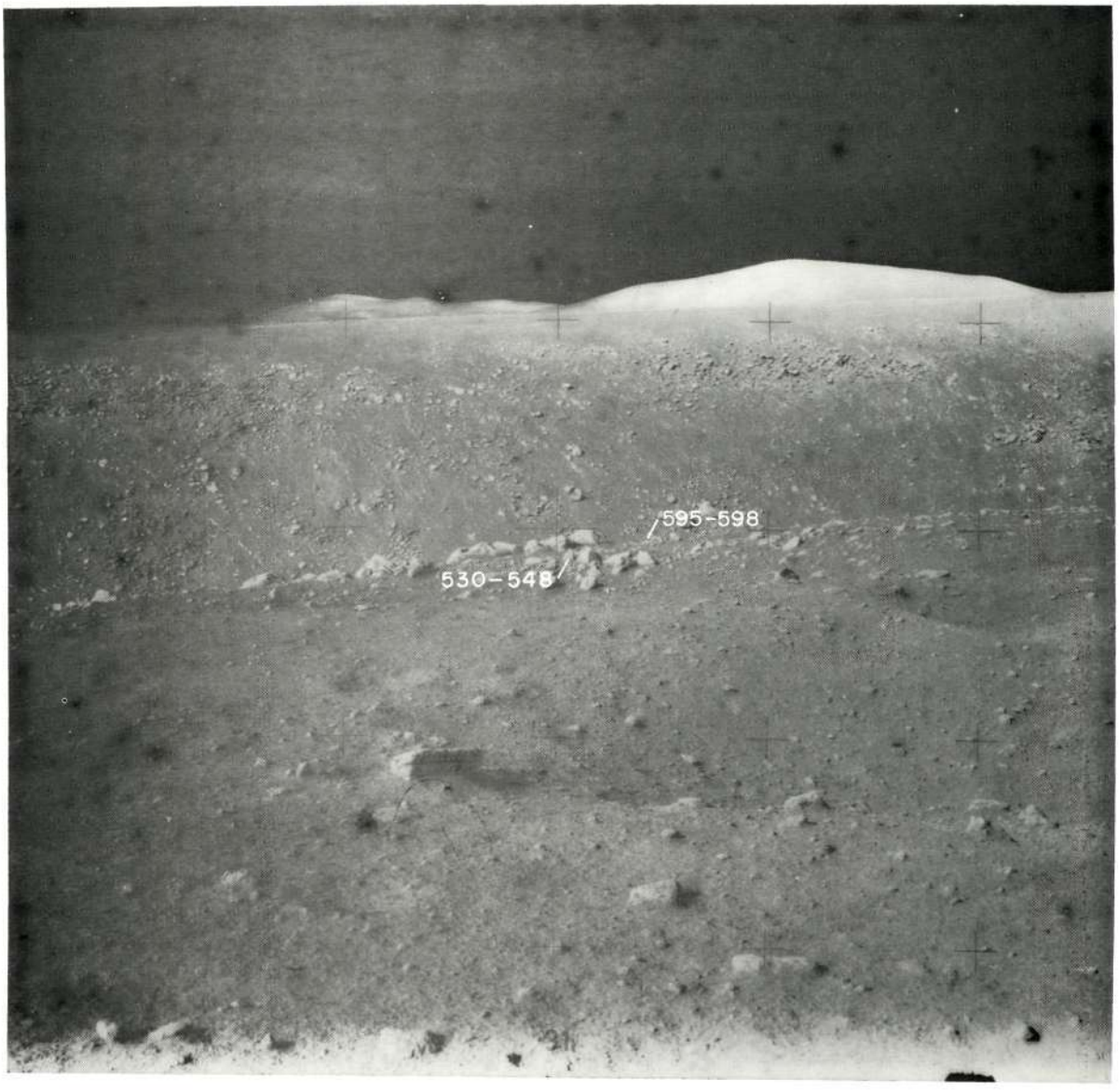

Figure 148. Samples 535, 536, and 595, 596 collected at station 9a near Hadley Rille. Pre-sampling, cross-sun photograph AS15-82-11126, looking southwest.

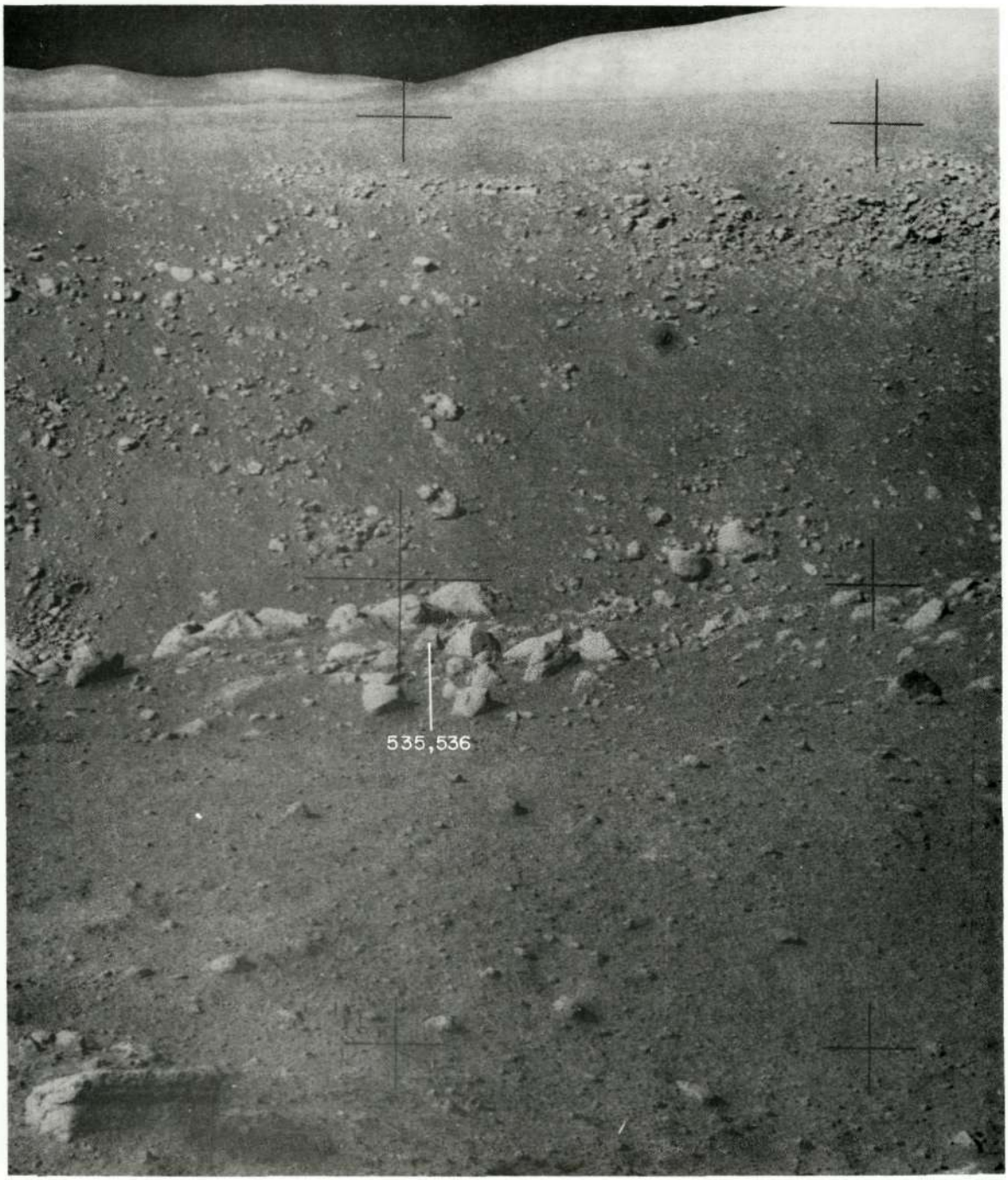

Figure 149. Samples 535, 536, and 595, 596. Photographic enlargement of part of photograph AS15-82-11126.

Figure 150. Samples 535 and 536 (and vicinity of 530-534, 537-538, 545-548, which are not identified) collected at station 9a near Hadley Rille. Pre-sampling, cross-sun photograph AS15-82-11138, looking west.

Figure 151. Samples 535 and 536 (and vicinity of 530-534, 537-538, 545-548, which are not identified) collected at station 9a near Hadley Rille. Pre-sampling, cross-sun photograph AS15-82-11139, looking northwest.

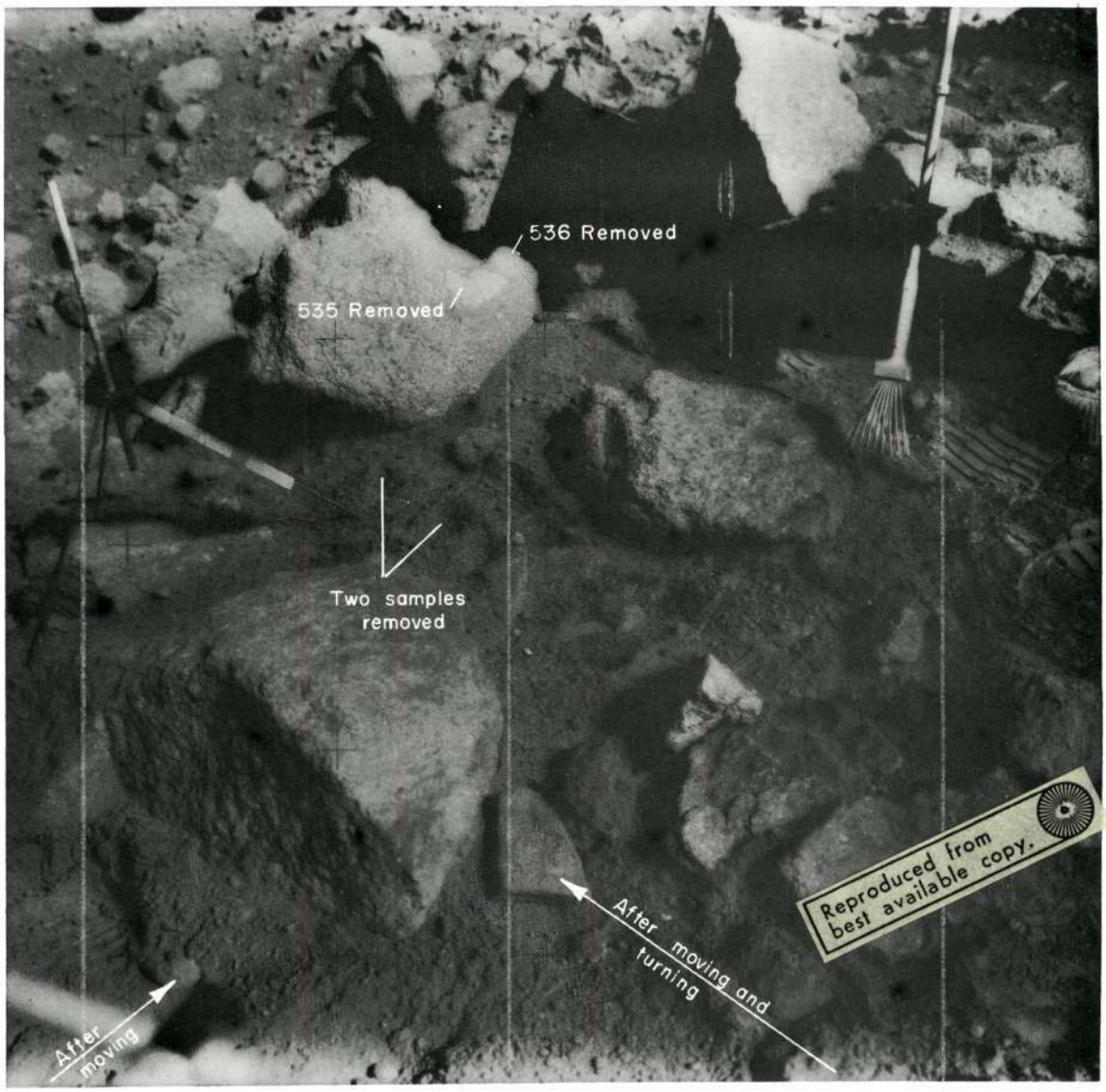

Figure 152. Samples 535 and 536 (and vicinity of 530-534, 537-538, 545-548, which are not identified) collected at station 9a near Hadley Rille. Post-sampling, cross-sun photograph AS15-82-11141, looking north.

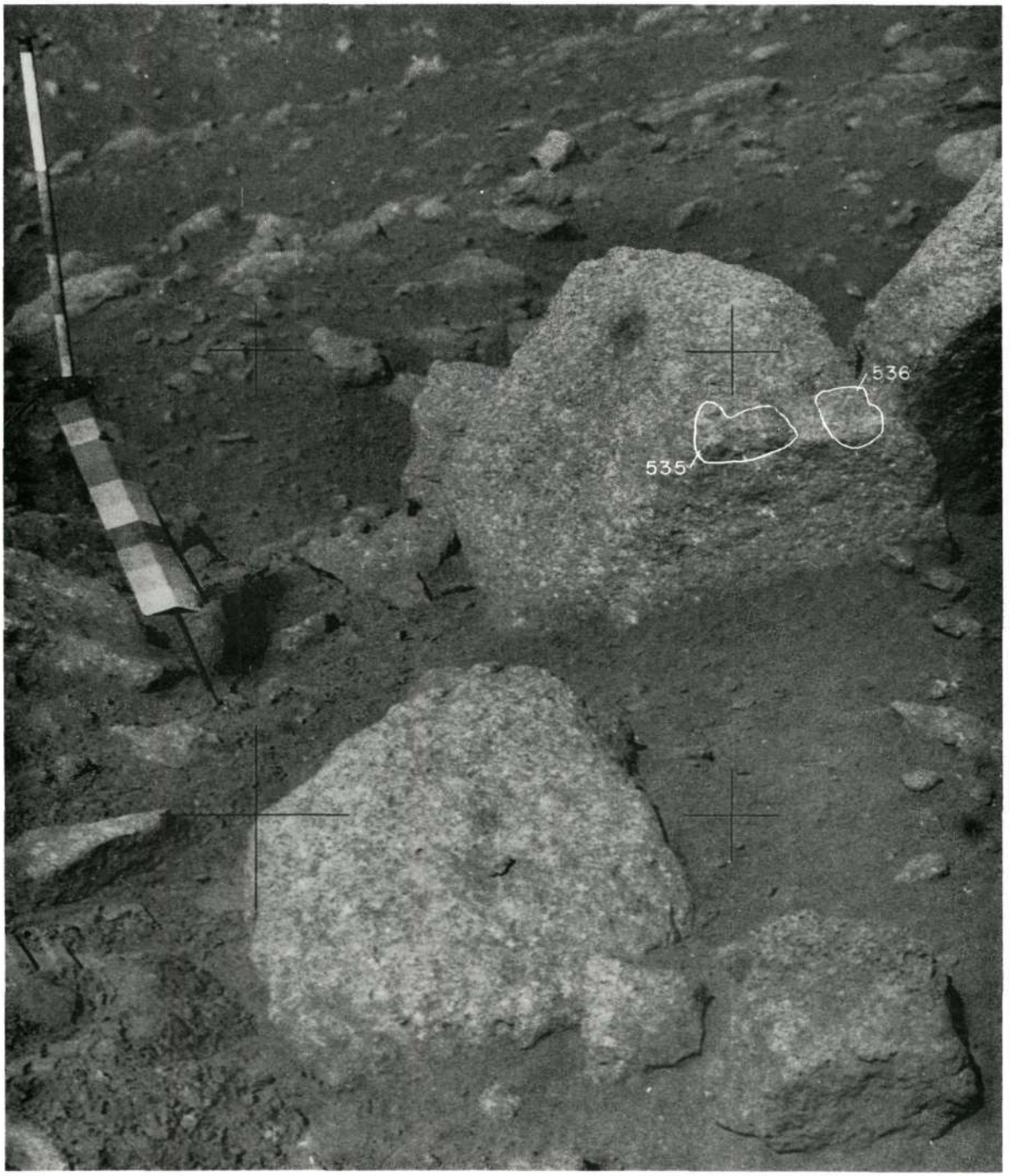

Figure 153. Samples 535 and 536, photographic enlargement of part of photograph AS15-82-11138.

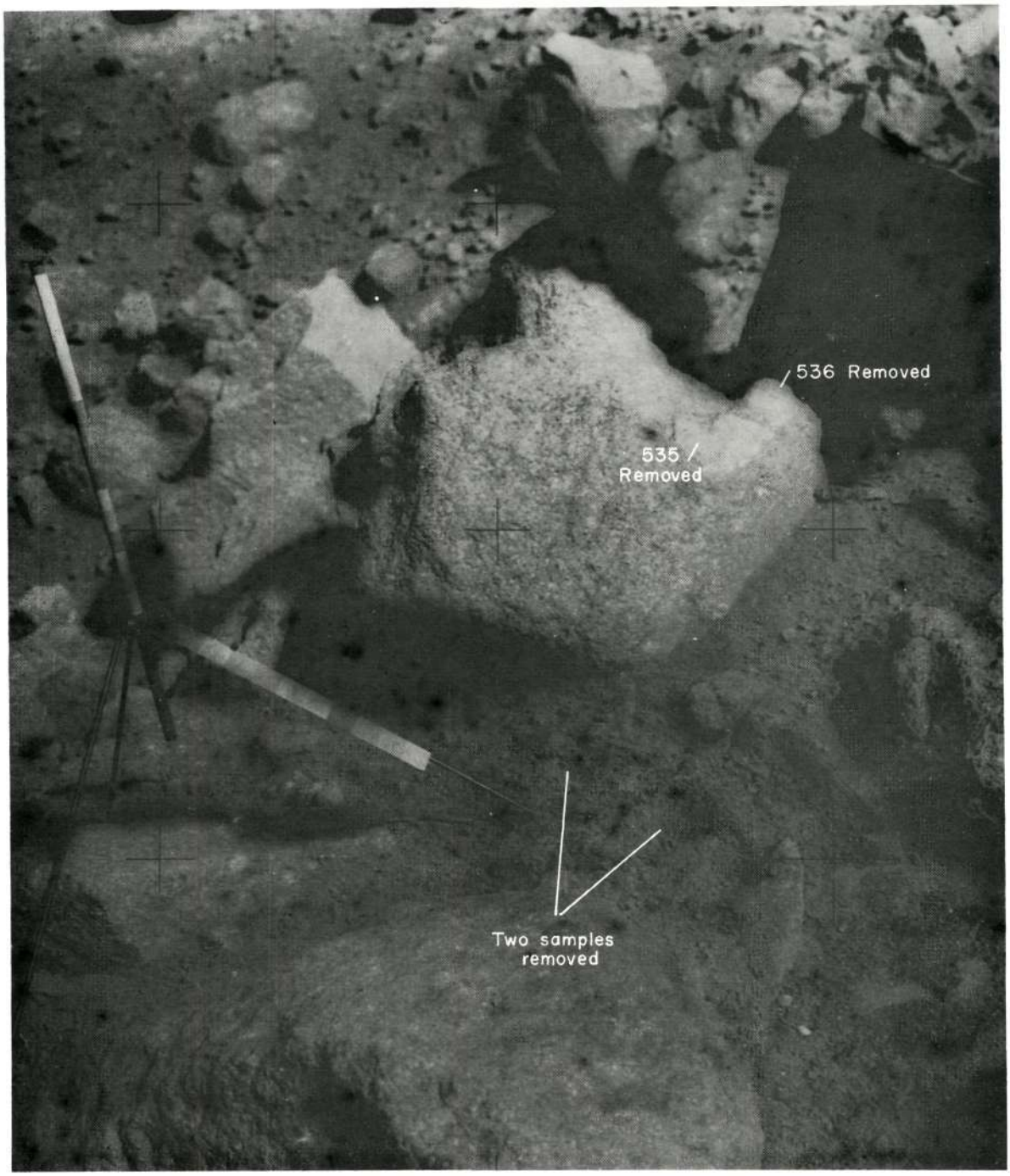

Figure 154. Samples 535 and 536, photographic enlargement of part of photograph AS15-82-11141.

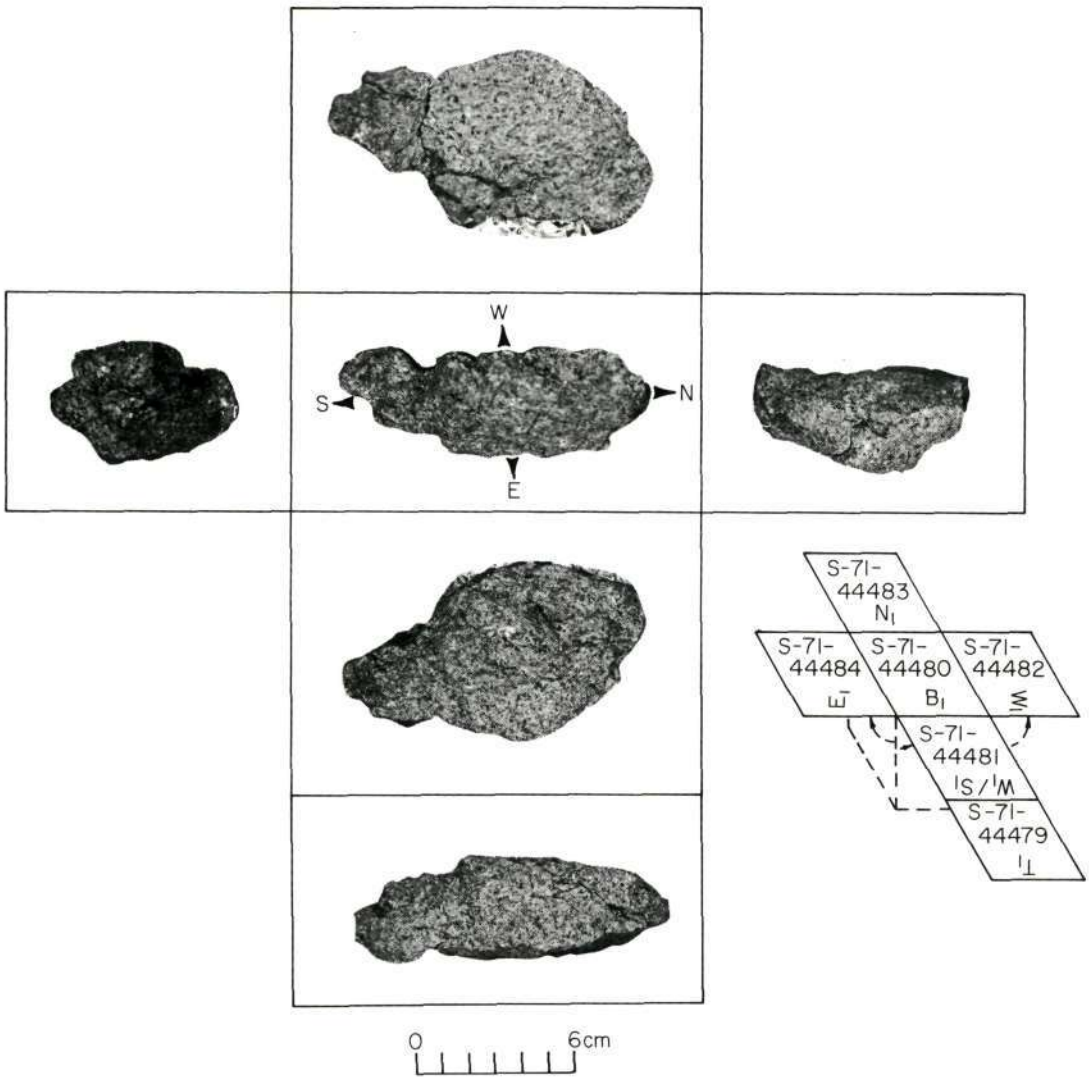

Figure 155. Orthogonal views of sample number 535.

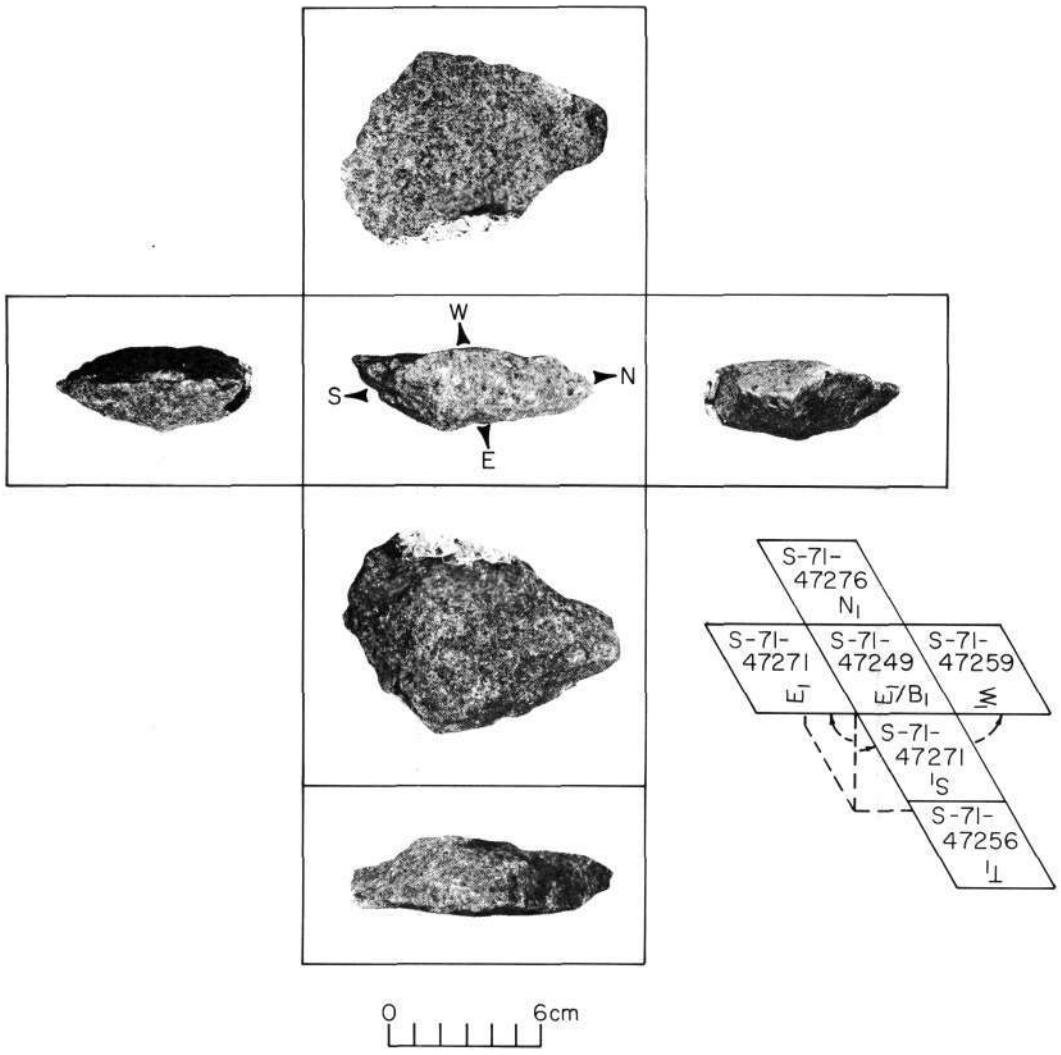

Figure 156. Orthogonal views of sample number 536.

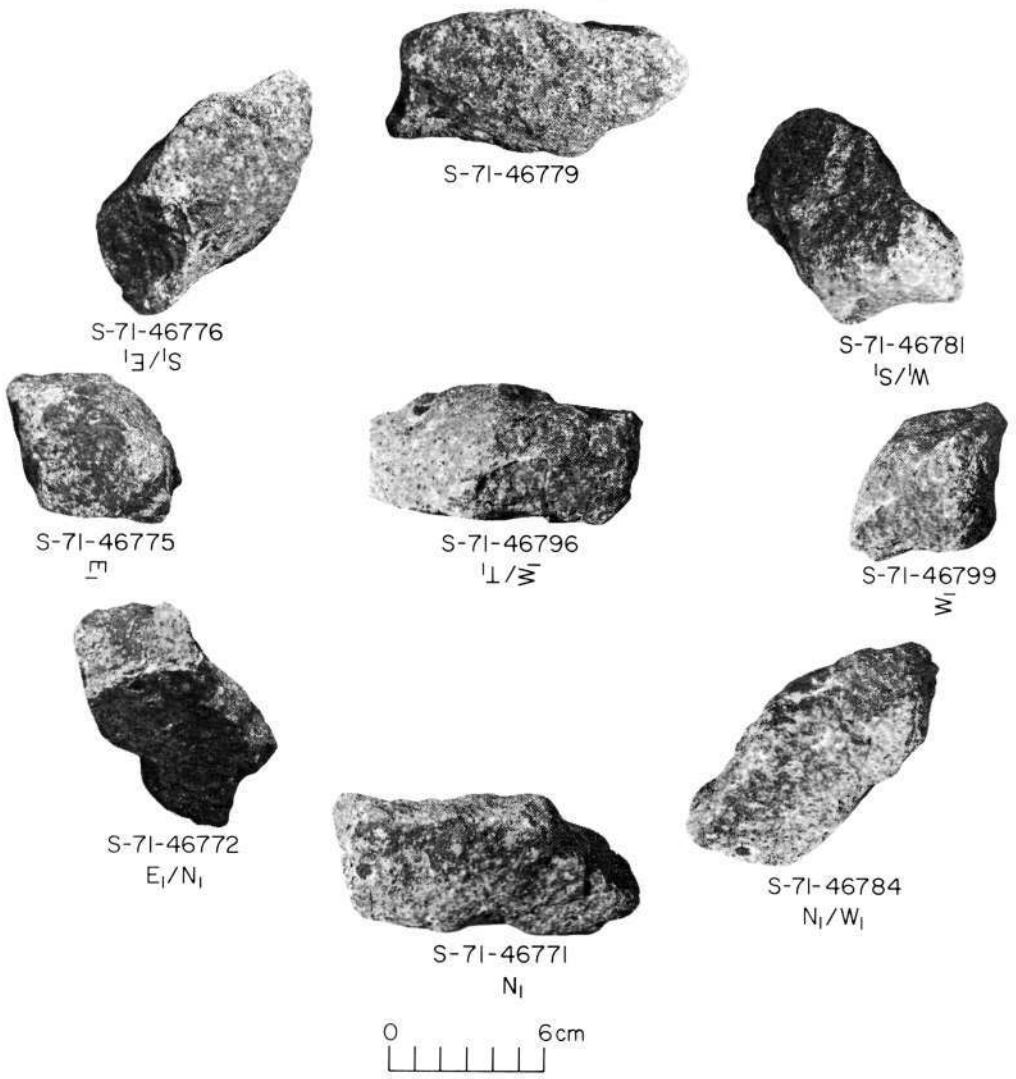

Figure 157. Radial views at 45° of sample number 545.

Figure 158. Sample 555 collected at station 9a near Hadley Rille. Pre-sampling, cross-sun photograph AS15-82-11164, looking southeast.

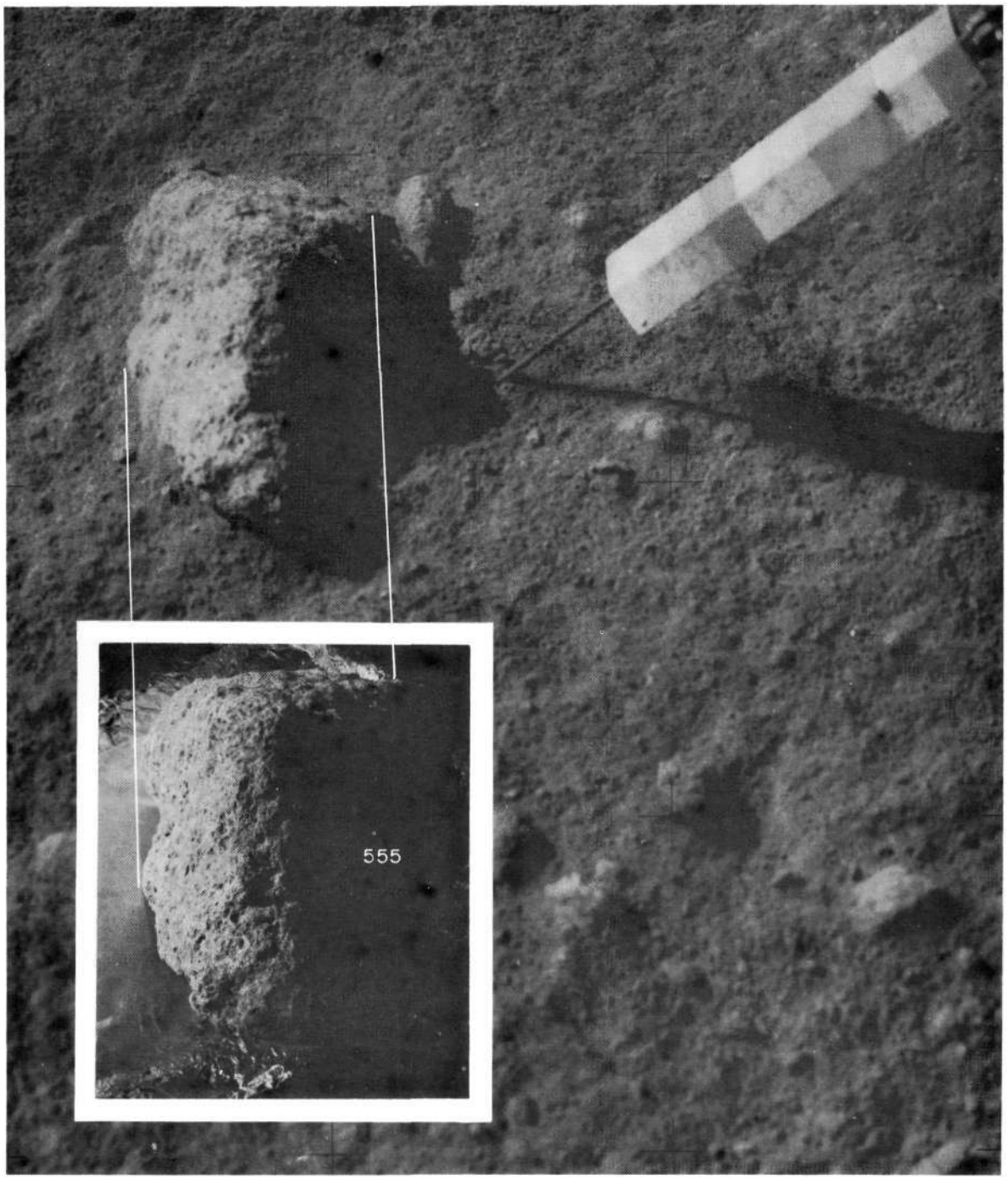

Figure 159. Sample 555 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-82-11163, taken cross-sun, looking southeast.

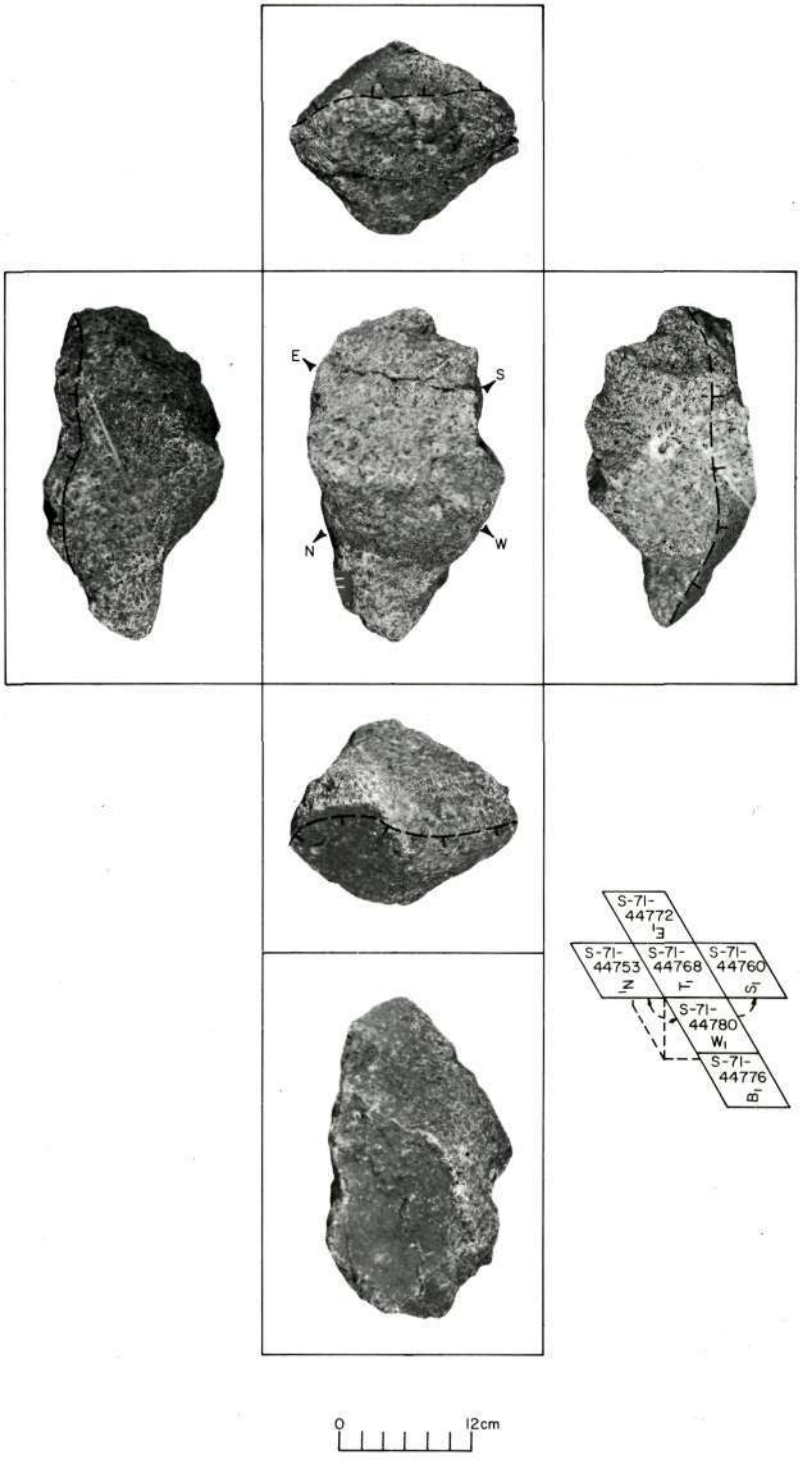

Figure 160. Orthogonal views of sample number 555.

Figure 161. Sample 556 collected at station 9a near Hadley Rille. Pre-sampling, down-sun photograph AS15-82-11133, looking west.

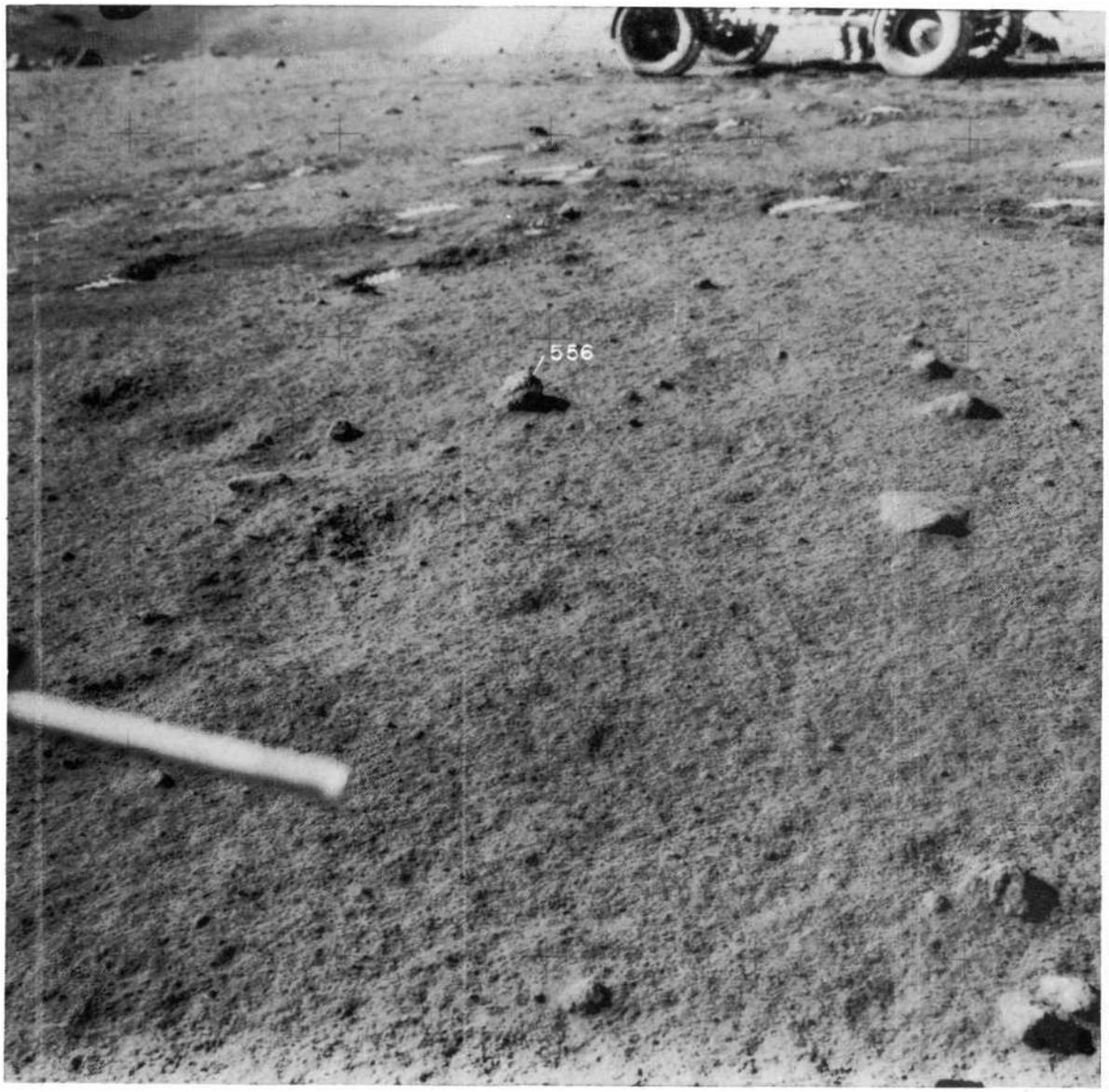

Figure 162. Sample 556 collected at station 9a near Hadley Rille. Pre-sampling, cross-sun photograph AS15-82-11135, looking south.

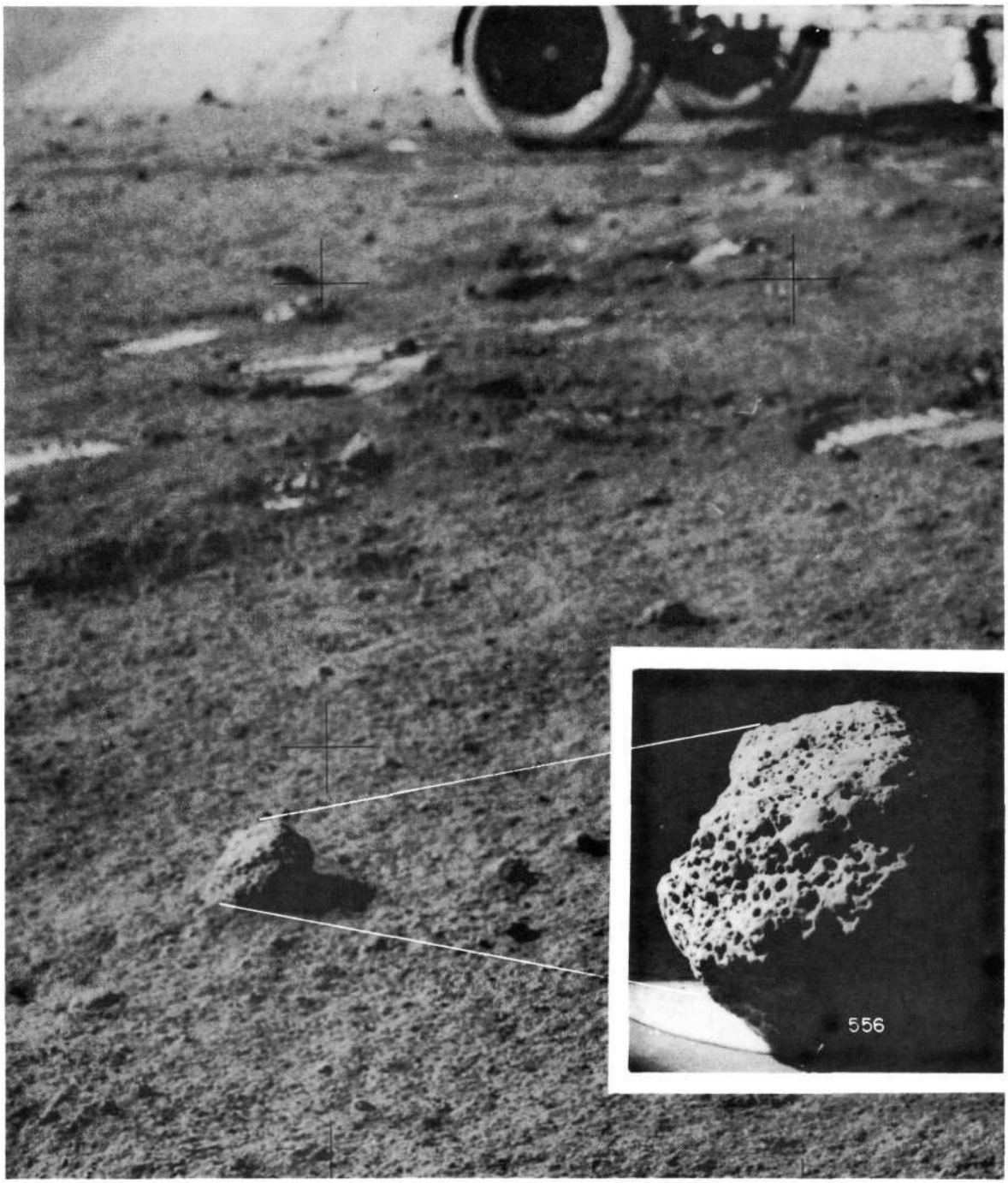

Figure 163. Sample 556 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-82-11135, taken cross-sun, looking south.

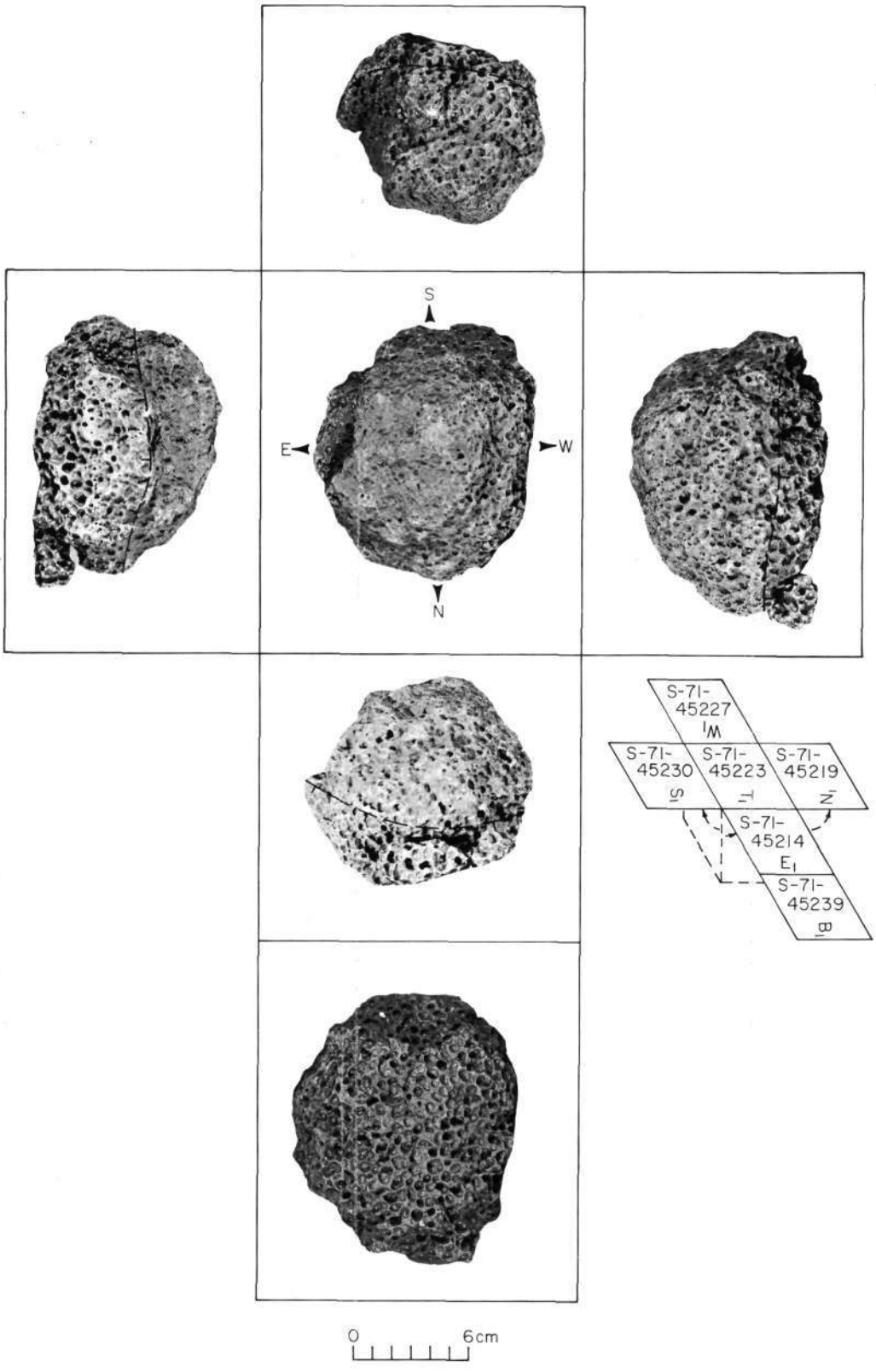

Figure 164. Orthogonal views of sample number 556.

Figure 165. Sample 557 collected at station 9a near Hadley Rille. Pre-sampling, down-sun photograph AS15-82-11136, looking west.

Figure 166. Sample 557 collected at station 9a near Hadley Rille. Pre-sampling, cross-sun photograph AS15-82-11137, looking north.

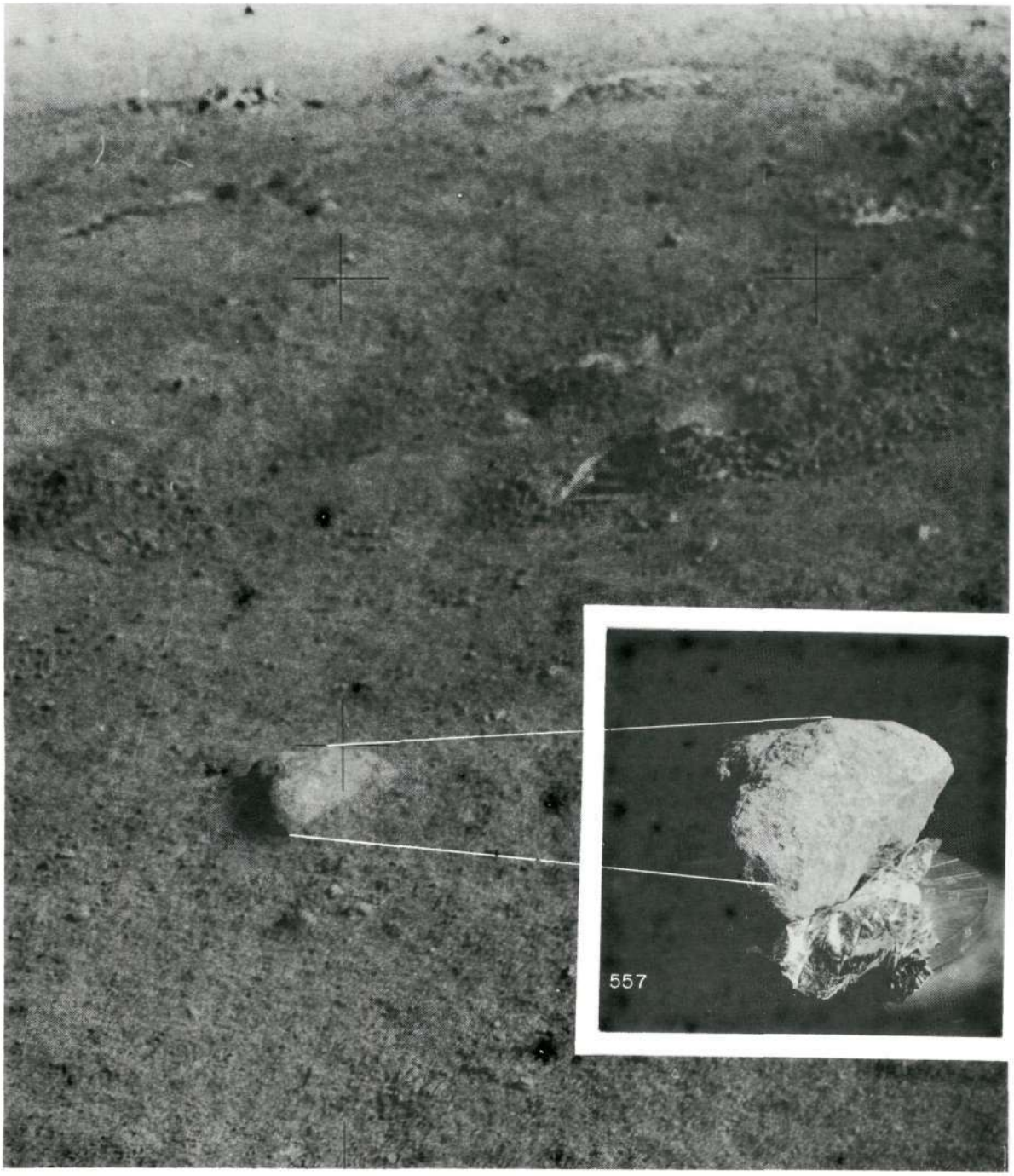

Figure 167. Sample 557 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-82-11137, taken cross-sun, looking north.

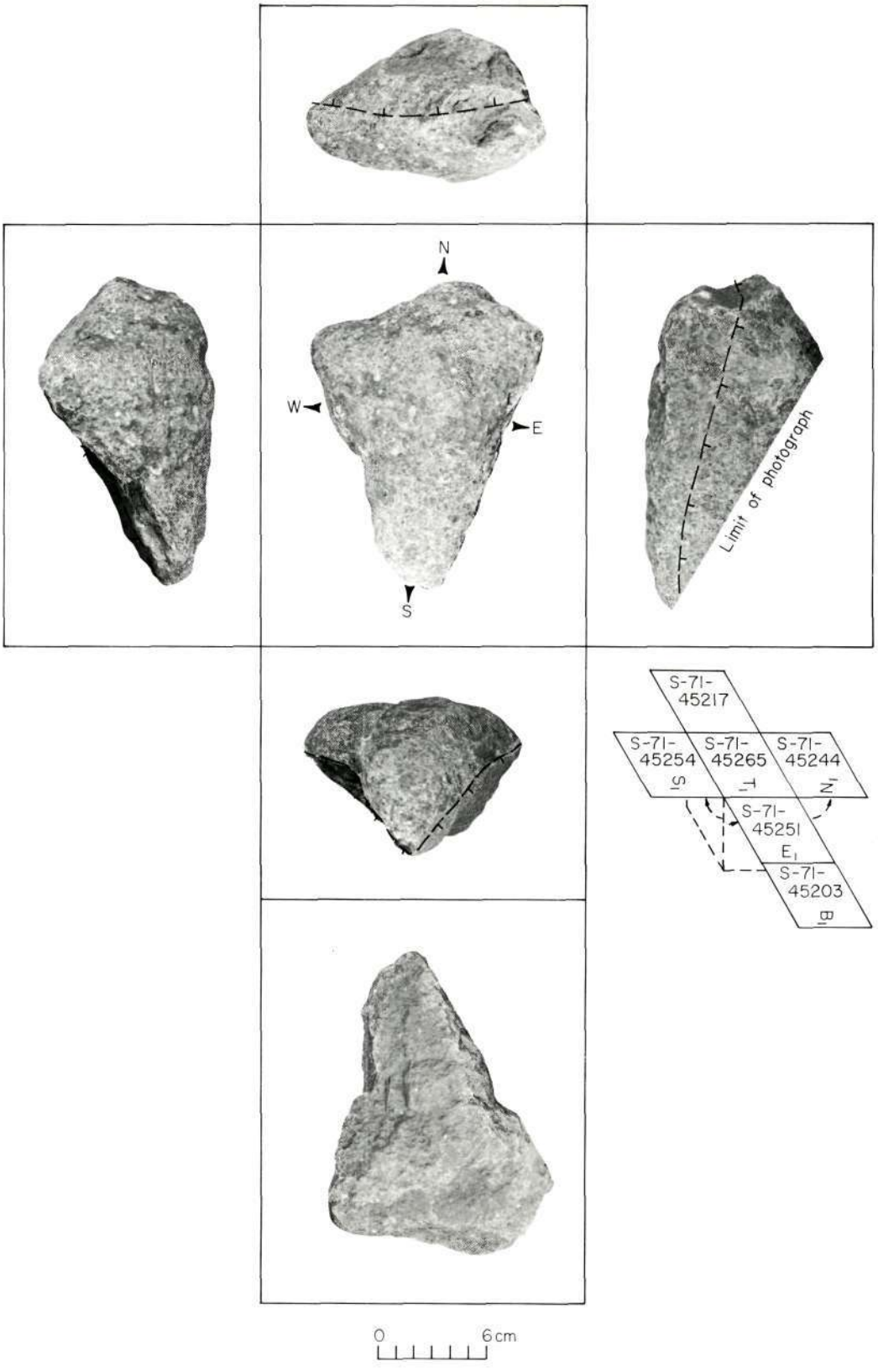

Figure 168. Orthogonal views of sample number 557.

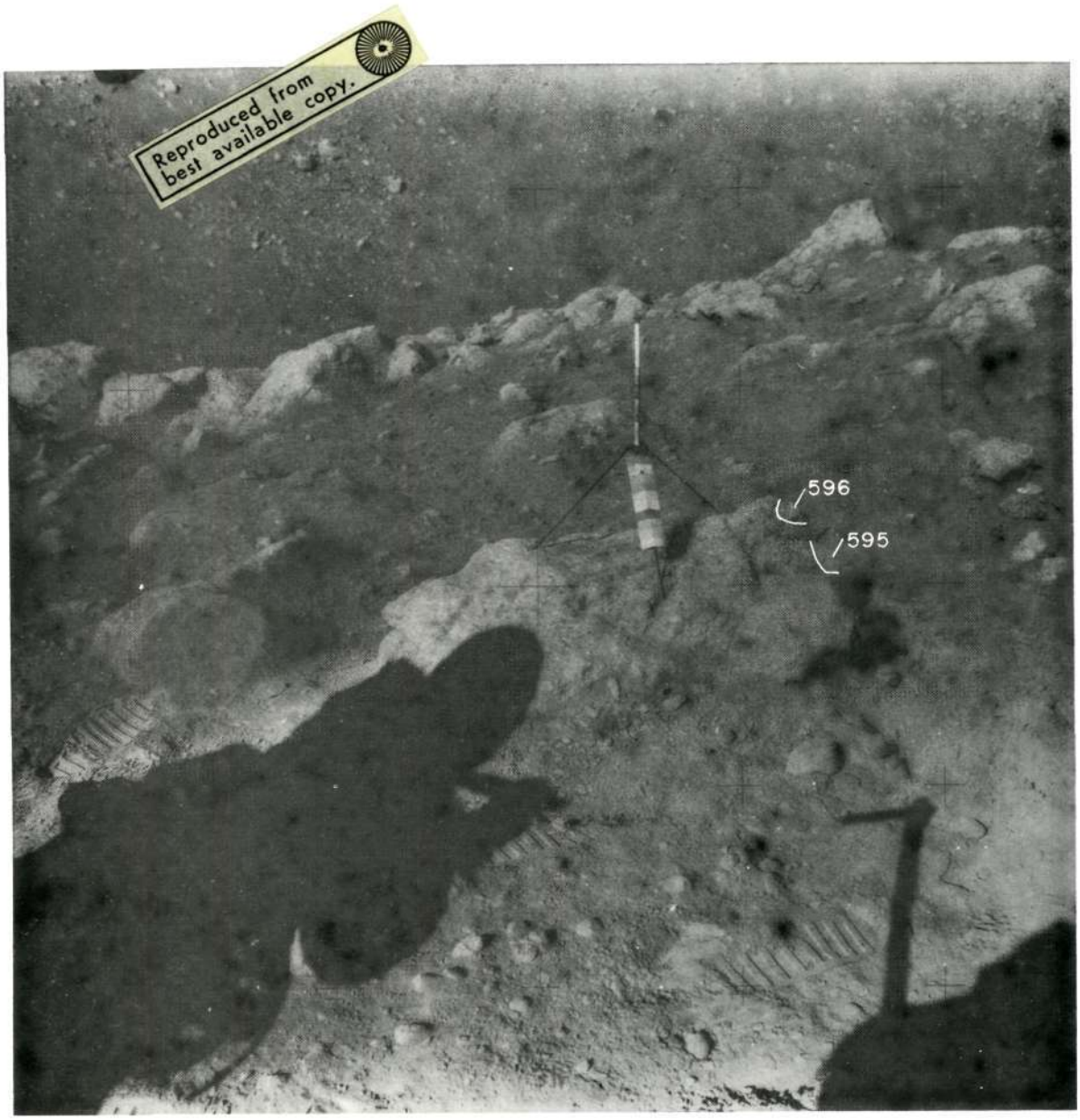

Figure 169. Samples 595, 596 (and vicinity of samples 597, 598, not identified) collected at station 9a near Hadley Rille. Pre-sampling, cross-sun photograph AS15-82-11142, looking southwest.

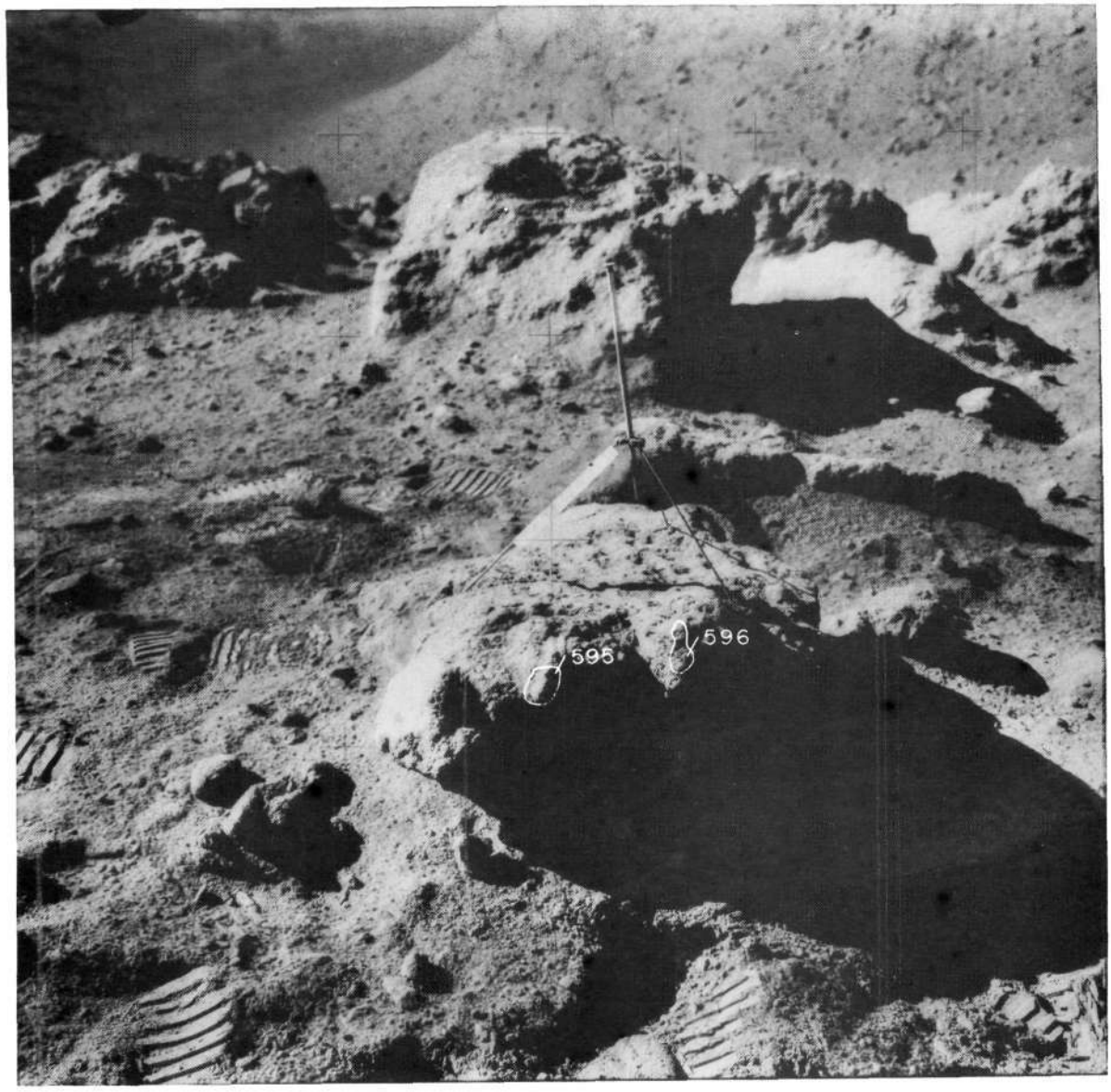

Figure 170. Samples 595, 596 (and vicinity of 597, 598, not identified) collected at station 9a near Hadley Rille. Pre-sampling, cross-sun photograph AS15-82-11143, looking south.

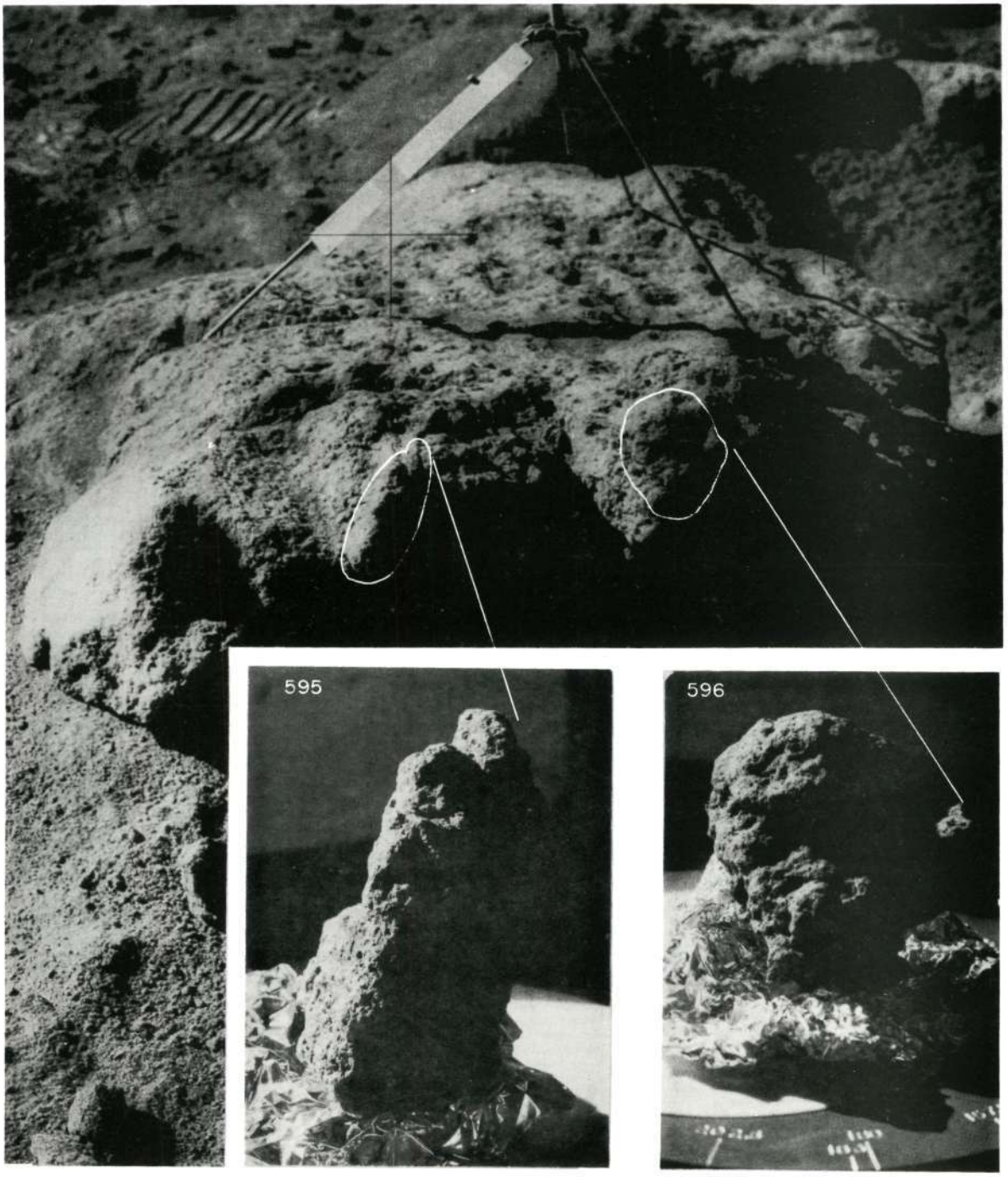

Figure 171. Samples 595 and 596 showing approximate lunar orientation reconstructed in the LRL compared to EVA photograph AS15-82-11143, taken cross-sun, looking south.

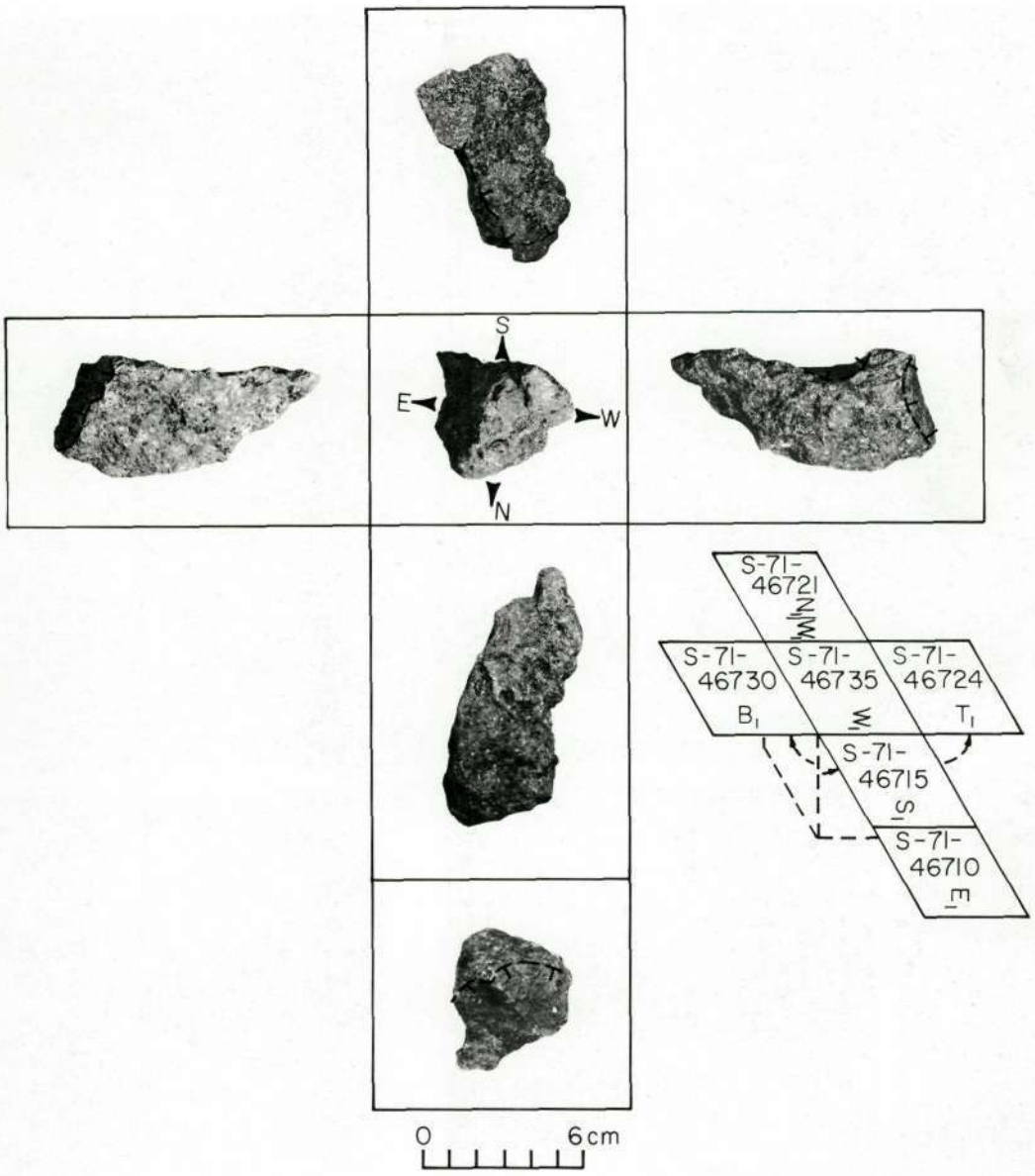

Figure 172. Orthogonal views of sample number 595.

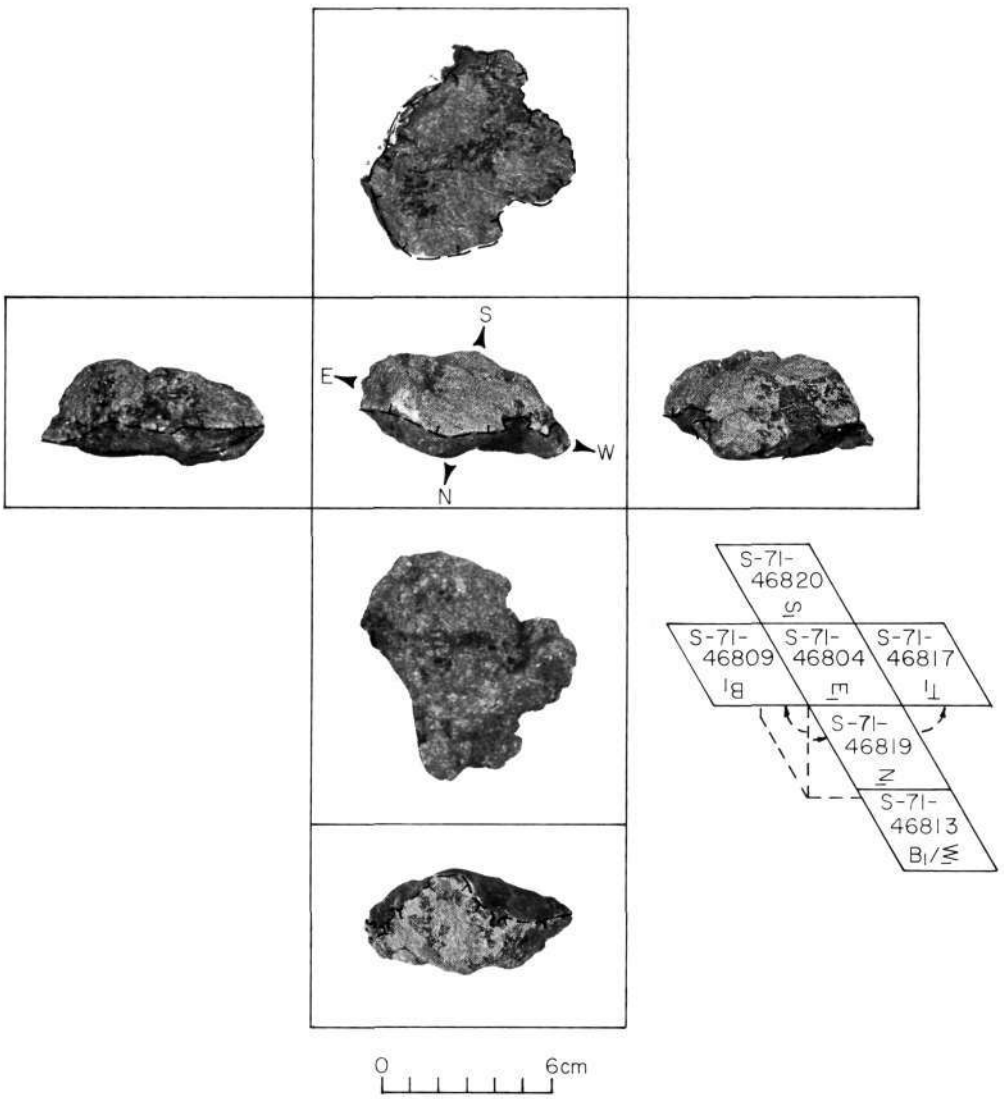

Figure 173. Orthogonal views of sample number 596.

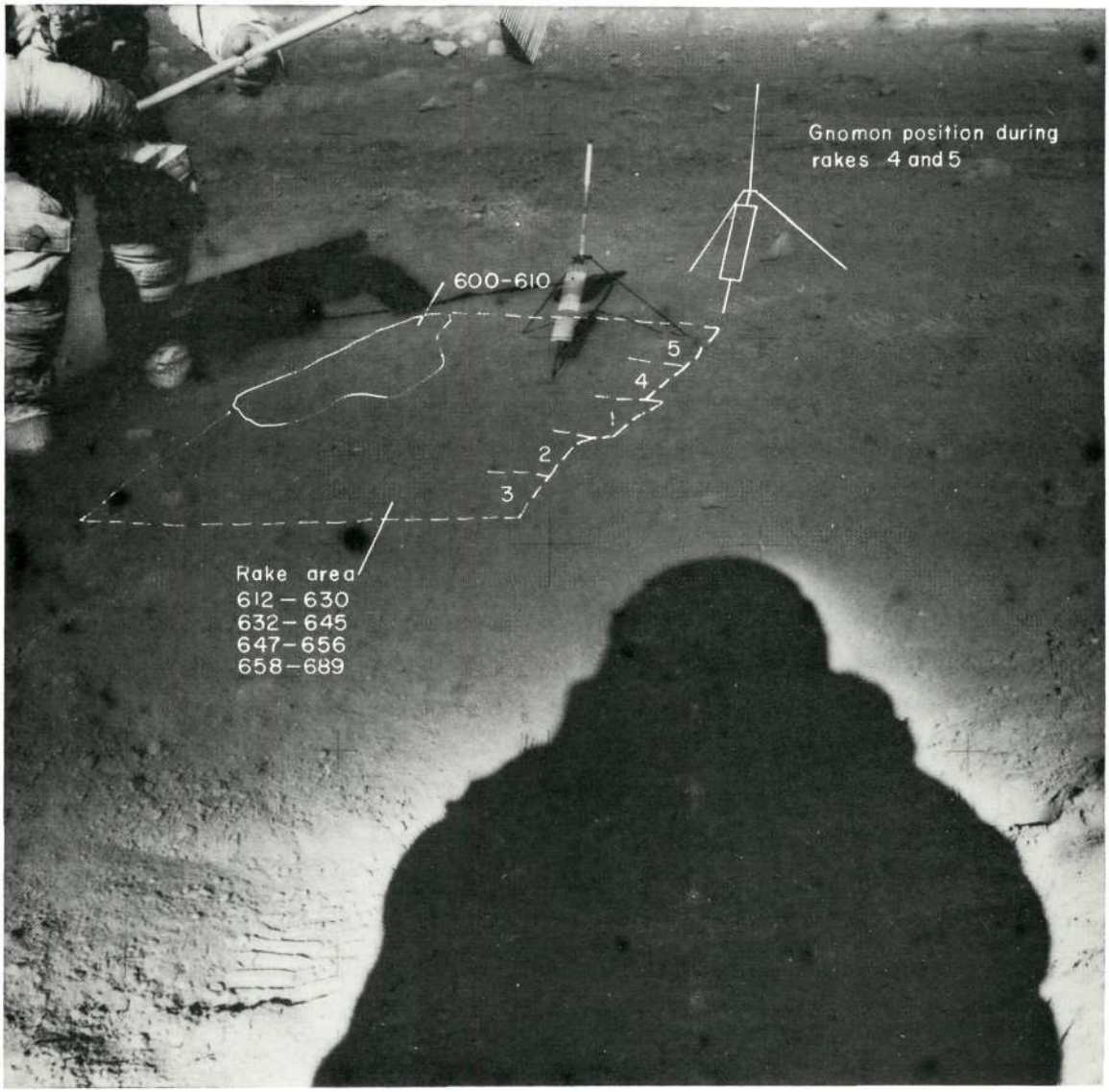

Figure 174. Samples 600-689 collected with rake at station 9a near Hadley Rille. Pre-sampling, down-sun photograph AS15-82-11153, looking west.

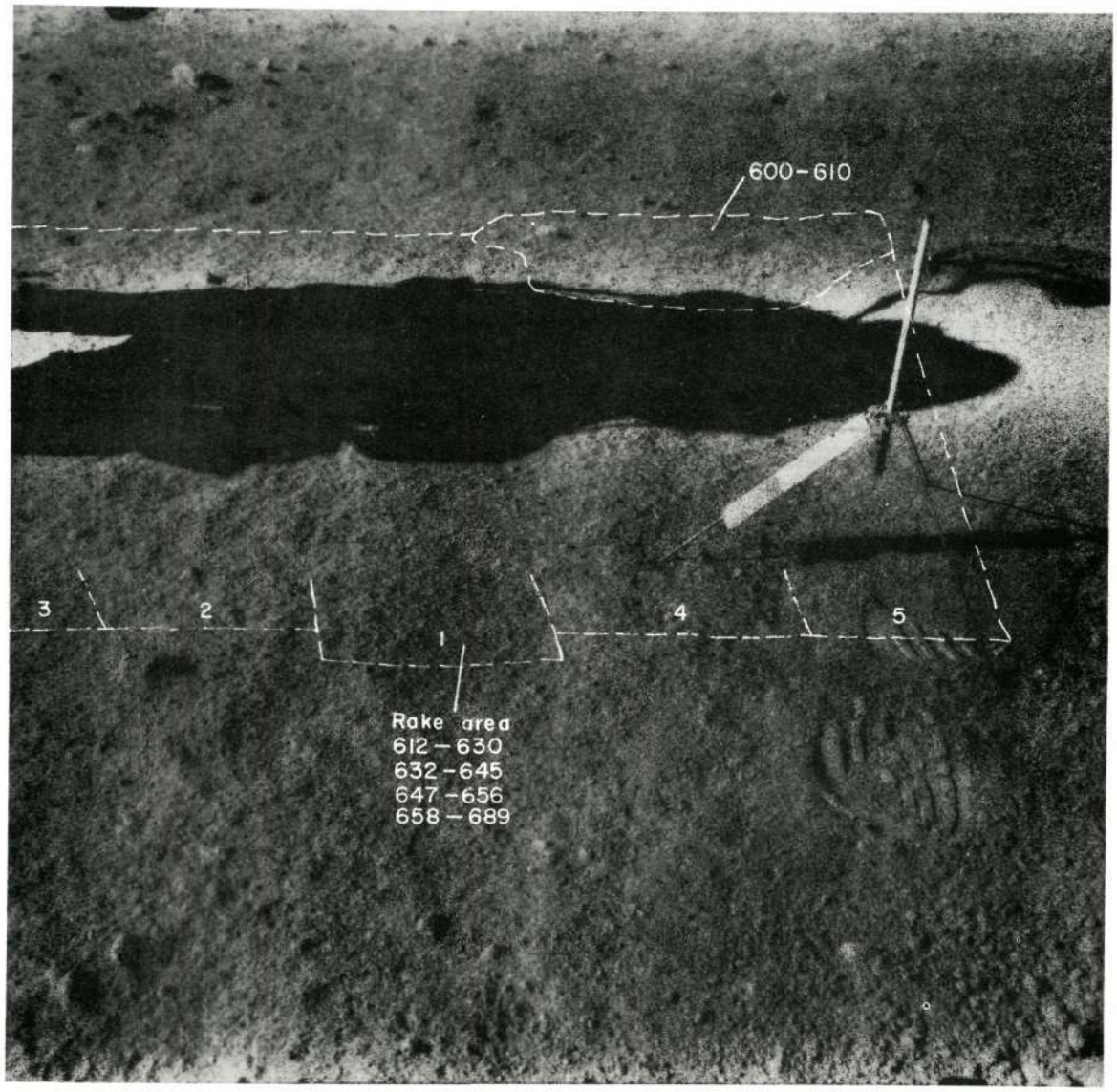

Figure 175. Samples 600-689 collected with rake at station 9a near Hadley Rille (gnomon was moved west before rakes 4 and 5). Pre-sampling, cross-sun photograph AS15-82-11151, looking south.

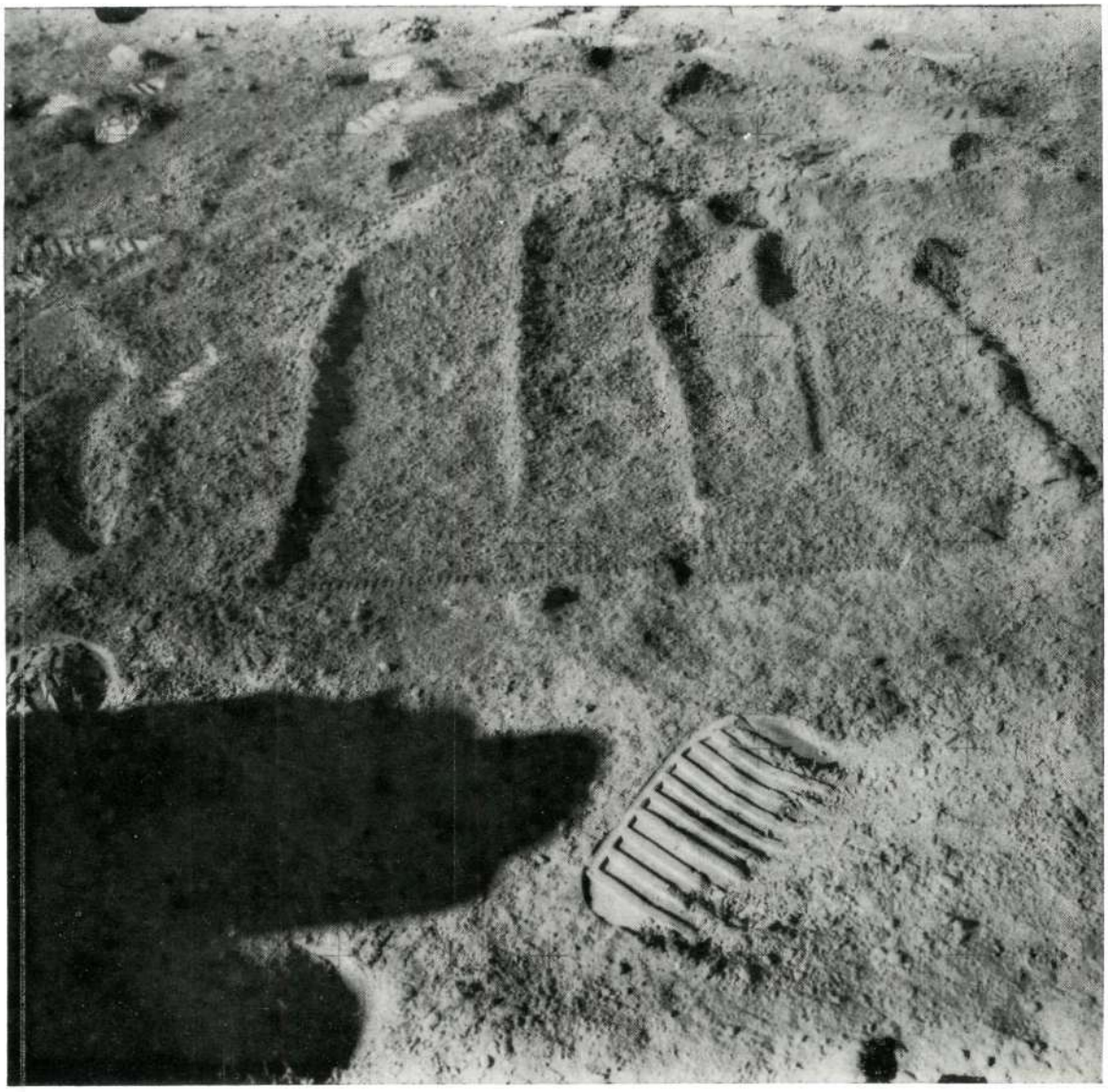

Figure 176. Samples 600-689 collected with rake at station 9a near Hadley Rille. Post-sampling, cross-sun photograph AS15-82-11155, looking south.

Table 4. Photographic documentation of Apollo 15 samples.

Sample Number	SCB/DB	Station	Type Sample	Pre-sample X-Sun St	Down Sun	Post Sample X-Sun	Locator	Pan No.	Location in Pan
001-006		8	Deep Core					18	92-12427-29
007,008	1/U-03/L-10	2	Core	86-11574-78	85-11443-45		85-11443,44	5,6	85-11435,36,47,48
009	5/U-07	6	Core	86-11647-50	85-11527-29	86-11651	85-11527-29	9,10	85-11484,85,511-513
010,011	7/U-09/L-14	9a	Core	82-11156,57,60-62	85-11158	82-11163	82-11159	21	82-11123,24
012	5/SESC 1	6	Soil	86-11641,42	86-11644	86-11643,45,46	85-11525	9,10	85-11483-85,511-513
013	7/SESC	LM	Soil	88-11884,85	88-11886	88-11887		16	87-11838,39
014	5/SESC 2	8	Soil	92-12417,18	92-12419,41-43	92-12439,40	92-12443	18	92-12423,24
015	4/	LM	1 rock		85-11385,86				
					88-11943,44 (Post)			3	85-11385-89
016	4/	3	1 rock	86-11579-81		86-11582		7	86-11583,84
017-019	5/162	LM	Glass	86-11604-06	86-11607	86-11608		3	85-11388
020-026	CSB	LM	Soil, 2 rocks	See Pan 3		See Pan 24		3	85-11391,92
								24	88-11932,33,38-41, 43-45
027,028	5/162	LM	2 rocks	86-11604-06	86-11607	86-11608		3	85-11388
030-034	252	8	Soil	92-12417,18	92-12419,41-43	92-12439,40	92-12443	8	92-12423-25
040-044	252	8	Soil	92-12417,18	92-12419,41-43	92-12439,40	92-12443	8	92-12423-25
058	SCB 6	ALSEP	1 rock	92-12410,11	92-12412			17,18	87-11850,51
									92-12422,23
059	SCB 6	ALSEP	1 rock	92-12415	92-12413,14			17,18	87-11853,54
									92-12437,38
065	156	1	1 rock	86-11530,31	85-11416	86-11532	85-11417	4	85-11408,09,10
070-076	157	1	Soil, 2 rocks	86-11533,34	85-11418	86-11535	85-11419	4	85-11406,07,08
080-088	158	1	Soil, 4 rocks	86-11536,37	85-11420	86-11538,39	85-11421	4	85-11406,07,08
090-093,095	159	2	Soil, 1 rock	86-11549,50		86-11551		5,6	85-11435,36,47,48
100-105	187	2	Rake soil, rock	86-11567,68	85-11441	86-11572,73	85-11442	5,6	85-11435,36,47,48
115-148	186	2	Soil, rake rocks	86-11567,68	85-11441	86-11572,73	85-11442	5,6	85-11435,36,47,48
200-204	160	2	Soil	86-11546,47	86-11560	86-11558,59	85-11440	5	85-11435,36
205	161	2	1 rock	86-11546,47,52,53	85-11439	86-11558,59	85-11440	5	85-11435,36
					86-11560				
206	160	2	1 rock	86-11546,47	86-11560	86-11558,59	85-11440	5	85-11435,36
210-214	180	2	Soil	86-11544,45,48	85-11439,40	86-11556,57	85-11440	5,6	85-11435,36,47,48
220-224	181	2	Soil	86-11544,45	85-11439	86-11556,57	85-11440	5,6	85-11435,36,47,48
230-234	182	2	Soil	86-11561-64	86-11569	86-11565,66	86-11569	5,6	85-11435,36,47,48
240-245	163	6	Soil, 1 rock	86-11609-11	85-11498,99	86-11612-15	85-11500	9,10	85-11493,94,95,515

Table 4. (continued)

Sample Number	SCB/DB	Station	Type Sample	Pre-sample X-Sun St	Down Sun	Post Sample X-Sun	Locator	Pan No.	Location in Pan
250-254	164	6	Soil	86-11609-11	85-11498,99	86-11612-15	85-11500	9,10	85-11493,94,95,515
255-257	190	6	3 rocks	86-11629,30	86-11631	86-11632		10	85-11515
259	192	6	1 rock	86-11635,36	85-11523,24	86-11637		9,10	85-11484,85,511-513
260-264	166	6	Soil	86-11641,42	86-11644	86-11643,45,46	85-11525	9,10	85-11483,84,85,
					85-11525,26				511,512
265-267	193	6	3 rocks	86-11638,39	85-11523,24	86-11640		9,10	85-11484,85,511-513
268,269	192	6	2 rocks	86-11635,36	85-11523,24	86-11637		9,10	85-11484,85,511-513
270-274	167	6	Soil	86-11656		86-11657		9	85-11490
281-284	3/residue		Not applicable						
285-289	192	6	5 rocks	86-11635,36	85-11523,24	86-11637		9,10	85-11484,85,511-513
290-295	188	6	Soil, 1 rock	86-11616,17	85-11501,02		86-11618-20	9,10	85-11495,515
297	3/residue		Not applicable						
298	3/	6	1 rock	86-11621,22	85-11503,04	86-11623		10	85-11515,16
299	3/	6	1 rock	86-11624,25	85-11506	86-11628	85-11505	10	85-11516,17
300-308	173	7	Rake soil, rocks		90-12231,32	90-12233,34	90-12232	12	90-12216,17
310-392	172	7	Soil, rake rocks		90-12231,32	90-12233,34	90-12232	12	90-12216,17
400-405	168	6a	Soil, 1 rock	86-11658,59	90-12199,200	86-11660,61		11	90-12187,88
410-414	194	7	Soil	86-11662,63	90-12223	86-11664,65	90-12224	12	90-12201,02,22
415	196	7	1 rock	86-11670,71	90-12227,28	86-11672	90-12228	12	90-12201,02,22
417-419	194	7	3 rocks	86-11662,63	90-12223	86-11664,65	90-12224	12	90-12201,02,22
421-427	195	7	Soil, clods	86-11666,67	90-12225,26	86-11668,69	90-12226	12	90-12201,02,22
431-435	170	7	Soil, clods	86-11670-73	90-12227,28	86-11674	90-12228	12	90-12201,02,22
445	171	7	1 rock	86-11690,91		86-11692-94		12	90-12201,02,22
455	198	7	1 rock	86-11675,76	90-12229	86-11677	90-12229	12	90-12201,02,22
459	6/	7	1 rock	90-12235,36				12	90-12217,18
465-468	199	7	4 rocks	86-11678-80	90-12230	86-11681	90-12230	12	90-12201,02,22
470-476	203	4	Soil, 2 rocks	87-11759,60	87-11761	87-11762,64	87-11763		
485,486	204	4	2 rocks	87-11765,66	87-11767,68	87-11769,70	87-11768	13	90-12242,43
495	174	4	1 rock	87-11759,60,62	87-11761,63	87-11764	87-11763		
498	6/	4	1 rock	87-11765		87-11769		13	90-12242,43
499	5/	4	1 rock		87-11767,68	87-11779	87-11768	13	90-12242,43
500-508	255	9	Soil, 4 rocks	82-11105,06	82-11107	82-11109	82-11108	20	82-11090,91
510-515	273	9	Soil, clods	82-11093,94,98,99		82-11100		20	82-11089,90
528-529	274	9a	2 rocks	82-11129	82-11128			21	82-11119,20
530-538	275	9a	Soil, 4 rocks	82-11139,40	82-11138	82-11141		21	82-11126,27

Table 4. (continued)

Sample Number	SCB/DB	Station	Type Sample	Pre-sample X-Sun St	Down Sun	Post Sample X-Sun	Locator	Pan No.	Location in Pan
545-548	278	9a	4 rocks	82-11139,40	82-11138	82-11141		21	82-11126,27
555	BSLSS	9a	1 rock	82-11164				21	82-11123,24
556	2/	9a	1 rock	82-11135	82-11133,34			21	82-11117,18
557	2/	9a	1 rock	82-11137	82-11136			21	82-11110
558	2/	9→LM	1 rock	No photos taken					
561-564	2/residue		Soil	Not applicable					
565	2/residue		Chips	Not applicable					
595-598	281	9a	4 rocks	82-11143,44	82-11142	82-11145,46		21	82-11126,27
600-610	283	9a	Rake soil, rocks	82-11151,52	82-11153	82-11154,55		21	82-11122-24
612-689	282	9a	Rake rocks	82-11151,52	82-11153	82-11154,55		21	82-11122-24

Sample Number	Residue From DB	See Sample	Station
901	(156)	065	1
902	(157)	070	1
903	(158)	080	1
904	(159)	090	2
906	(160)	200	2
907	(181)	220	2
908	(161)	205	2
909	(182)	230	2
910	(186)	115	2
911	(187)	100	2
912	(162)	017	LM
916	(190)	255	6
917	(192)	258,285	6
918	(193)	265	6
924	(196)	415	7
925	(170)	431	7
926	(198)	455	7
927	(199)	465	7

Sample Number	Residue From DB	See Sample	Station
931	(203)	470	4
932	(174)	495	4
933	(204)	485	4
936	(273)	510	9
937	(255)	500	9
938	(274)	528	9a
939	(275)	530	9a
940	(278)	545	9a
941	(281)	595	9a
942	(282)	612	9a
943	(283)	600	9a
951	SCB 1	No photos	EVA 1
954	SCB 4	No photos	EVA 1
955	SCB 5	No photos	EVA 2
956	SCB 6	No photos	EVA 2
957	SCB 7	No photos	EVA 3

Table 5. Cross reference of lunar samples with locations, photographs, ground elapsed times, and air-to-ground transcript (p. 191-257).

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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 DEPLOY ALSEP, TRAVERSE TO ELBOW CRATER, THE APENNINE FRONT BELOW ST. GEORGE CRATER, AND RETURN						
Traverse to Elbow crater, St. George crater/Apennine Front, and return						
Contin-gency 15020	88.7	Contingency Sample Reserve fines	Near LM	No doc.	05:00:04 to 05:00:06	LMP - Okay. I'm going to move out and get the contingency sample. - - - I think I can get a - a rock here. It's about 2 inches subrounded in the contingency sample, along with the soil. - - - 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.
15021	500.2	< 1 mm fines		Pan 3 DSB 85-11385		
15022	10.0	1-2 mm				
15023	5.0	2-4 mm		Pan 24 DSA 83-11943		
15024	3.6	4-10 mm				
15025	77.3	breccia				
15026	1.1	glass coated microbreccia				
						CDR - Sure is, isn't it?
						LMP - Like about 6 inches deep of soft material.
Bag 156		Radial sample Single rock fragment	Station 1 East rim/ Elbow Crater	XSB 86-11530 XSB 86-11531 XSA 86-11532 DSB 85-11416 Loc 85-11417	05:02:15 to 05:02:16	LMP - Okay. A quick radial sample here.
15065	1475.5	Gabbro				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?
				Pan 4 85-11408 to 85-11410		LMP - Yes.
						- - -
						LMP - Number 156.
						- - -
						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.

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	
15070	51.3	Reserve fines		DSB 85-11418 Loc. 85-11419		
15071	100.7	<1 mm				
15072	3.0	1-2 mm		Pan 4 85-11406 to 85-11408		
15073	1.4	2-4 mm				
15074	1.3	4-10 mm				
15075	809.3	Gabbro				
15076	400.5	Gabbro				

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.

LMP - Get a little - get a little soil on this one, huh?

- - -

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.

LMP - Yes.

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.

- - -

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.

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 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	71.5	Reserve fines		XSA (frags) 86-11538	05:02:24	
15081	106.9	<1 mm		XSA (soil)		
15082	2.0	1-2 mm		86-11539		LMP - I don't know that this is representative too much of Elbow.
15083	1.8	2-4 mm		DSB 86-11420		
15084	1.1	4-10 mm		Loc 86-11421		
15085	471.3	Basalt				CDR - I don't think so, either. But, let's pick u 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.
15086	216.5	Breccia		Pan 4 86-11406 to 86-11408		
15087	5.7	Gabbro				LMP - Yes, just behind you is one of those fresh craters, too, with a lot of glass in it.
15088	1.8	Breccia				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 - -
						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.

Post EVA 1 debriefing comments by the crew concerning Elbow crater

Station 1
Elbow crater

05:09:06
to
05:09:09

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.

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.

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 DEBRIEFING COMMENTS BY THE CREW CONCERNING ELBOW CRATER						
			Station 1 Elbow crater cont.			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.
						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 5 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. - - -
			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.
	Pan 6 85-11446 to 85-11465		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.
			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.

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 180		Fillet soil	Station 2 St. George Crater/ Apennine Front	XSB 85-11544 XSB 86-11545 XSA 85-11556 XSA 85-11557 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.
15210	221.2	Reserve fines				LMP - I'm stepping on a piece of glass, right by the tongs. I'll remember that.
15211	163.5	<1 mm				
15212	3.6	1-2 mm				
15213	2.4	2-4 mm				CDR - Watch your boot.
15214	0.2	4-10 mm				
				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.
				Pan 5 85-11435,36		CDR - Wait, wait. Before you do, let me poke a picture at it. Okay; go ahead.
				Pan 6 85-11447,48		LMP - Little beads of glass in there in some places.
Bag 181		Soil	Station 2 St. George Crater/ Apennine Front	XSB 86-11544 XSB 85-11545 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		Pan 5 85-11435,36		
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		Pan 6 85-11447,48		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 that rock.
15092	2.7	1-2 mm		(Tongs)		
15093	0.6	2-4 mm		XSB 86-11549		
15095	25.5	glass-coated microbreccia		XSB 86-11550 XSA 86-11551		CDR - Those are glass bubbles.
				Pan 5 86-11435,36		LMP - Glass bubbles; yes.
				Pan 6 86-11447,48		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.
Bag 160		1 fragment	Station 2 St. George	XSB 86-11546 XSB 86-11547 XSA 86-11558	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 86-11559 DSA 86-11560	05:02:52	CDR - Right here?
15201	18.3	<1 mm	Front	Loc 86-11440		LMP - Yes, right there. Yes. Yes, it's coming loose.
15202	0.4	1-2 mm				
15203	0.2	2-4 mm	uphill			CDR - Yes. There it is. I got it. Oh - oops. That's it, right there. - - -
15204	0.1	4-10 mm	corner of			
15206	92.0	Glassy breccia	boulder	Pan 5 86-11435,36		...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.

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 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/	XSB 86-11552	05:02:53	
15205,1	1.6		Apennine Front	XSB 86-11553 XSA 86-11558 XSA 86-11559 DS 86-11439 DSA 86-11560 Loc 86-11440 Pan 5 86-11435,36		CDR - The dumbbell frag beside it? LMP - Yes, hold the bag here. I'll show you what I mean. 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 - - 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 beneath boulder	Station 2 St. George Crater/ Apennine Front	XSB 86-11561 XSB 86-11562 XSB 86-11563	05:02:55 to 05:02:57	CDR - Okay; roll it over. - - - Oh, me. It looks like a breccia.
15230	99.1	Reserve fines		XSB 86-11564 XSA 86-11565		LMP - It sure is. The top layer is a breccia. You can see it. There, that baby's over.
15231	233.9	<1 mm		XSA 86-11566		
15232	5.2	1-2 mm		DS - Loc 86-11569		- - - A couple of pictures, and we'll get some of that material underneath the rock.
15233	3.8	2-4 mm				
15234	1.8	4-10 mm		Pan 5 85-11435,36		CDR - Oh, there's a great big glass bubble on that rock.
						- - -
				Pan 6 85-11447,48		... 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.
						- - -
			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.

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		Comprehensive Fragments	Station 2 St. George Crater/ Apennine Front	XSB 86-11567 XSB 85-11568 XSA 86-11572 XSA 85-11573 DSB 85-11441 Loc 85-11442 Pan 5 85-11435,36 Pan 6 85-11447,48	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 ... 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.
15115	4.0	Basalt				
15116	7.2	Gabbro				
15117	23.3	Basalt				
15118	27.6	Basalt				
15119	14.1	Basalt				
15125	6.5	Basalt				
15135	1.6	Microbreccia				
15145	15.1	Breccia				
15146	1.0	Breccia				
15147	3.7	Soil breccia				
15148	3.0	Soil breccia				

Bag 187		Comprehensive fines	Station 2 St. George Crater/ Apennine Front	XSB 86-11567 XSB 86-11568 XSA 86-11572	05:03:04 to 05:03:05	- - - LMP - Do you want soil with that comprehensive?
15100	281.0	Reserve fines		XSA 86-11573 DSB 86-11441		CC - Roger. One bag soil with the comprehensive, and then double core.
15101	637.6	<1 mm		LOC 86-11442		
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		Pan 5		
15105	5.6	Basalt		86-11435,36		LMP - ... I've got 187 for the soil.
				Pan 5 86-11447,48	(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. ...

9-03/ L-10		Double Core	Station 2 St. George Crater/ Apennine Front	XSB 86-11574 XSB 86-11575 XS During	05:03:05 to 05:03:16	CDR - Okay; the next thing on the agenda is a double core.
				86-11576		LMP - Yes. Okay; I'm going to go over and configure for it.
15008	510.2	upper		86-11577 86-11578		- - -
15007	768.2	lower		DS 86-11445		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 - -
				Loc 86-11443 Loc 86-11444		
				Pan 5 86-11435,36		
				Pan 5 86-11447,48		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.

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						
15009 15007 cont.						- - - CDR - Okay. Rammer went in about 6 inches. 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.
SCB 4 FSR "A" 15016	923.7	Vesicular basalt	Station 3	XSB 86-11579 XSB 86-11580 XSB 86-11581 XSA 86-11582 Partial pan 7 86-11584	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.
SCB 4 FSR "B" 15015	4770.2	Glass coated breccia	Near LM	Pan 3 DSB 85-11385 Pan 24 DSA 88-11943	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.

POST EVA 1 DEBRIEFING COMMENTS BY THE CREW CONCERNING SAMPLES

SCB 4 FSR "A" 15016 FSR "B" 15015		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.
SCB 4 FSR "B" 15015 Cont.	Near LM	04:11:34	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?
			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.

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						
SCB 4 FSR "B" 15015 cont.						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.
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.
EVA 2 TRAVERSE TO THE APENNINE FRONT, SPUR CRATER, DUNE 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. - - - Plus a - another couple little samples that were sitting there. Okay, we'll get you - up. Okay, hand me the hammer.
15017	9.8	Broken glass sphere "aggie"		XSA 86-11608 DSB 86-11607		
15018	5.7			Pan 3 85-11392	(04:12:31)	Crew Comments from pre EVA 1 LM Window Desciption:

Bag 162 continued						
15019	1.2					
15027	51.0	Breccia				
15028	58.9	Breccia				
15028,1	0.5					

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.
- - -

CC - Roger, Dave. And, for the benefit of our fine Flight Director, maybe the name of that should be called an Aggie.

CDR - Okay, Joe. We'll call that one our first Aggie.

Bag 163		Glass	Station 6 Apennine	Pan 9 85-11493	05:23:58	
				to	to	
15240	67.1	Reserve	Front; floor	85-11495	05:00:01	
15241	197.4	<1 mm	of small	Pan 10		
15242	18.9	1-2 mm	fresh	85-11515,16		
15243	31.8	2-4 mm	crater with			
15244	32.6	4-10 mm	glass in			
15245,1-32	28.7	Breccia	center			
15245,33-65	63.3	Breccia with glass coats		XSB 85-11609		
				XSB 85-11610		
15245,66-89	23.5	Agglutinates		XSB 85-11611		
				XSA 85-11612		
				XSA 85-11613		
				XSA 85-11614		
				XSA 85-11615		
				DSB 85-11498		
				DSB 85-11499		
				Loc 85-11500		

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.

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.

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 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 86-11498 DSB 86-11499 LOC 86-11500 Pan 9 86-11493 to 86-11495	06:00:01	CDR - Yes. Yes, the next one coming up is 164. And, why don't you skip the rim there, LMP - A little more? CDR - Yes, let's get a good bag full. CDR - Okay, Joe. It's very fine light gray - the rim is. Very fine.
15250	207.0	Reserve fines				
15251	380.9	<1 mm				
15252	8.3	1-2 mm				
15253	4.0	2-4 mm				
15254	1.2	4-10 mm				
Bag 188		Rock microbreccia	Station 6 Apennine Front	XSB 86-11616 XSB 86-11617 DSB 86-11501 DSB 86-11502 Loc 86-11618 Loc 86-11619 Loc 86-11620 Pan 9 86-11495 Pan 10 86-11515	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. CC - Okay, Jim. And are you still scooping samples? 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. - - - - - -
15290	55.0	Reserve fines				
15291	169.0	<1 mm				
15292	5.4	1-2 mm				
15293	5.7	2-4 mm				
15294	10.2	4-10 mm				
15295	947.3	Breccia				

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.

SCB 3
PSR "C" 15298 — 1731.4 — fractured Microbreccia — Station 6 Apennine Front 20% buried subangular — XSB 96-11621, XSB 86-11622, XSA 96-11623, DSB 85-11503, DSB 85-11504 — 06:00:07 to 06:00:09

Pan 10
85-11515,16

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.
- - -

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						
SCB 3 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.
SCB 3 FSR "D" 15299	1691.7	fractured Breccia	Station 6 Apennine Front Fragment made small secondary crater - travelling east to west	XSB 85-11624 XSB 86-11625 XSA 85-11628 LOC 85-11505 DSB 85-11506 Impact site 86-11626 86-11627 Pan 10 85-11516,17	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.
15281	107.0	<1 mm	Residue from SCB-3			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?
15282	9.7	1-2 mm				
15283	13.3	2-4 mm				
15284	38.2	4-10 mm				
15297	39.4	Breccia chips				

SCB 3
PSR "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 I think 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	basalt		XSA 86-11632	06:00:17	
15257	22.5	microbreccia		DSB 86-11631		CDR - No, Joe. Definitely not.
				Pan 10		
				86-11514,15		- - -
						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.

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 192		9 frags breccia	Station 6	XSB 86-11635 XSB 86-11636 XSA 86-11637 DSB 85-11523 DSB 85-11524	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. - - -
15259	0.7	microbreccia				
15268	11.0	microbreccia				
15269	6.0	microbreccia, glassy		Area photos:		CDR - Hey, look at the little bench on this one.
15285	264.2	breccia		86-11633 86-11634		LMP - Yes, I was going to remark about that on the - the downslope side. - - -
15286	34.6	basalt glass				
15287	44.9	breccia				
15288	70.5	breccia, glassy		Pan 9 85-11484,85		CDR - Jim, I'd suggest we go down to that little bench.
15289	24.1	breccia		Pan 10 85-11511,12		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.

Bag 192
cont.

CDR - So much dust - on the camera, it's hard to read the settings.

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	314.1	Breccia		DSB 85-11523		
15266	271.4	Breccia		DSB 85-11524		
15267	1.9	Microbreccia				
				Area photos: 86-11633 86-11634		
				Pan 9 85-11484,85		LMP - - - - ... friable to what you're trying to get.
				Pan 10 85-11511,12		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? - - -
						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.

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						
			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 85-11641 XSB 86-11642 XSA 86-11643 XSA 86-11645 XSA 86-11646 DSA 85-11644 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. - - - LMP - I can trench it here. 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.
15260	172.2	Reserve fines				
15261	416.6	<1 mm				
15262	9.1	1-2 mm				
15263	6.7	2-4 mm				
15264	5.9	4-10 mm				
				Pan 9 85-11483 to 85-11485		LMP - I was going to say like cement. CDR - Yes. I can't - ... see any layering because the - the scoop just - -
				Pan 10 85-11511,12		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.

Bag 166
cont.

- - -
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 - -

---

SESC #1		SESC	Station 6 Trench Site	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 Rover to get the SESC - -
15012	312.2 (net)		Bottom of trench			
				Pan 9 85-11482,83		LMP - No, it's on your back.
						CDR - Oh, just do it.
				Pan 10 85-11513		- - - Why don't you 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 -

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						
SESC # 1 15012 cont.						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.
Single Core H-07 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 Pan 9 85-11482,83 Pan 10 85-11513	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. - - -

Single
Core

15009
cont.

CC - Jim, we've got that double left. Do you suppose you could drive a single core down where it's white?

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.

CDR - Go ahead. Go ahead.

LMP - Yes. I'm right behind you.

CDR - 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 - 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?

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.

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 15009 cont.						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	CC - A little something for the soil mechanics, sounds great. And we'd
15270	319.0	Reserve fines		Pan 9	06:00:44	like for you to put several scoops of the soil in bag number 6 on the handtool
15271	798.3	<1 mm		86-11487,88		carrier when you get back to the Rover.
15272	20.7	1-2 mm				- - -
15273	13.7	2-4 mm				CDR - Yes, but that's - Hey. Why don't we put them in a sample bag, Joe? Why - -
15274	4.4	4-10 mm				- - -
						I'll get you a sample bag.
						- - -
						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.

Bag 167 cont.			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 11 90-12187,98		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? 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. - - -

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Bag 168		Breccia, light green	Station 6A 3m rock	XSB 86-11658 XSB 86-11659 XSA 86-11660 XSA 86-11661 DS 90-12199 DS 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. - - -
15400	47.5	Reserve fines				
15401	86.4	<1 mm				
15402	4.3	1-2 mm				
15403	6.1	2-4 mm				
15404	7.9	4-10 mm				
15405	513.1	Breccia		Pan 11 90-12187,88		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.

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.						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. 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.

Leave Station 6A	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? 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. - - -
Arrive at Spur Crater			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.

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						
						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.
Bag 194			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		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		Loc 90-12224		
15412	7.1	1-2 mm				CDR - Yes, look at that. How about that, we'll get that one.
15413	6.7	2-4 mm				- - -
15414	4.0	4-10 mm		Pan 12		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.
15417	1.3	Breccia		90-12201,02		
15418	1140.7	Breccia				LMP - You've got a sample there, right?
15419	17.7	Breccia with glass				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.

Bag 194
cont.

CDR - 194.

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.
15421	254.7	<1 mm fines		XSA 85-11669		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?
15422	15.9	1-2 mm		DS 90-12225		- - -
15423	18.3	2-4 mm		DS - Loc 90-12226		CDR - Okay. I'd call it light gray but, we'll check it when we get home.
15424	19.5	4-10 mm				
15425	136.3	Green and gray clods		Pan 12 90-12201,02 90-12222		LMP - Well, it's definitely different from the next rock, or the one we just picked up.
15426	223.6	Green and gray clods				- - -
15427	115.9	Green and gray clods				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.
						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.
						- - -

Bag 195
cont.

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. Ithink 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.

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 Pan 12 90-12201,02 90-12222	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!

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.						- - - 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. 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		Clods from "pedestal" under 15415	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 Pan 12 90-12201,02 90-12222	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.
15431	475.7	<1 mm fines				
15432	39.7	1-2 mm				
15433	31.2	2-4 mm				
15434	51.6	4-10 mm				
15435,1-32	206.8	Total of 32 splits				

Bag 170
cont.

CDR - It's not a clod, is it?

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.

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	885.4	black and white breccia	black and white rock	XSA 86-11677 DS - Loc 90-12229	06:01:50	LMP - Ha, what a contact!
15455,1-22	51.8					CDR - Look, what a contact!
				Pan 12 90-12201,02		LMP - Yes, man!

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 15455 cont.				Pan 12 cont. 90-12222		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, fine-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 - - 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 XS (during) 86-11680 XSA 86-11681 DS - Loc 90-12230	06:01:49 to 06:01:52	CDR - Okay. We'll ease over to that big rock. Looking on the way for anything else unusual. It's another clod that evidently hit. Let's sample it just to get the - distribution around the circumference of the rim here. - - - LMP - I was going to - I was wondering why you wanted to use the scoop.
15465,0	374.8	glass coated breccia				
15465,1	1.2	glass, breccia				
15466	119.2	glass				
15467	1.1	breccia				
15468	1.3	glass, breccia				
				Pan 12 90-12201,02 90-12222		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?

Bag 199 cont.						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		06:01:55 to 06:01:59	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	breccia	Near large block of breccia inside the NW rim of Spur crater	XSB 86-11690 XSB 86-11691 XSA 86-11692 XSA 86-11693 XSA 86-11694 Pan 12 90-12201,02 90-12222 86-11682 through 86-11689 show large block		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. - - - 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 Pan 12 90-12216,17	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. - - -
15310	140.6	Reserve fines				
15311	295.0	<1 mm				
15312	10.1	1-2 mm				
15313	9.8	2-4 mm				
15314	8.4	4-10 mm				
15315-15360	387.5	Breccia				
15361	0.9	Pale green rock				
15362-15364	6.2	Anorthosite				
15365-15377	17.9	Glass breccia				
15378-15384	79.1	Basalt (non-mare)				
15385-15388	27.2	Basalt (mare)				
15389-15392	7.0	Glass				

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 15310- 15392 cont.						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 - -
						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 1 fragment	Station 7 Spur crater	DSB 90-12231 DS - Loc 90-12232	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.
15300	390.7	Reserve fines		XSA 90-12233 XSA 90-12234		
15301	810.2	<1 mm		Pan 12 90-12216,17		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 --
15302	23.2	1-2 mm				
15303	12.7	2-4 mm				
15304	7.3	4-10 mm				
15305	2.9	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.

Bag 173 cont.					LMP - Where you going to put that little spherule? CDR - In the bag. 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? CDR - 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.
SCB 6 FSR "E" 15459 5854.0 breccia			XSB 90-12235 XSB 90-12236 Pan 12 90-12217,18	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.
Leave Spur Crater					CDR - Good. Okay; fill that square. Okay, Jim. Let's get on the Rover and head back.
Arrive at Dune Crater	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.

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 4 Dune crater cont.			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. - - - 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.
15470	82.2	Reserve fines				
15471	153.0	<1 mm				
15472	6.1	1-2 mm				
15473	4.5	2-4 mm				
15474	4.7	4-10 mm				
15475,0	298.2	basalt				
15475,1	85.2	gabbro				
15475,2	23.4	basalt				
15476	266.3	basalt				

Bag 174 15495	908.9	Gabbro	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.
SCB 5 FSR "F" 15499	2024.0	vesicular basalt	Station 4 Piece broken from the corner of a basalt boulder	DSB 87-11767 DSB - Loc 87-11768 XSA 87-11779 Pan 13 90-12242,43	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? 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. - - -
SCB 6 FSR "F-Prime" 15498	2339.8	Breccia	Apparently collected without comment	XSB 87-11765 XSA 87-11769 Pan 13 90-12242,43		LMP - Now put that large one in my pack. (This may refer to 15498) 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. (15499)

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 204			2 frags chipped	XSB 87-11765	06:02:40	CDR - Okay. Hey, maybe - let me get those two
				XSB 87-11766	to	frags there from the center. Give me - -
15485	104.9	Basalt chip	from E side	DS 87-11767	06:02:41	those tongs.
15486	46.8	Basalt chip	of large	DS - Loc		- - -
			boulder at	87-11768		CDR - 204 for the two frags in the center of
			Dune Crater	XSA 87-11769		the boulder.
				XSA 87-11770		- - -
						And that's not much for Dune, but I think
				Pan 13		it's representative.
				90-12242,43		- - -
						I hope it's representative because it -
						Okay. Put that in my bag, Jim?
			Station 4	Additional	06:02:37	
			Dune crater	photos of	to	
				big boulder	06:02:41	
				87-11171		
				through		
				87-11178		

			Travel, Station 4 to LM 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. 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?).
SCB 6 FSR "J" 15059	1149.2	Glass-coated breccia "black"	ALSEP site: HFE drilling and Station 8 sampling	XSB 92-12415 DSB 92-12413 DSB 92-12414 Pan 18 92-12437,38	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.
SCB 6 FSR "G" 15058	2672.5	Basalt "pink"	ALSEP site	XSB 92-12410 XSB 92-12411 DSB 92-12412 Pan 18 92-12422,23	06:03:56	LMP - And I picked up another pink one that looked like it had a lot of the plagioclase laths 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 2						
15001-15006	See EVA 3	Deep Core	ALSEP site: Deep core Recovered in EVA 3	Pan 13 87-12429,30	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.
					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.
SESC #2 15014	333.2	French Soil	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:	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. - - -

SESC #2 15014 cont.	Trench Soil	ALSEP site	DSA 88-11872 DSA 88-11873 XSA to 88-11874 south 88-11875 XSA to 88-11876 north 88-11877 Pan 14 92-12423,24

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.
- - -

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.

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 252		Trench soil	ALSEP site:	XSB 92-12417	06:04:15	LMP - Okay, Joe. The soil samples from the
15030	75.3	Reserve	Station 8	XSB 92-12418		bottom of the trench is in 252.
		fines	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		
				XSA to north 88-11875		
				XSA to north 88-11876		
				Pan 14 92-12423,24		
Bag 253			ALSEP site:	XSB 92-12417	06:04:16	
15040	113.4	Reserve	Station 8	XSB 92-12418	to	LMP - Joe, I'm going to skip sampling the - side,
		fines	Top of	DSB 92-12419	06:04:17	I'm just going to sample the top over here.
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
15043	2.8	2-4 mm		DSA 92-12441		layering.
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 south 88-11874		
				XSA to north 88-11875		
				XSA to north 88-11876		
				Pan 14 92-12423,24		

			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. (pounds)

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EVA 3 TRAVERSE TO HADLEY RILLE AND RETURN TO LM

		Deep core	ALSEP site Retrieving deep core	XS 88-11867 XS 88-11868 XS 88-11869 XS 88-11870 XS 88-11871 Pan 18 87-12429,30	06:20:22 to 06:20:36	CDR - Okay, Joe. On the drill top end goes Alpha. - - - On the bit goes Beta. - - - Golly, there's some stuff in there. Coming. Okay, Joe. On the top section goes Charlie. - - - Okay. Delta is the cap on top of the next section. - - -
15001	232.8	bottom				
15002	210.1	3 sections				
15003	223.0	together				
15004	210.6					
15005	239.1					
15006	227.9	top				
						CDR - Okay. Thank you. Okay. Cap number Echo. ... 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.
						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.
			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.

SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3 TRAVERSE TO HADLEY RILLE AND RETURN TO LM						
						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? 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? - - - 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.
			Arrive at Station 9 Scarp crater	Pan 20 at Station 9 82-11066 through 82-11092		
Bag 273		Clod, caked	Station 9 Scarp crater	XSB 82-11093 XSB 82-11094	06:21:05 to 06:21:10	CDR - I'll get a pan from the rim of Scarp. And the rim is very, very soft. My boot 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. - - -
15510	72.3	Reserve fines	Rim of Scarp crater in	XSB 82-11098 XSB 82-11099 XSA 82-11100		
15511	193.1	<1 mm		Pan 20 82-11089,90		
15512	4.9	1-2 mm				
15513	4.4	2-4 mm				
15514	1.1	4-10 mm				
15515,1-48	144.7	Total of broken clods	Probably broken from two fragments that were picked up.			

Bag 273
15510-
15515
cont.

Station 9
Scarp Crater

82-11101
through
82-11104
Boulder with
slickensides

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.
- - -
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

Pan 20
82-11090,91

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	breccia
15506	22.9	microbreccia
15507	3.9	glass bead
15508	1.4	microbreccia

15506-15508 may have broken from 15505

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.

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.

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.

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 255 15500-15508 cont.						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. - - - 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	500 mm of Rille 89-12015 through 89-12096	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. - - - 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?

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 274 15528 15529	 4.7 1531.0	 breccia basalt	Station 9A Hadley Rille	XS 82-11129 DS 82-11128 Pan 21 82-11119,20	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 pan 21)	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.

		Station 9A Hadley Rille Terrace Geologic description 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.
SCB 2 FSR "J" 15556	1542.3	Vesicular basalt	Station 9A Rille Terrace	XSB 82-11135 DSB 82-11133 DSB 32-11134 Pan 21 82-11117,18	06:21:34	LMP - Joe, I'm documenting another rock - here that looks fairly - representative of what's - on the surface here.
SCB 2 FSR "K" 15557	2518.0	Basalt	Station 9A	XSB 82-11137 DSB 82-11136 Pan 21 82-11110	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 2 fragments	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. - - -
15530	138.0	Reserve fines	(possibly broken apart	Pan 21 82-11126		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. - - -
15531	136.0	<1 mm	from one)			Okay. Let's sample this out - see these frags right on the surface here? - - -
15532	6.3	1-2 mm	chipped from			LMP - Yes, they're all the same. - - -
15533	5.4	2-4 mm	basalt			Pick one and I'll take the pictures.
15534	6.0	4-10 mm	boulder,			
15535	404.4	basalt chip	with 2			CDR - Okay. Right there. We'll do that one right there. - - -
15536	317.2	basalt chip	fragments			LMP - Get a fragment off it, you mean?
15537	1.9	basalt	collected			CDR - Yes. Uh, huh. - - -
15538	2.6	microgabbro	nearby			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.

Bag 275 15530- 15538 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	745.6	basalt	ments picked	XSA 82-11141		CC - Copy that. And out of sheer curiosity,
15546	27.8	basalt	up with	DSB 82-11138		how far back from what you would call
15547	20.1	basalt	tongs - same			the edge of the rille are the two of
15548	3.3	basalt	loc. as	Pan 21		you standing now?
			frags &	82-11126		
			soil in 275			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.
Bag 281			Station 9A	XSB 82-11143	06:21:45	CDR - ... Let's go down and get a chunk of
			2 fragments	XSB 82-11144	to	the bedrock here.
15595	237.6	Basalt chip	chipped from	DSB 82-11142	06:21:50	
15596	224.8	Basalt chip	boulder,	XSA 82-11145		LMP - Oh, you're getting the bedrock here, huh?
15597	145.7	Basalt	with 2	XSA 82-11146		
15598	135.7	Basalt	others from			CDR - Yes.
			ground	Pan 21		
			nearby	82-11126		LMP - Okay. I thought you were going to press on to the north.

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 281 15595- 15598 cont.			Station 9A Hadley Rille			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. 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 -

Bag 231
15595-
15598
cont.

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.

Station 9A
Moving back uphill to the Rover/ Layered boulder

No sample

XS 82-11148
XS 82-11149
XS 82-11150

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.

- - -

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?

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 292		Rake sample fragments	Station 9A Near Rover, down hill	XSB 82-11151 XSB 82-11152 DSB 82-11153	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?
15612-15683	873.4	basalt	a few feet	XSA 82-11154		
15684-15699	12.6	breccia with glass		XSA 82-11155		LMP - Okay.
				Pan 21 81-11123		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. 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.

Bag 282 15612- 15689 cont.			Station 9A			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. - - - 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		Comprehensive soil	Station 9A	XSB 82-11151	06:21:59	CDR - 283 for the soil.
15600	449.1	Reserve fines	Same location as rake sample	XSB 82-11152 DSB 82-11153 XSA 82-11154 XSA 82-11155	to 06:22:00	
15601	802.0	<1 mm				
15602	32.9	1-2 mm		Pan 21 82-11123		
15603	25.5	2-4 mm				
15604	21.5	4-10 mm				
15605	6.1	Basalt				
15606	10.1	Basalt				
15607	14.8	Basalt				
15608	1.2	Basalt				
15609	1.1	Basalt				
15610	1.5	Basalt				
Double Core U-09 L-14 15011 (Upper) 15010 (lower)	653.6 740.4	Drive tube	Station 9A Hadley Rille	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. - - -

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						
Double Core 15010 15011 cont.			Station 9A Hadley Rille	Pan 21 82-11123,24		... But you know, I don't know, a double core - we may find ourselves driving into bedrock if we're not careful. - - -
						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.

						- - - 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.
BSLSS FSR "L" 15555	9613.7	Basalt	Station 9A Hadley Rille Terrace	XSB 82-11164 (only photo) Pan 21 82-11124	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.
			LMP may be referring back to the vesicular basalt (15556) 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.

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 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. 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. - - -
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 - subangular, 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. - - -

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 to LM Traverse	82-11191 through 82-11195 enroute on LRV	06:22:29 to 06:22:44	
			Comments and activities pertaining to the deep core are included following earlier comments at GET 06:20:22 through 06:20:36			
SCB 2						
			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 "*" 15558	1333.3	breccia	/1		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 "*" 15555,1-38	822.6	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?
15561	112.5	<1 mm fines	Residue from SCB-2			
15562	20.6	1-2 mm				
15563	30.4	2-4 mm				
15564	50.0	4-10 mm				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.

/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.

- - -

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.

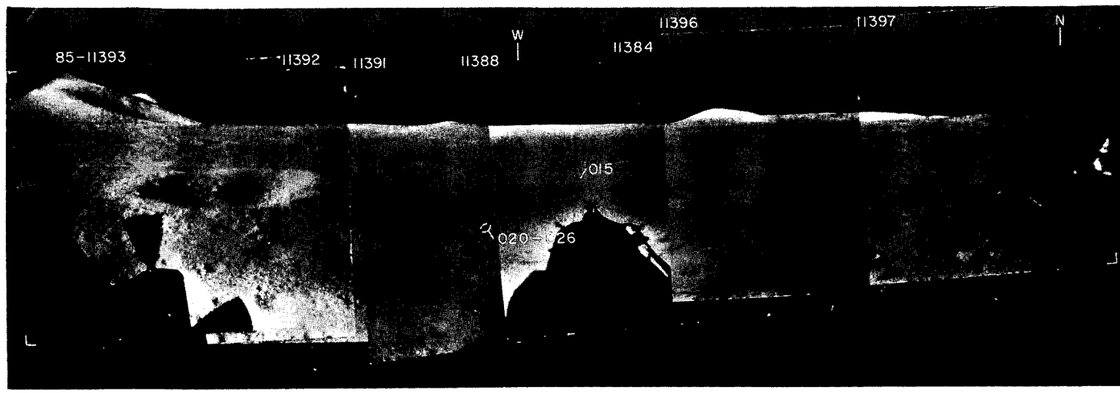
- - -

SESC - (blank) 15013 296.2 (net)	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 SESC. 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.

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

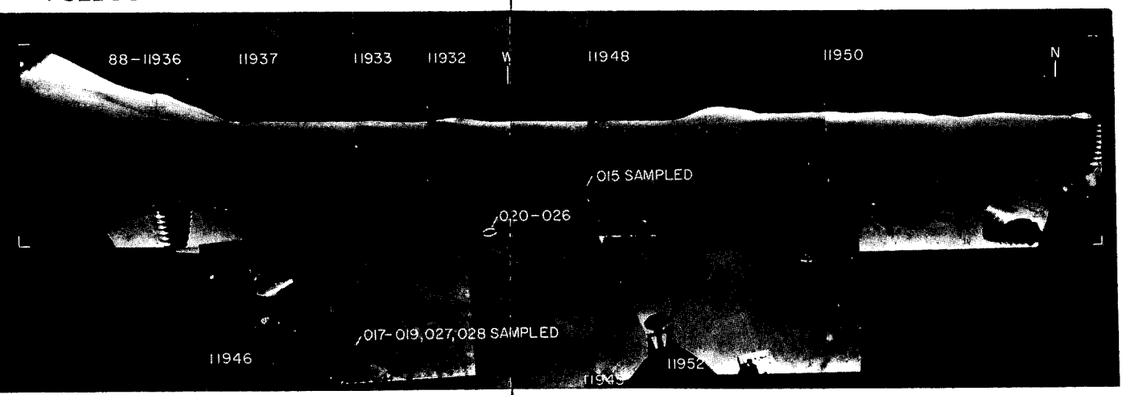
SAMPLE NUMBER	SAMPLE WEIGHT, g	SAMPLE TYPE	LOCATION & COMMENTS	LUNAR-SURFACE PHOTOGRAPHS	GET DAY:HR:MIN	CREW COMMENTS RELATING TO SAMPLES
EVA 3						
			LM closeout		06:23:13 to 06:23:54	LMP - Hey, I guess we might be able to consolidate the contents of both those bags into one. - - - But we can do that 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. LMP - You didn't put any rocks in the BSLSS bag. 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. (15555)
			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. (pounds) 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.

FOLDOUT FRAME 1



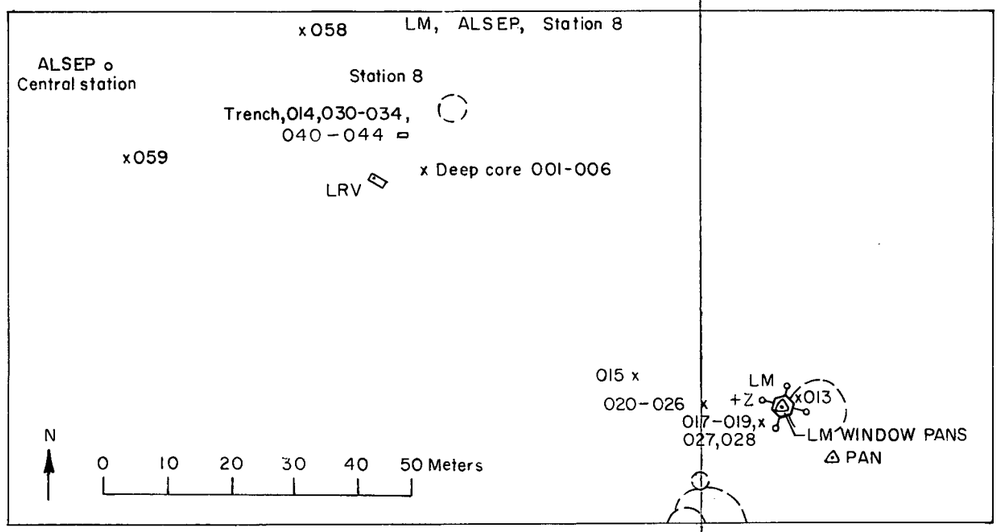
LM Window, pre-EVA I

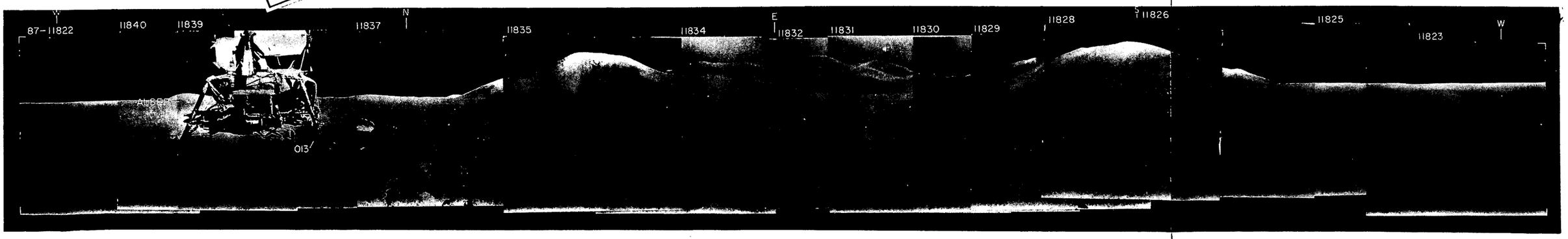
FOLDOUT FRAME 2



LM Window, post-EVA III

- x — location of samples
- 200, 206 — LRL sample numbers
- ▭ — LRV, dot shows TV camera
- (dashed) — crater rims or other topographic features
- △ — panorama station





SE of LM

Plate 1

FOLDOUT FRAME 1

FOLDOUT FRAME 2

Station 1

x	location of samples
200, 206	LRL sample numbers
▭	LRV, dot shows TV camera
◌	crater rims or other topographic features
◬	panorama station

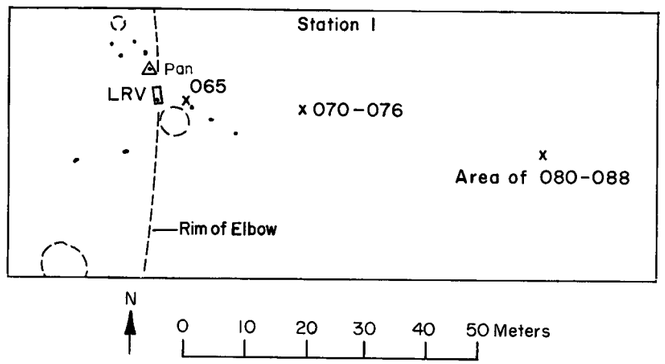
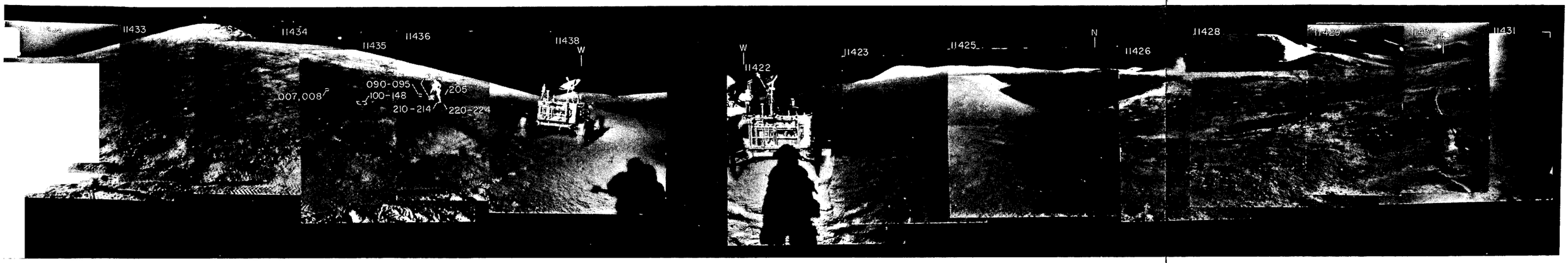


Plate 2

FOLDOUT FRAME 1

FOLDOUT FRAME 2



Station 2, pan A

Station 2, pan B

x location of samples

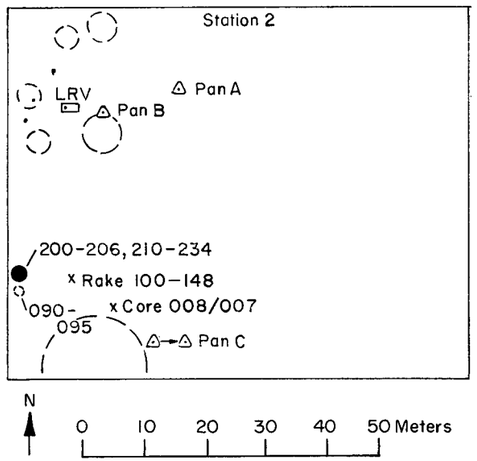
200, 206 LRL sample numbers

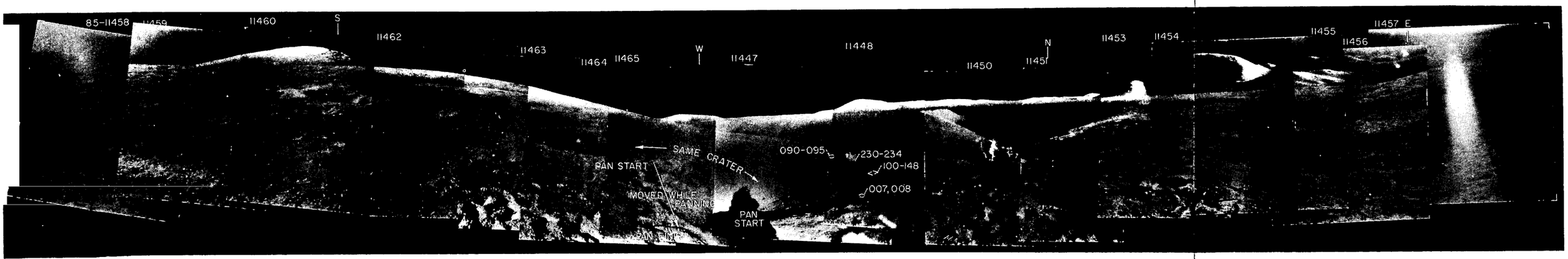
LRV, dot shows TV camera

large rocks

crater rims or other topographic features

panorama station



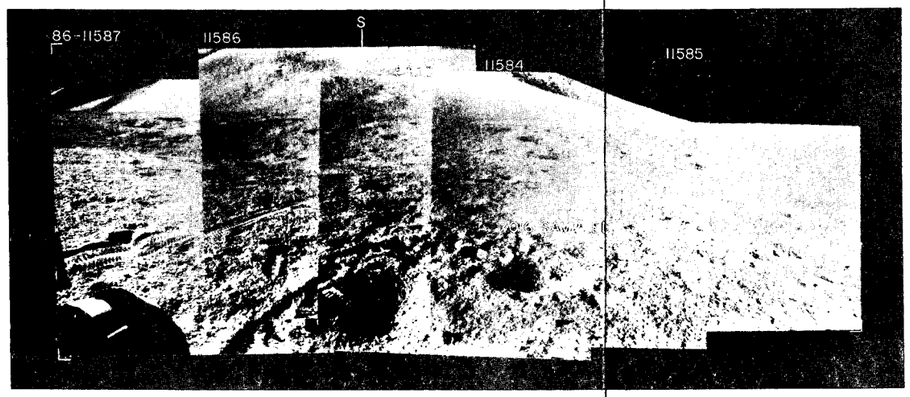


Station 2, pan C

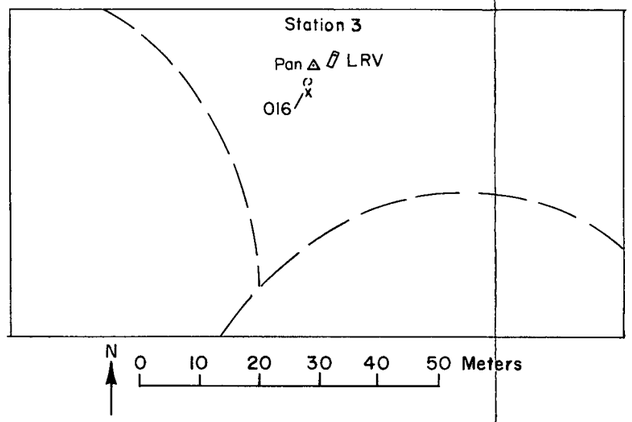
Plate 3

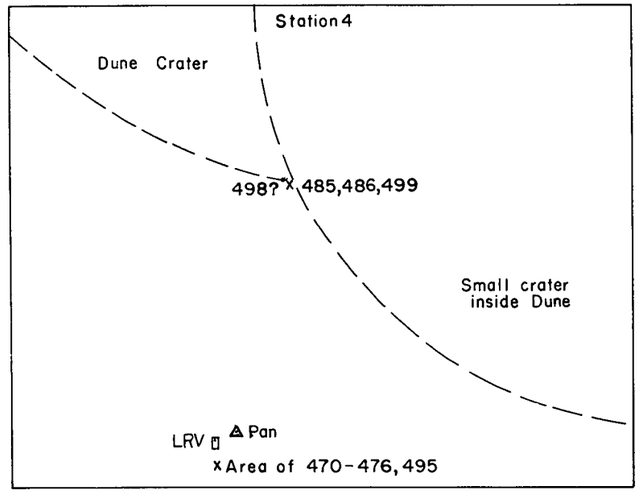
FOLDOUT FRAME 1

FOLDOUT FRAME 2



Station 3





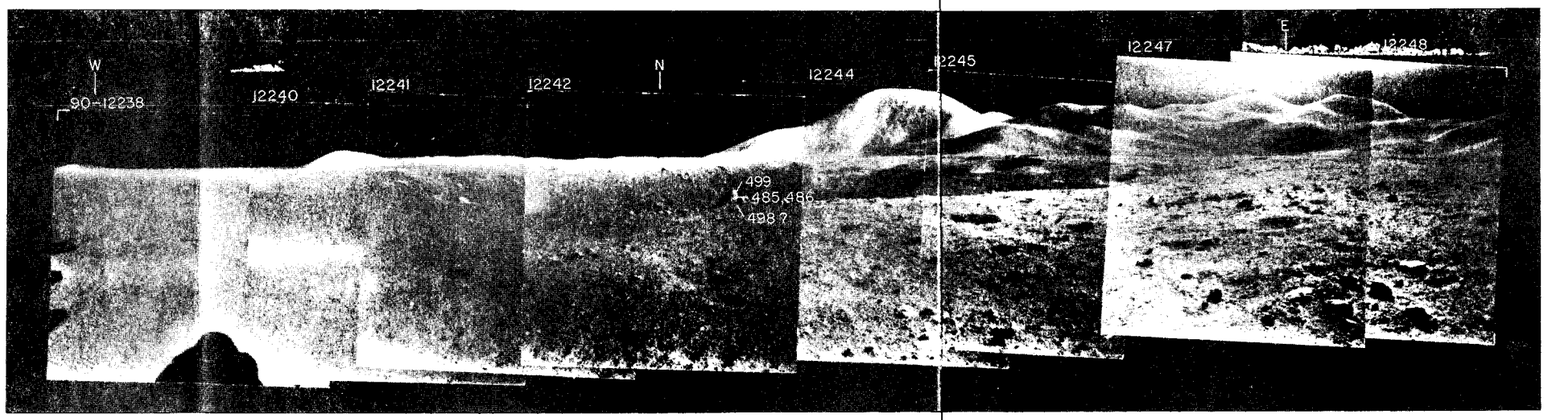
x location of samples

200, 206 LRL sample numbers

LRV, dot shows TV camera

crater rims or other topographic features

panorama station

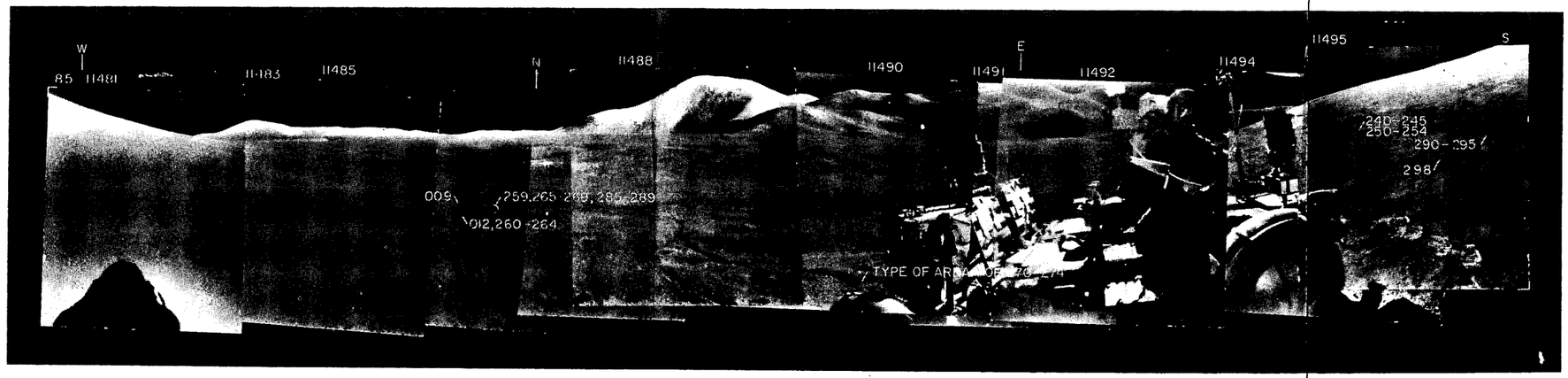


Station 4

Plate 4

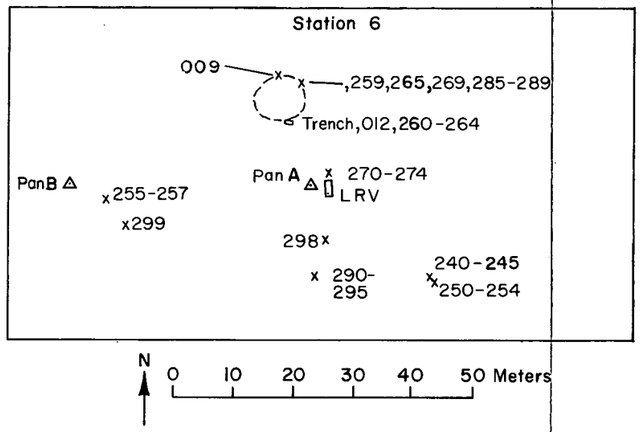
FOLDOUT FRAME 1

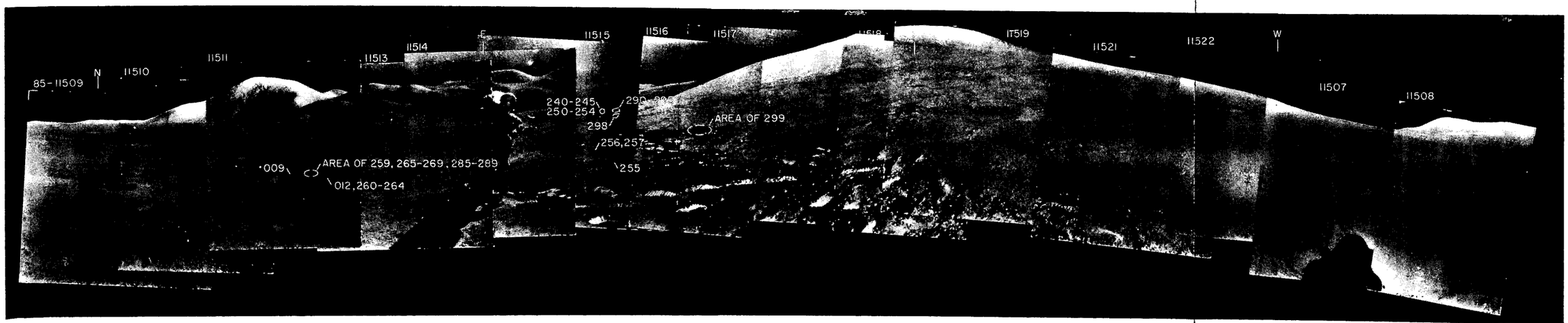
FOLDOUT FRAME 2



Station 6, pan A

x	location of samples
200, 206	LRL sample numbers
	LRV, dot shows TV camera
	crater rims or other topographic features
△	panorama station



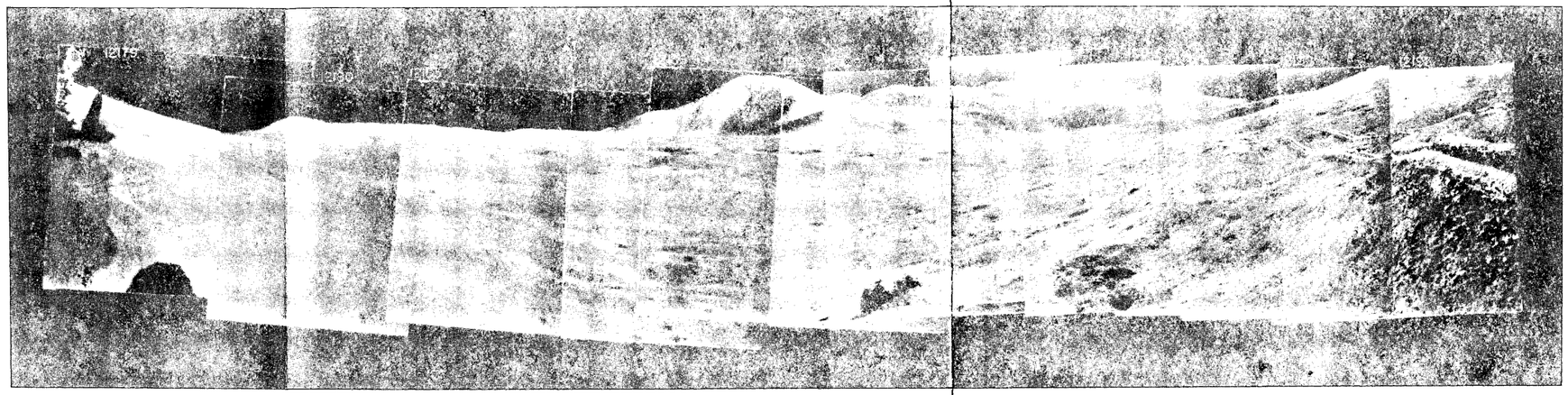


Station 6, pan B

Plate 5

FOLDOUT FRAME 1

FOLDOUT FRAME 2



Station 6a

x location of samples

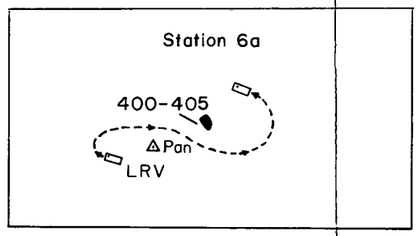
200, 206 LRL sample numbers

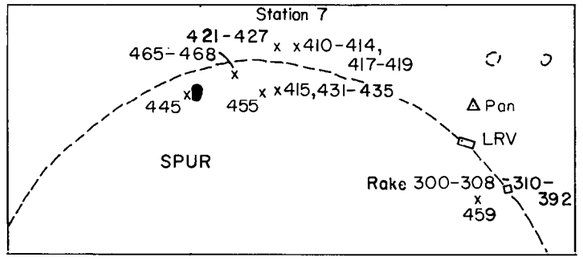
LRV, dot shows TV camera

large rocks

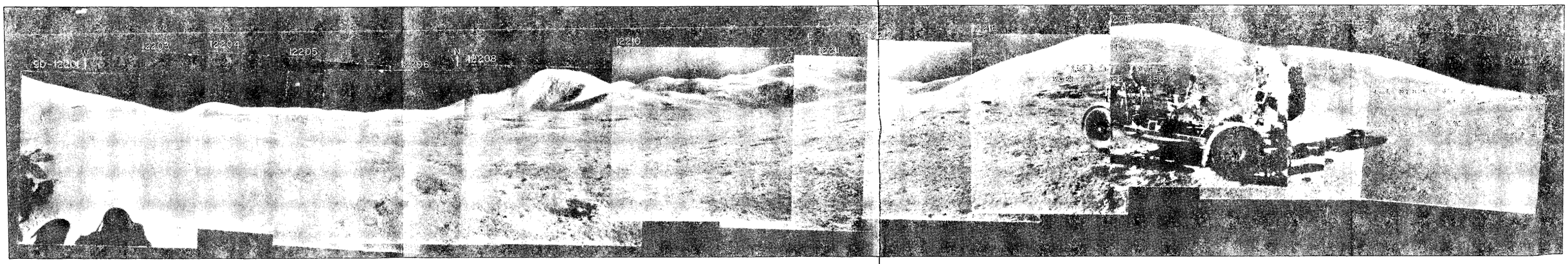
crater rims or other topographic features

panorama station





N 0 10 20 30 40 50 Meters

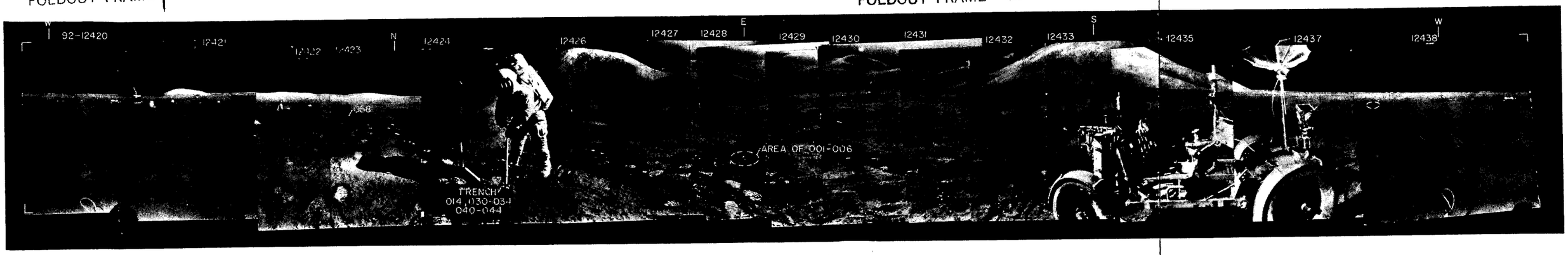


Station 7

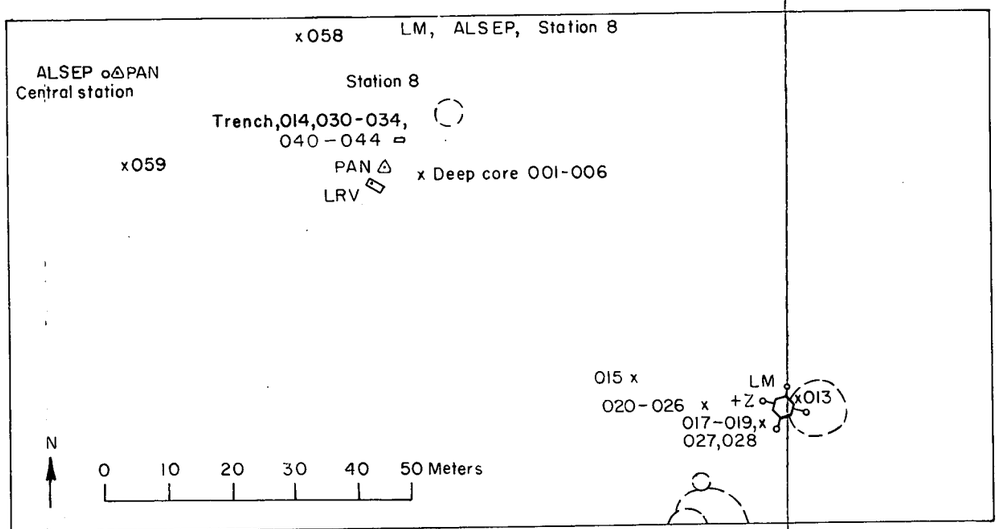
Plate 6

FOLDOUT FRAME 1

FOLDOUT FRAME 2



Station 8



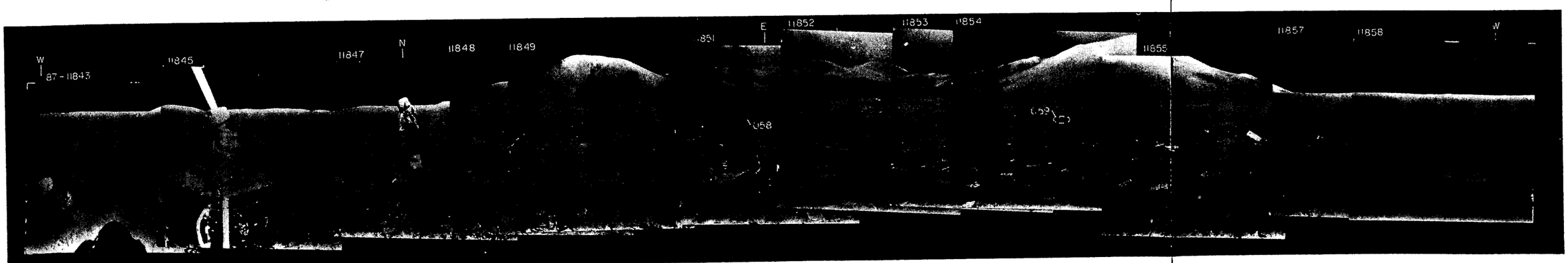
x location of samples

200, 206 LRL sample numbers

LRV, dot shows TV camera

crater rims or other topographic features

△ panorama station

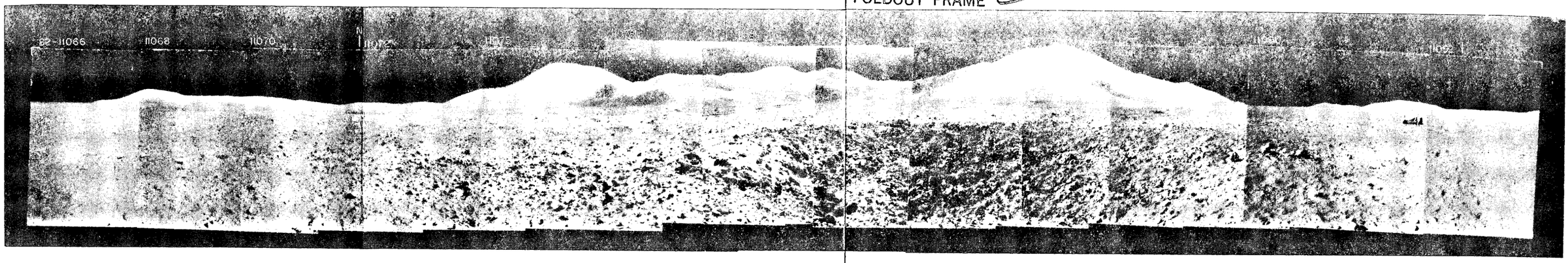


ALSEP

Plate 7

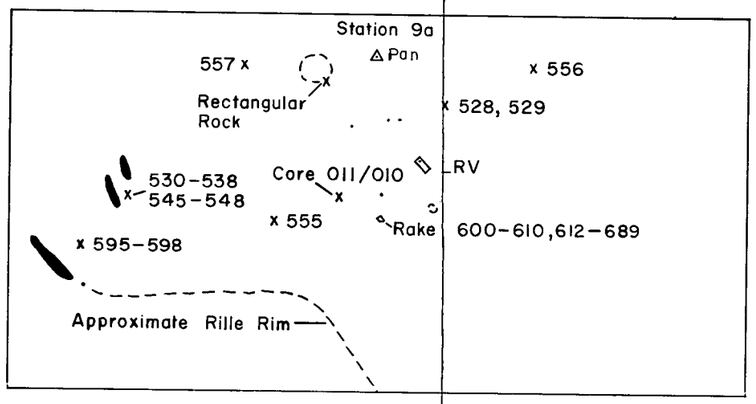
FOLDOUT FRAME 1

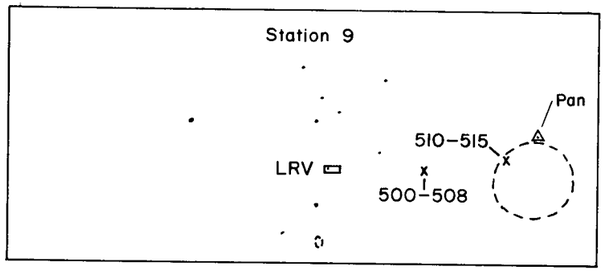
FOLDOUT FRAME 2

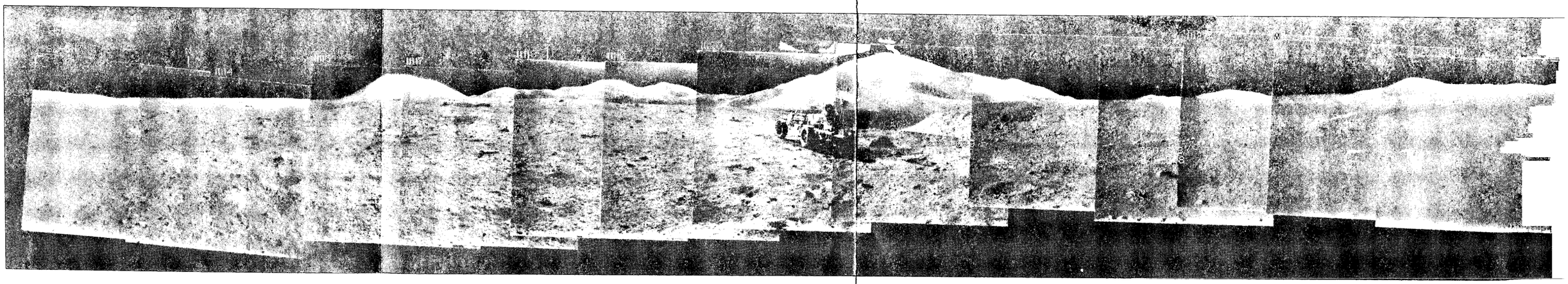


Station 9

x	location of samples
200, 206	LRL sample numbers
	LRV, dot shows TV camera
	large rocks
	crater rims or other topographic features
▲	panorama station







Station 9a

Plate 8