

Description, classification and inventory of 113
Apollo 17 rake samples from stations 1A, 2, 7 and 8

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Abstract

One hundred thirteen Apollo 17 rake samples ranging in weight from 0.77 to 577.8 g from stations 1A, 2, 7, and 8 were studied macroscopically and under the stereomicroscope while still in the storage cabinets of the Lunar Receiving Laboratory, Houston, Texas. The rocks are described and classified into 8 groups, namely mare basalt (60); mare basalt breccia, agglutinated (1); anorthosite, cataclastic (1); anorthositic norite or troctolite (1); microbreccia (43); green glassy rock (probably melted breccia) (1); agglutinate (1); and soil clod (5). The mare basalts were subdivided on the basis of grain size into very fine (2), fine (21), fine to medium (1), medium (19), medium to coarse (1), and coarse (16) mare basalts. Microbreccia subdivision was made on the basis of the degree of coherence of their matrices into coherent-matrix breccias (41) and friable-matrix microbreccias (2). Soil clods also vary in their consistency and were grouped into friable soil clods (2) and soil clods transitional to friable-matrix microbreccias (3). Classification of individual rocks is often difficult because (1) their study was limited to stereomicroscopy; (2) some are partially covered by fine dust which makes recognition of textures and minerals difficult; and (3) they grade from one type into the other. Therefore, this classification will have to be modified after detailed microscopic, electron microprobe, and chemical study.

1. Introduction

In the present report, descriptions and classifications of 113 Apollo 17 rake samples from stations 1A, 2, 7, and 8 are given. The purpose of this study is to arrive at a preliminary classification of Apollo 17 rake samples, based on macroscopic and stereomicroscopic examination of the rocks while still in the storage cabinets of the Lunar Receiving Laboratory, Houston, Texas. This preliminary classification has several purposes. First, it aided us in selecting 54 representative samples from the 113 total rake samples for our mineralogic, petrologic, bulk chemical (via broad beam electron microprobe and neutron activation analysis*), mineral chemical (via focused beam electron microprobe analysis), and trace element (via neutron activation analysis) studies. Second, it may serve as a petrologic basis for allocating rake samples to other Principal Investigators for other studies, such as age dating. It is also hoped that it may aid these investigators in interpreting their data before detailed mineralogic and petrologic data are available.

The classification proposed here is necessarily preliminary. The difficulties encountered in establishing the present preliminary classification results from a number of limitations. First, examination was restricted to stereomicroscopy of the samples while still in the storage cabinets in Houston. Second, some of the samples are partially

* Neutron activation analysis will be carried out on the same sample for which we will prepare electron microprobe sections in collaboration with G. Goles and R. A. Schmitt.

covered by fine dust which makes identification of textures and minerals difficult, particularly in view of the fact that the samples could not be altered in any way (e.g. broken). Third, rocks sometimes grade from one type into the other. Hence, the preliminary classification proposed here will have to be modified as more detailed mineralogic, petrologic and compositional data become available.

2. Sample localities

The samples described here are from four localities at the Apollo 17 landing site (Fig. 1) namely stations 1A (71000 numbering sequence), 2 (72000 numbering sequence), 7 (77000 numbering sequence), and 8 (78000 numbering sequence). Of the 42 samples collected at station 1A, all are mare basalts. All but one of the 12 station 2 samples are coherent-matrix microbreccias; the exception is a cataclastic anorthosite. Station 7 yielded 9 microbreccias and 3 mare basalts, and station 8 yielded 16 mare basalts, 14 microbreccias, 5 soil clods, 1 anorthosite norite or troctolite, 1 green glassy rock, and 1 agglutinate (see section 4 "Numerical sample inventory and sample index").

3. Classification

3.1 General characterization

The 113 rake samples were classified on the basis of macroscopic and stereomicroscopic examination while still in the storage cabinets at the Lunar Receiving Laboratory, Houston, Texas. On the basis of texture and mineral content, the Apollo 17 rake samples were classified into

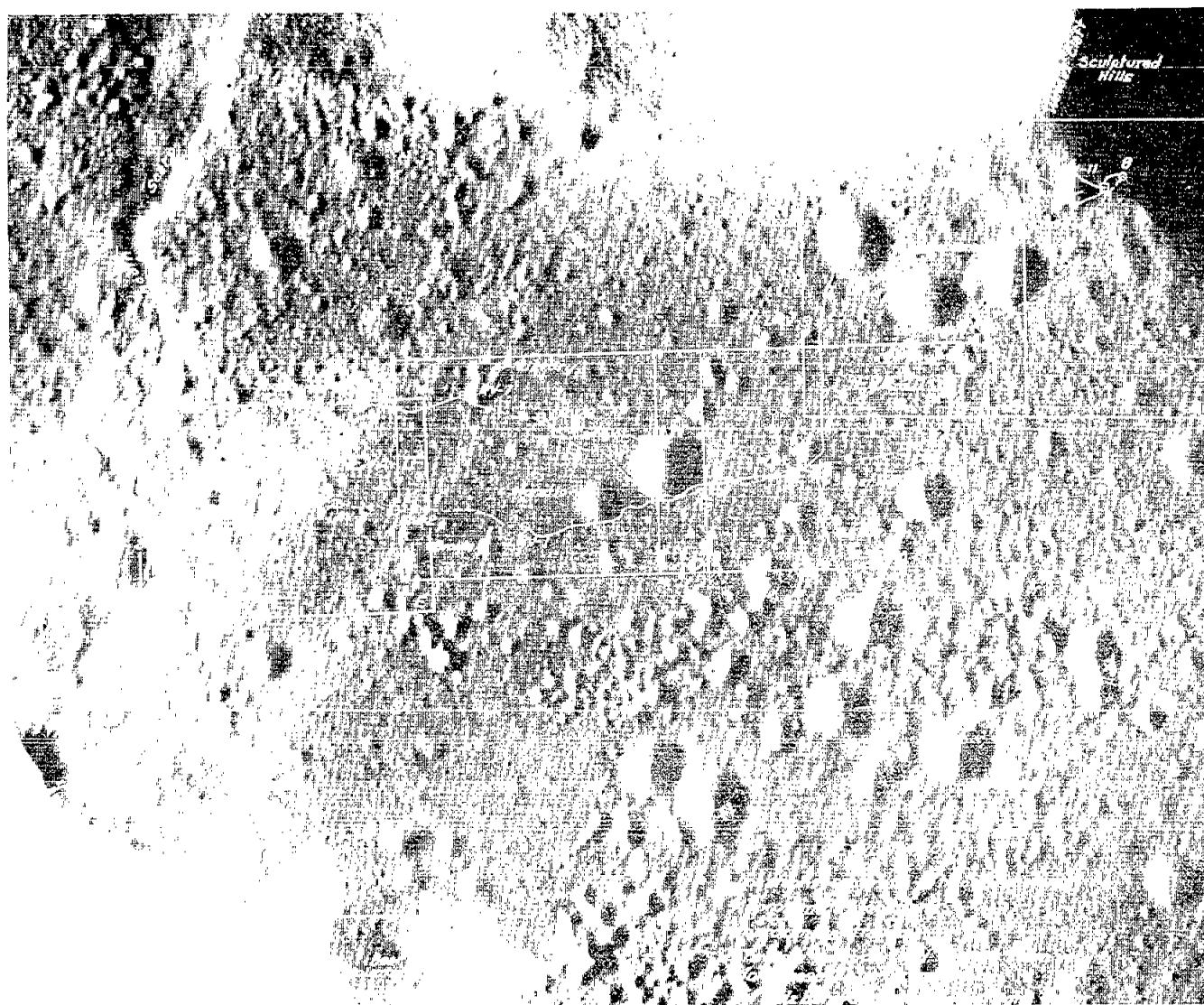


Figure 1. Map of EVA Traverse and Sample Collection Stations. (From USGS IR 72. Lettered boxes show boundaries of the detailed traverse maps that appear in the USGS IR 72 as Figures 4a through 4f).

8 groups, namely mare basalt (60); mare basalt breccia, agglutinated (1); anorthosite, cataclastic (1); anorthositic norite or troctolite (1); microbreccia (43); green glassy rock (probably melted breccia) (1); agglutinate (1); and soil clod (5). The mare basalts were subdivided on the basis of grain size into very fine (2), fine (21), fine to medium (1), medium (19), medium to coarse (1), and coarse (16) mare basalts. This classification will be modified based on more quantitative mineralogic-petrologic-chemical parameters as laboratory studies of these rocks progress. Microbreccia subdivision was made on the basis of the degree of coherence of their matrices into coherent-matrix microbreccias (41) and friable-matrix microbreccias (2). Soil clods also vary in their consistency and were grouped into friable soil clods (2) and soil clods transitional to friable-matrix microbreccias (3).

3.1.1 Mare basalt (some olivine-rich) (60)

3.1.1.1 Very fine mare basalt (2).

78586,0; 78587,0.

These rocks are grayish black to medium dark gray in color, coherent, and very fine-grained. They have very few vugs and appear rich in opaques. However, the rocks are too fine-grained to allow estimates of mineral abundances.

3.1.1.2 Fine mare basalt (21)

71526,0; 71527,0; 71528,0; 71537,0; 71538,0; 71545,0;

71546,0; 71569,0; 71575,0; 71576,0; 71577,0; 71578,0;

71589,0; 71596,0; 78528,0; 78588,0; 78589,0; 78595,0;

78596,0; 78598,0; 78599,0.

Fine mare basalts are grayish black to dark gray in color and show varying amounts of vugs and vesicles. Sometimes, vesicles appear to be lined by plates of ilmenite (71546,0, 71569,0). Dominant grain size is less than 0.1 mm. Major minerals are plagioclase (~25-30%), pyroxene (~60%), and ilmenite (~10%), and sometimes mafic silicates (possibly olivine) (~2-5%).

3.1.1.3 Fine to medium mare basalt (1)

78569,0.

This rock is medium dark gray in color and the dominant grain size is about 0.1 mm. Major minerals are plagioclase (~30%), pyroxene (~60%), and ilmenite (~10%).

3.1.1.4 Medium mare basalt (19)

71507,0; 71508,0; 71525,0; 71529,0; 71535,0; 71539,0;

71547,0; 71548,0; 71549,0; 71555,0; 71558,0; 71579,0;

71585,0; 71586,0; 71587,0; 71588,0; 71595,0; 78579,0;

78597,0.

Medium mare basalts are medium dark gray to medium gray to dark gray or dark brownish gray in color and exhibit varying amounts of vugs and vesicles, some of which are sometimes lined by what appears to be ilmenite. Some vesicles in 71586,0, in addition to ilmenite, have long needles of what may be pyroxene. The dominant grain sizes of these rocks range from ~0.1-0.3 mm, and that of ilmenite near vugs in 71587,0 may be as large as 0.5 mm. Isolated olivine grains in 78579,0 reach sizes up to ~0.7 mm in longest dimension. Major minerals are

plagioclase (~20-30%), pyroxene (~55-60%), ilmenite (~10-20%), and sometimes a mafic mineral, possibly olivine (2-5%).

3.1.1.5 Medium to coarse mare basalt (1)

77516,0.

Described in detail in "Lunar Sample Information Catalog, Apollo 17", L.B. Johnson Space Center, Houston, Texas, April 1973 (pp. 373-374).

3.1.1.6 Coarse mare basalt (16)

71509,0; 71536,0; 71556,0; 71557,0; 71559,0; 71565,0;
71566,0; 71567,0; 71568,0; 71597,0; 77535,0; 77536,0;
78575,0; 78576,0; 78577,0; 78578,0.

Coarse mare basalts are dark brownish gray to brownish gray to medium dark gray to medium gray to dark gray to olivé gray in appearance and have varying amounts of vugs and vesicles, sometimes with crystals (pyroxene) projecting into them. These rocks are coherent to friable and have dominant grain size ranging from ~0.3-0.8 mm. In 71597,0, some olivine crystals reach longest dimensions of over 1 mm. Major minerals are plagioclase (~30%), pyroxene (~55-60%), ilmenite (~10%), and sometimes olivine (~1-5%). One rock (71597,0) is noted for its high olivine content of ~25%.

3.1.2 Mare basalt breccia, agglutinated (1)

71515,0

This rock consists of mare basalt clasts and soil derived from mare basalt, agglutinated by dark glass.

3.1.3 Anorthosite, cataclastic (1)

72559,0

This specimen is light olive gray in color and consists of >99% plagioclase, ranging in grain size from <0.1- >2.0 mm. It has the texture of a microbreccia and is probably a cataclastic anorthosite.

3.1.4 Anorthositic norite or troctolite (1)

78527,0

The sample is greenish-gray in color, coherent, and has few cavities. Its grain size ranges from 0.2-0.5 mm. It consists of ~75% plagioclase and 25% of a greenish to dark phase, possibly olivine.

3.1.5 Microbreccia (43)

3.1.5.1. Coherent-matrix microbreccia (41)

72505,0; 72535,0; 72536,0; 72537,0; 72538,0; 72539,0;
72545,0; 72546,0; 72547,0; 72548,0; 72549,0; 72555,0;
72556,0; 72557,0; 72558,0; 72705,0; 72735,0; 72736,0;
72737,0; 72738,0; 77515,0; 77517,0; 77518,0; 77519,0;
77526,0; 77537,0; 77538,0; 77539,0; 77545,0; 78535,0;
78536,0; 73537,0; 78538,0; 78539,0; 78545,0; 78546,0;
78556,0; 78557,0; 78565,0; 78567,0; 78568,0.

Coherent-matrix microbreccias are medium gray to medium dark gray to dark gray in color. They are coherent and have only few vugs. The matrix usually makes up ~87-95% of the rocks, with clasts of plagioclase and anorthosite (~2-10%) and mafic silicates (~1-5%) embedded into the matrix. A reddish phase, possibly spinel, was also observed (<1%, 72538,0). Lithic clasts that are grayish in color are also observed occasionally.

3.1.5.2 Friable-matrix microbreccia (2)

78547,0; 78555,0

These rocks are friable to coherent and medium dark gray to brownish gray in color. They consist of ~85-90% matrix, with clasts of plagioclase, lithic fragments (both anorthosites and possibly mare basalt), and mafic silicates embedded into the matrix.

3.1.6 Green glassy rock (probably melted breccia) (1)

78526,0

This rock is dark greenish gray in color, coherent, and has a microbreccia texture. It is possibly a melted breccia.

3.1.7 Agglutinate (1)

78525,0

This specimen is medium dark gray in color, has numerous large vesicles, and consists of ~50% black glass and ~50% dark gray, coherent microbreccia. Apparently, the rock is an agglutinated microbreccia.

3.1.8 Soil clod

3.1.8.1 Soil clod, friable (2)

78548,0; 78566,0

Soil clods are medium gray to medium dark gray in color and very friable. They consist of ~98-99% very fine-grained matrix into which are embedded white plagioclase clasts (~1%) and a few glass spherules.

3.1.8.2 Soil clod, transitional to friable-matrix microbreccia (3).

78549,0; 78558,0; 78559,0.

These soil clods are medium dark gray to dark gray to dark brownish gray in color, friable to slightly coherent. The matrix makes up ~96-100% of the rock, with few lithic clasts, plagioclase clasts, and glass spherules. Apparently, these rocks are soil clods of somewhat more coherent variety, transitional to friable-matrix microbreccias.

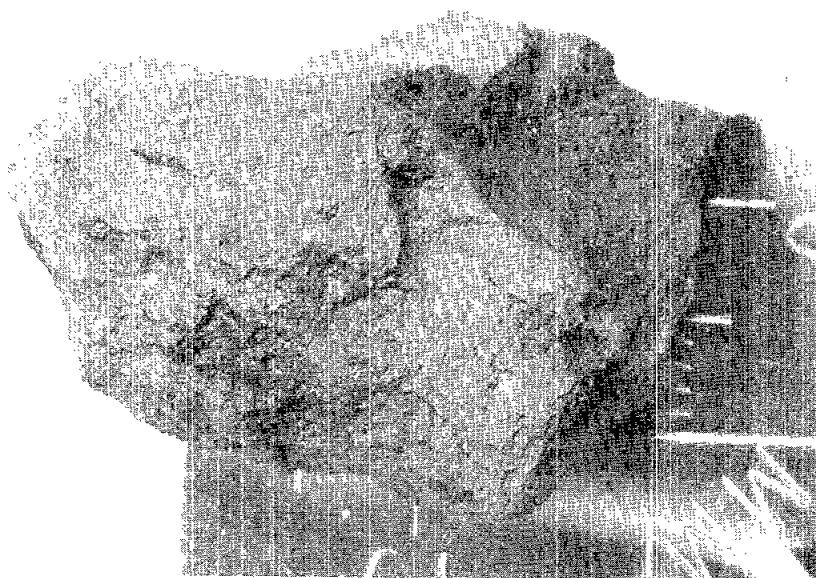
3.2 Rock description

3.2.1 Mare basalt (some olivine-rich)

3.2.1.1 Very fine mare basalt

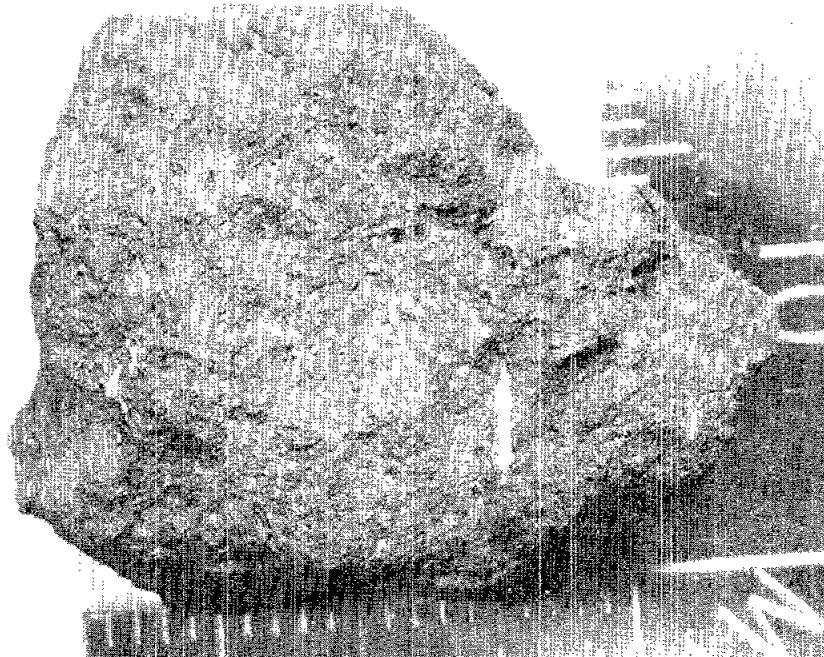
78586,0

ROCK TYPE: Mare basalt, very fine
WEIGHT: 10.73 g
DIMENSIONS: 2.6 x 1.8 x 1.5 cm
COLOR: Grayish black (N2)
SHAPE: Subangular
VARIABILITY: None
COHERENCE: Intergranular - Coherent
 Fracturing - Numerous
FABRIC/TEXTURE: Isotropic
CAVITIES: None
SURFACE: Granulated
ZAP PITS: None
SPECIAL FEATURES: Rock is very fine-grained and rich in opaques.
Abundance of phases can not be estimated.



78587,0

ROCK TYPE: Mare basalt, very fine
WEIGHT: 11.48 g
DIMENSIONS: 2.5 x 2.0 x 1.2 cm
COLOR: Medium dark gray (N⁴)
SHAPE: Subangular
VARIABILITY: None
COHERENCE: Intergranular - Coherent
Fracturing - Few, non-penetrative
FABRIC/TEXTURE: Isotropic
CAVITIES: Very few vugs
SURFACE: Granulated
ZAP PITS: Few
SPECIAL FEATURES: Rock is very fine-grained and rich in opaques.
Abundance of phases can not be estimated.



71526,0

ROCK TYPE: Mare basalt, fine

WEIGHT: 12.91 g

DIMENSIONS: 2.4 x 1.9 x 1.5 cm

COLOR: Dark gray (N3)

SHAPE: Rounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

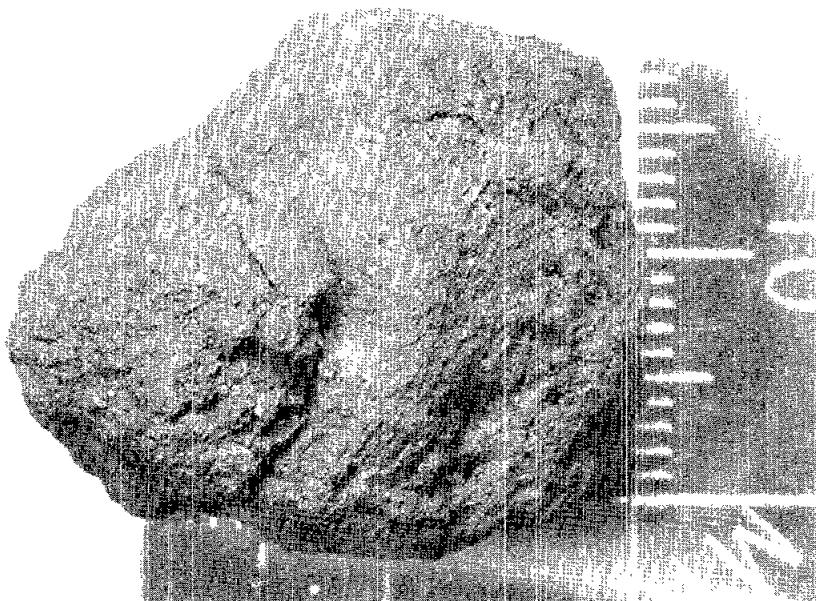
FABRIC/TEXTURE: Isotropic

CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITS: Few

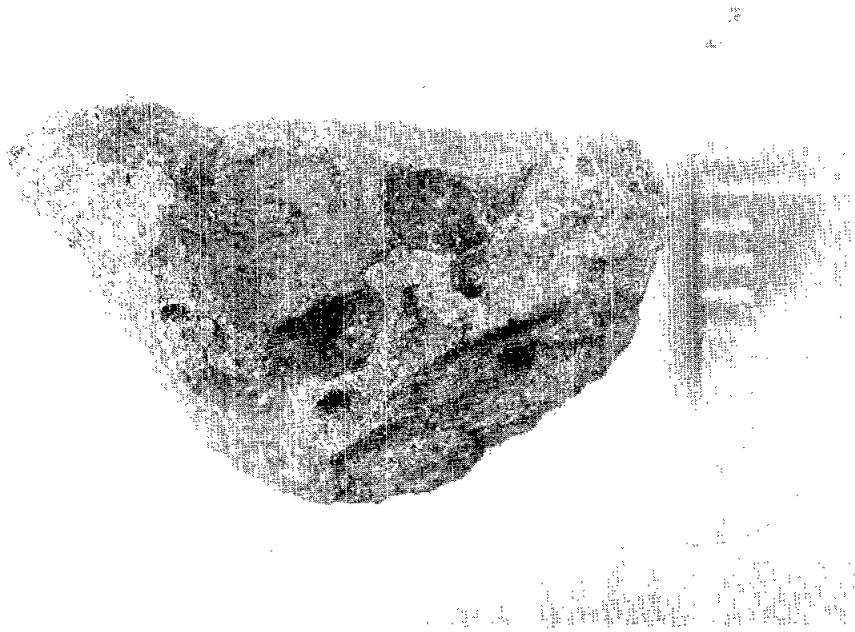
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	< 0.1			
Pyrox	Reddish-brown	60	Irreg	< 0.1			
Ilm	Black	10	Irreg	< 0.1			



71527,0

ROCK TYPE: Mare basalt, fine
 WEIGHT: 2.186 g
 DIMENSIONS: 1.6 x 1.0 x 0.8 cm
 COLOR: Dark gray (N3)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - None
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 5% vesicles
 SURFACE: Granulated
 ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	<0.1		
Pyrox	Reddish- brown	59	Irreg- prism	<0.1		
IIm	Black	10	Irreg- tab	<0.1		
Maf sil	Yellow- green	1	Irreg	<0.1		Olivine



71528,0

ROCK TYPE: Mare basalt, fine

WEIGHT: 11.25 g

DIMENSIONS: 3.1 x 2.0 x 1.3 cm

COLOR: Dark gray (N3)

SHAPE: 11.25

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - None

FABRIC/TEXTURE: Isotropic

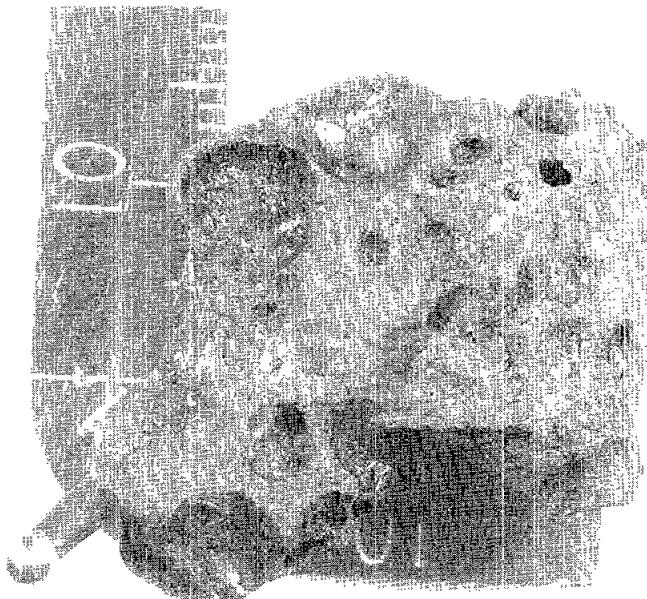
CAVITIES: 15% vesicles

SURFACE: Granulated

ZAP PITS: Few

SPECIAL FEATURES: Relatively large vesicles (0.5 cm) lined with plates of ilmenite and some long needles (probably pyroxene).

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	
					<u>RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	<0.1		
Pyrox	Reddish- brown	60	Irreg-	<0.1		
Ilm	Black	10	Irreg- tab	<0.1		



71537,0

ROCK TYPE: Mare basalt, fine

WEIGHT: 12.25 g

DIMENSIONS: 2.8 x 1.9 x 1.6 cm

COLOR: Dark gray (N3)

SHAPE: Blocky - subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

FABRIC/TEXTURE: Isotropic

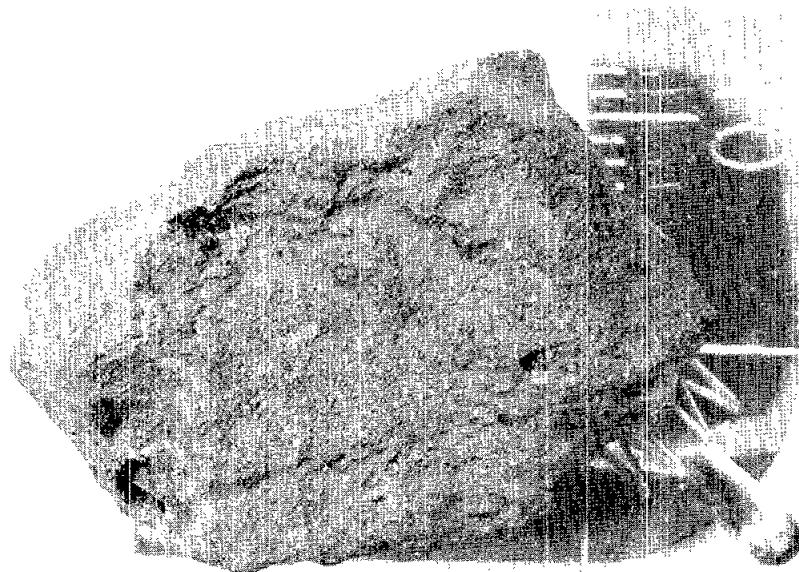
CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITS: Few

SPECIAL FEATURES: Covered with dust making description difficult.

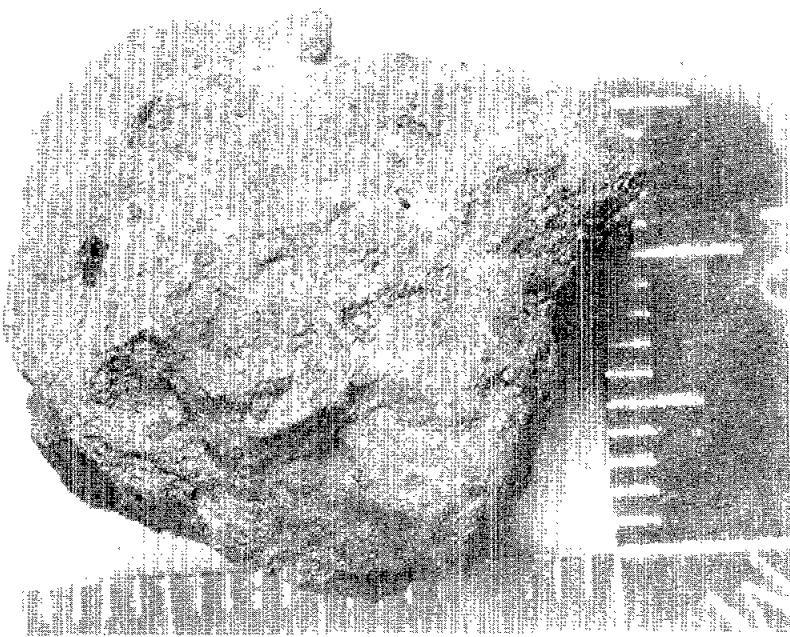
<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>% OF</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag	White	30	Irreg	<0.1		
Pyrox	Reddish	59	Irreg	<0.1		
Ilm	Black	10	Irreg	<0.1		
Maf sil	Yellow-green	1	Irreg	0.5		Olivine



71538,0

ROCK TYPE: Mare basalt, fine
 WEIGHT: 8.038 g
 DIMENSIONS: 1.8 x 1.5 x 1.5 cm
 COLOR: Grayish-black (N2)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - None
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 2% vugs
 SURFACE: Granulated
 ZAP PITS: Few

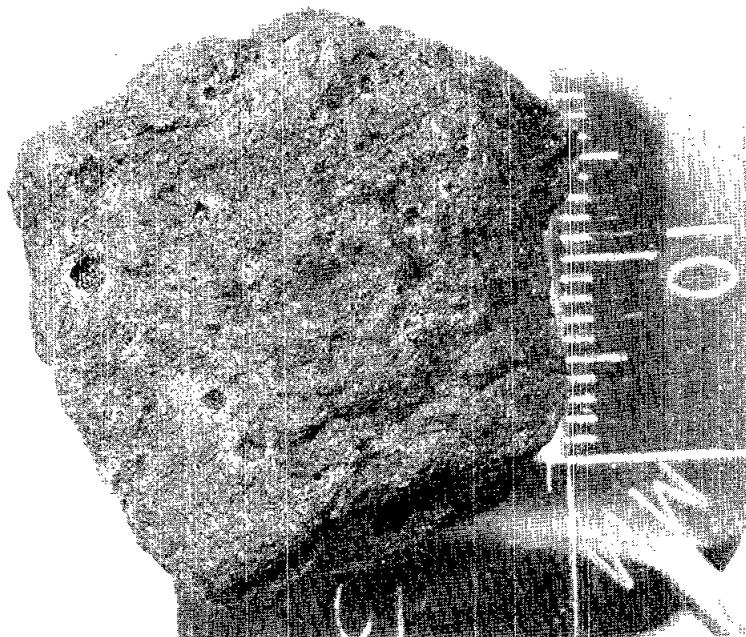
COMPONENT	COLOR	% OF ROCK	SHAPE	SIZE (mm)		NOTES
				DOM.	RANGE	
Plag	White	30	Irreg	< 0.1		
Pyrox	Reddish- brown	58	Irreg	< 0.1		
Ilm	Black	10	Irreg	< 0.1		
Maf sil	Yellow- green	2	Irreg	< 0.1		Olivine



71545,0

ROCK TYPE: Mare basalt, fine
 WEIGHT: 17.26 g
 DIMENSIONS: 2.8 x 2.7 x 1.6 cm
 COLOR: Dark gray (N3)
 SHAPE: Subrounded
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - Few, non-penetrative
 FABRIC/TEXTURE: Isotropic
 CAVITIES: None
 SURFACE: Granulated
 ZAP PITS: Few to many

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm.)</u>	<u>NOTES</u>
Plag	White	30	Irreg	<0.1		
Pyrox	Reddish- brown	58	Irreg	<0.1		
IIm	Black	10	Irreg	<0.1		
Maf sil	Yellow- green	2	Irreg	<0.1		Olivine



71546,0

ROCK TYPE: Mare basalt, fine

WEIGHT: 150.7 g

DIMENSIONS: 6.0 x 4.4 x 3.3 cm

COLOR: Dark gray (N3)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

FABRIC/TEXTURE: Isotropic

CAVITIES: 5% vugs, 2% vesicles

SURFACE: Granulated

ZAP PITS: None

SPECIAL FEATURES: Vesicles are lined with plates of ilmenite.

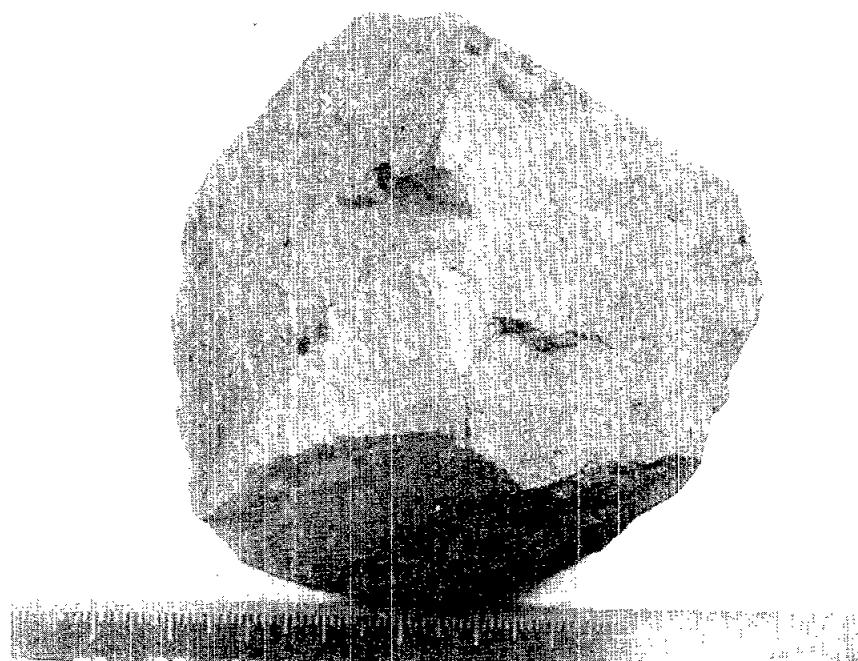
COMPONENT	COLOR	ROCK	SHAPE	% OF	SIZE (mm)	NOTES
				DOM.		
Plag	White	30		<0.1		
Pyrox	Reddish	60		<0.1		
Ilm	Black	10		<0.1		



71569,0

ROCK TYPE: Mare basalt, fine
 WEIGHT: 289.6 g
 DIMENSIONS: 8.3 x 7.5 x 4.1 cm
 COLOR: Dark gray (N3)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - None
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 1% vugs, 1% vesicles
 SURFACE: Granulated
 ZAP PITS: Few
 SPECIAL FEATURES: Vesicles lined with ilmenite.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm.)</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	<0.1			
Pyrox	Reddish- brown	60	Irreg	<0.1			
Ilm	Black	10	Irreg	<0.1			



71575,0

ROCK TYPE: Mare basalt, fine

WEIGHT: 2.113 g

DIMENSIONS: Two pieces: (1) 1.4 x 0.4 x 1.1 cm
(2) 1.4 x 1.1 x 0.4 cm

COLOR: Dark gray (N3)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - Few

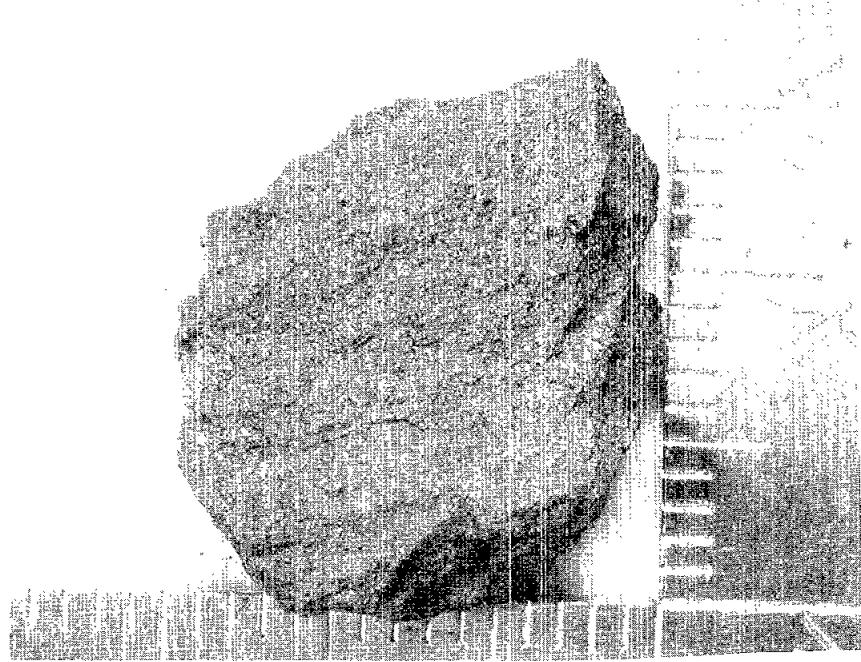
FABRIC/TEXTURE: Isotropic

CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITTS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	<0.1		
Pyrox	Reddish-brown	60	Irreg	<0.1		
Ilm	Black	10	Irreg	<0.1		



71576,0

ROCK TYPE: Mare basalt, fine

WEIGHT: 23.54 g

DIMENSIONS: 3.2 x 2.5 x 1.8 cm

COLOR: Dark gray (N3)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

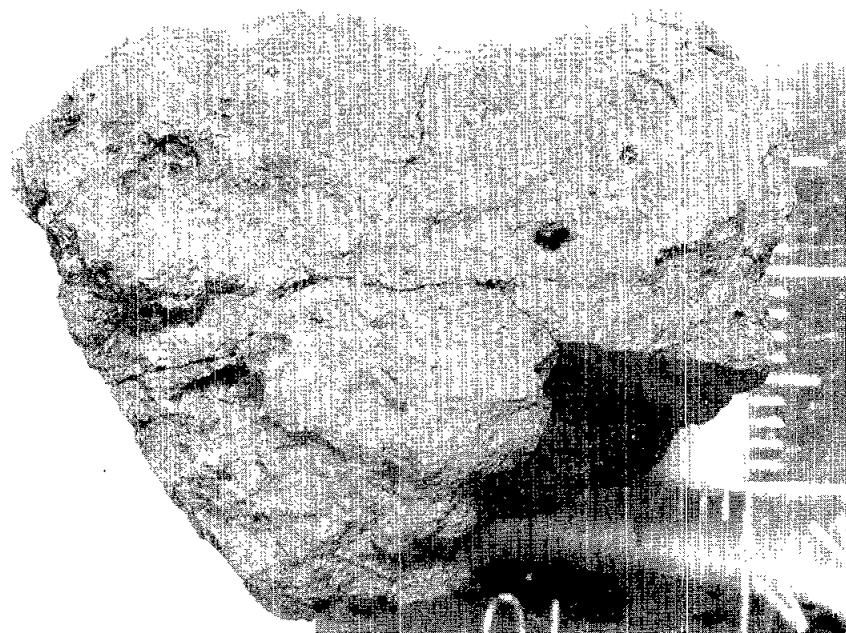
FABRIC/TEXTURE: Isotropic

CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	≤ 0.1		
Pyrox	Reddish- brown	59	Irreg- prism	≤ 0.1		
IIm	Black	10	Irreg- tab	≤ 0.1	0.2	
Maf sil	Yellow- green	1	Irreg			Olivine



71577,0

ROCK TYPE: Mare basalt, fine

WEIGHT: 234.7 g

DIMENSIONS: 4.9 x 4.8 x 4.7 cm

COLOR: Dark gray (N3)

SHAPE:

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - None

FABRIC/TEXTURE: Isotropic

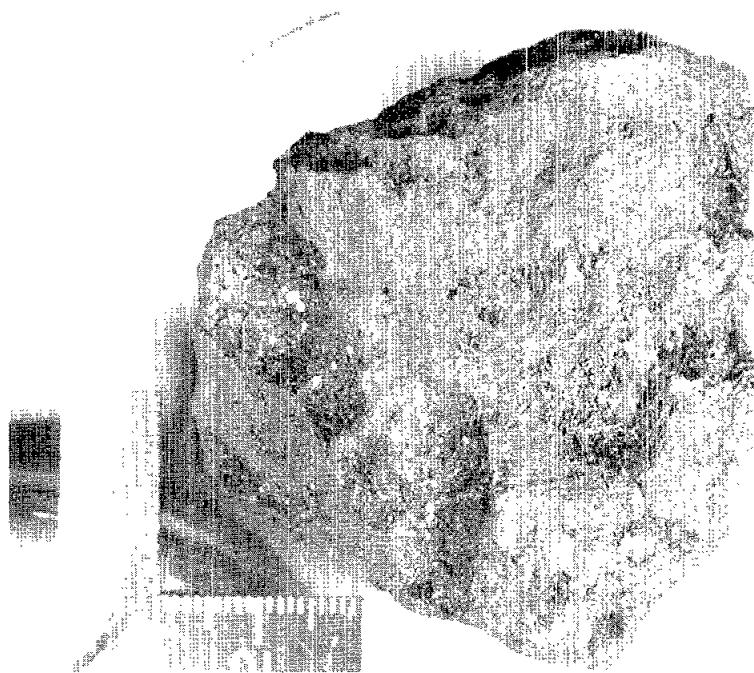
CAVITIES: 8% vugs (up to 2 cm long)

SURFACE: Granulated

ZAP PITs: Few

SPECIAL FEATURES: Vugs lined with ilmenite.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>% OF</u>	<u>RANGE</u>	
Plag	White	30	Irreg	<0.1		
Pyrox	Reddish- brcwn	59	Irreg	<0.1		
Ilm	Black	10	Irreg	<0.1		
Maf sil	Yellow- green	1	Irreg	<0.1		Olivine



71578,0

ROCK TYPE: Mare basalt, fine

WEIGHT: 353.9 g

DIMENSIONS: 8.9 x 6.8 x 4.7 cm

COLOR: Medium dark gray (N4)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

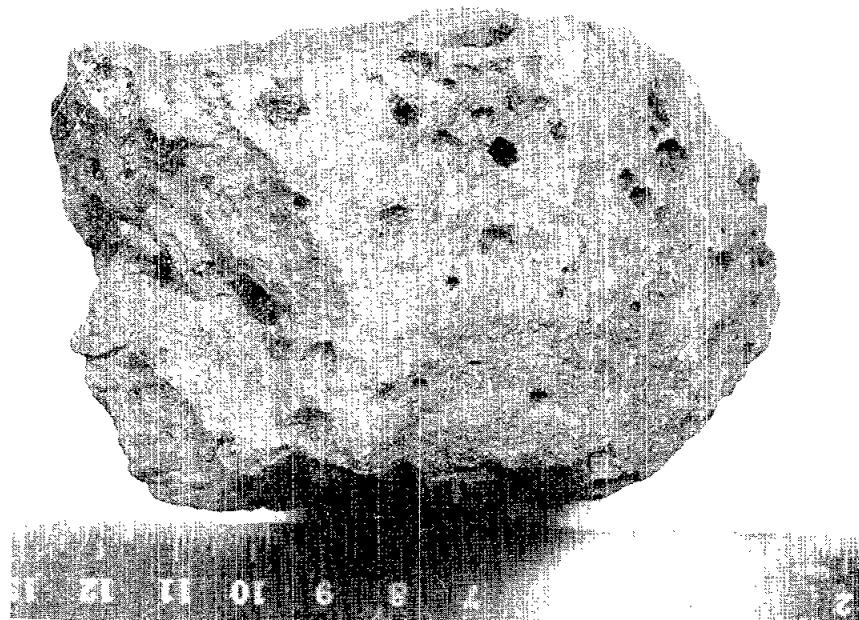
FABRIC/TEXTURE: Isotropic

CAVITIES: 5% vesicles lined with ilmenite, 1% vugs

SURFACE: Granulated

ZAP PITS: Few, many in places

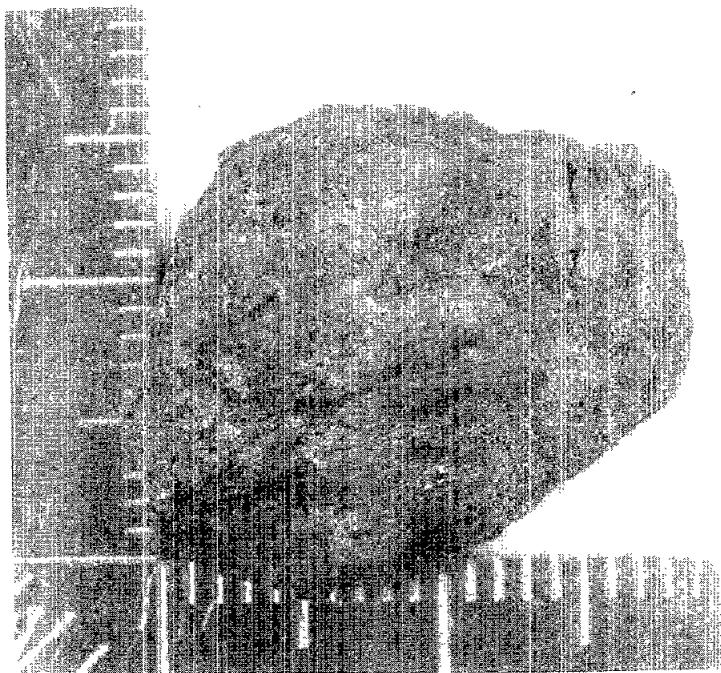
<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>% OF</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
						<u>RANGE</u>	
Plag	White	30	Irreg	< 0.1			
Pyrox	Reddish	59	Irreg	< 0.1			
Ilm	Black	10	Irreg	< 0.1			
Maf sil	Yellow-green	1	Irreg	0.5			Olivine



71589,0

ROCK TYPE: Mare basalt, fine
 WEIGHT: 6.860 g
 DIMENSIONS: 2.3 x 1.6 x 1.3 cm
 COLOR: Dark gray (N3)
 SHAPE: Subrounded
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - Few
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 1% vugs
 SURFACE: Granulated
 ZAP PITs: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg-prism	<0.1			
Pyrox	Reddish-brown	58	Irreg-prism	<0.1			
IIm	Black	10	Irreg-tab	<0.1			
Maf sil	Yellow-green	2	Irreg	<0.1			Olivine



71596,0

ROCK TYPE: Mare basalt, fine - moderately olivine-rich

WEIGHT: 61.05 g

DIMENSIONS: 4.1 x 3.6 x 2.3 cm

COLOR: Dark gray (N3)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - Few, non-penetrative

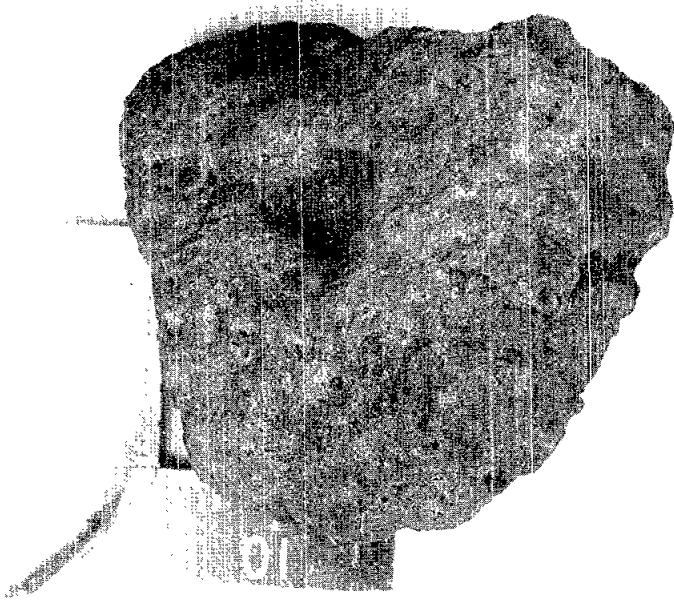
FABRIC/TEXTURE: Isotropic

CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITS: Few to many

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	25	Irreg	< 0.1		
Pyrox	Reddish- brown	60	Irreg- prism	< 0.1		
IIm	Black	10	Irreg- tab	< 0.1		
Maf sil	Yellow- green	5	Irreg	0.4		Olivine



78528,0

ROCK TYPE: Mare basalt, fine

WEIGHT: 7.00 g

DIMENSIONS: 2.0 x 1.5 x 1.2 cm

COLOR: Brownish gray (5YR 4/1)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - One, near-penetrative

FABRIC/TEXTURE: Isotropic

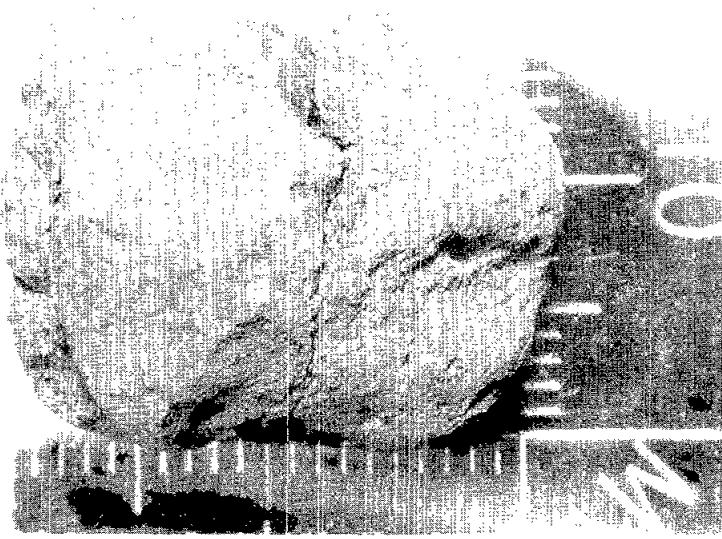
CAVITIES: None

SURFACE: Granulated

ZAP PITS: None

SPECIAL FEATURES: Covered with much dust making description difficult.

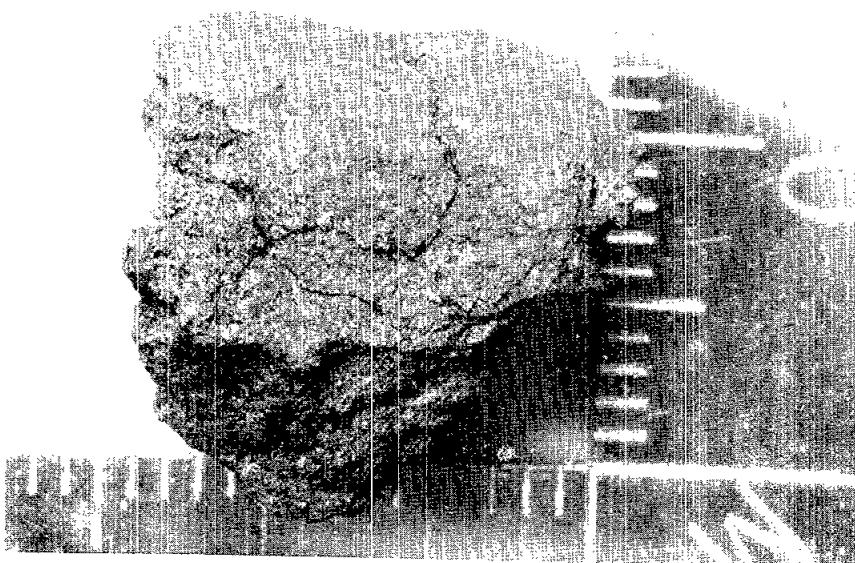
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm) RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	<0.1		
Pyrox	Reddish- brown	60	Irreg	<0.1		
IIm	Black	10	Irreg	<0.1		



78588,0

ROCK TYPE: Mare basalt, fine
 WEIGHT: 3.77 g
 DIMENSIONS: 1.4 x 1.2 x 0.9 cm
 COLOR: Medium dark gray (N4)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - Many, non-penetrative
 FABRIC/TEXTURE: Isotropic
 CAVITIES: Few
 SURFACE: Granulated
 ZAP PITS: None

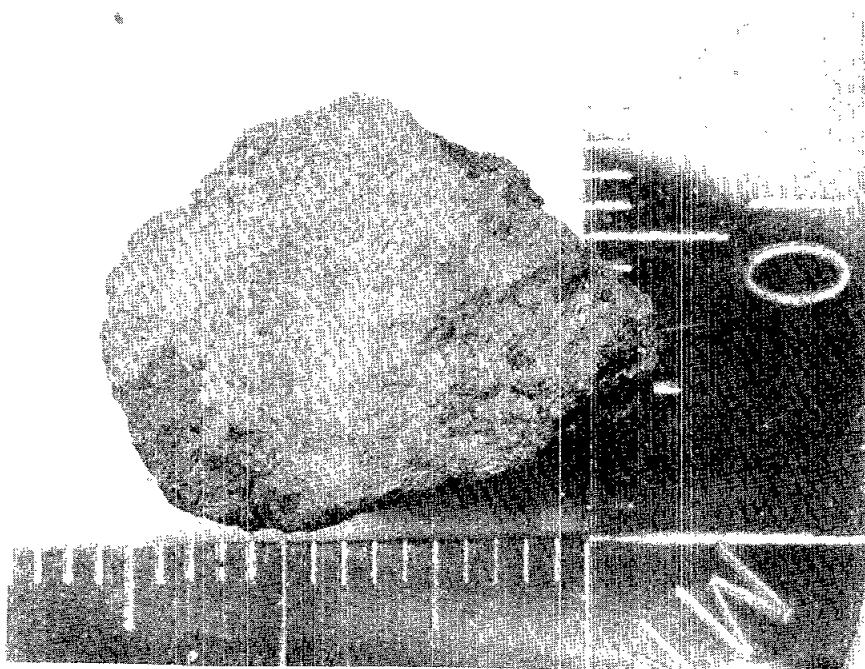
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	< 0.1		
Pyrox	Reddish- brown	60	Irreg	< 0.1		
Ilm	Black	10	Irreg	< 0.1		
Maf sil	Yellow- green	<1	Irreg	< 0.1		Olivine



78589,0

ROCK TYPE: Mare basalt, fine
 WEIGHT: 4.10 g
 DIMENSIONS: 1.8 x 1.4 x 1.2 cm
 COLOR: Medium gray (N5)
 SHAPE: Subangular to subrounded
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - None
 FABRIC/TEXTURE: Isotropic
 CAVITIES: None
 SURFACE: Granulated
 ZAP PITS: Few
 SPECIAL FEATURES: Covered with dust making description difficult.

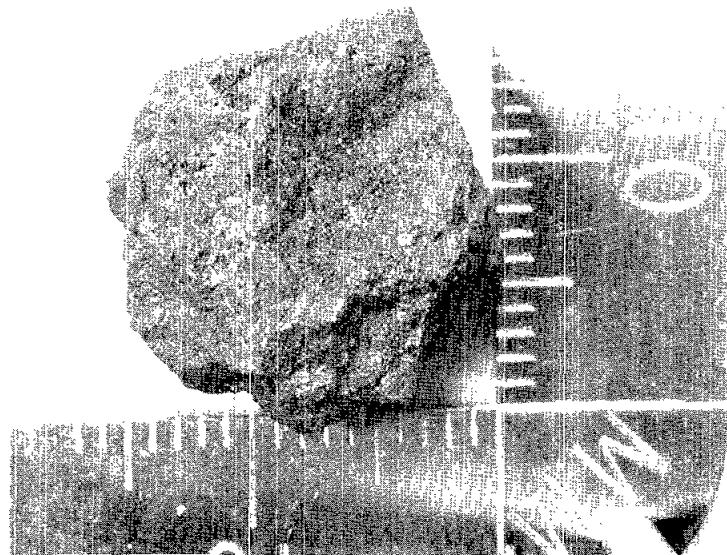
<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	< 0.1		
Pyrox	Reddish- brown	60	Irreg	< 0.1		
IIm	Black	10	Irreg	< 0.1		
Maf sil	Yellow- green	< 1	Irreg	< 0.1		



78595,0

ROCK TYPE: Mare basalt, fine
 WEIGHT: 4.19 g
 CIMENSIONS: 1.3 x 1.4 x 1.2 cm
 COLOR: Medium gray (N5)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - Few, non-penetrative
 FABRIC/TEXTURE: Isotropic
 CAVITIES: None
 SURFACE: Granulated
 ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag	White	30	Irreg	<0.1		
Pyrox	Reddish- brown	60	Irreg	< 0.1		
Ilm	Black	10	Irreg	< 0.1		



78596,0

ROCK TYPE: Mare basalt, fine

WEIGHT: 7.55 g

DIMENSIONS: 2.0 x 1.5 x 1.5 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - None

FABRIC/TEXTURE: Isotropic

CAVITIES: None

SURFACE: Granulated

ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	< 0.1		
Pyrox	Reddish- brown	60	Irreg	< 0.1		
Ilm	Black	10	Irreg	< 0.1		



78598,0

ROCK TYPE: Mare basalt, fine

WEIGHT: 224.1 g

DIMENSIONS: 8.6 x 4.5 x 4.5 cm

COLOR: Medium gray (N5)

SHAPE: Angular to subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - None

FABRIC/TEXTURE: Isotropic

CAVITIES: 2% vugs

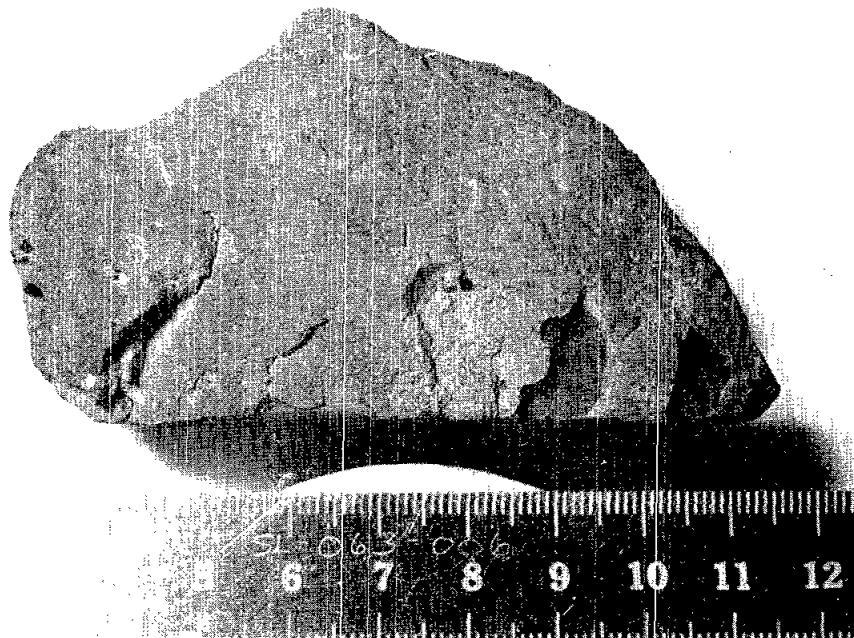
SURFACE: Granulated

ZAP PITS: Few

SPECIAL FEATURES: Covered with dust making description difficult.

Too fine-grained to see minerals clearly.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>RANGE</u>	<u>NOTES</u>
Plag						
Pyrox						
Ilm						



78599,0

ROCK TYPE: Mare basalt, fine

WEIGHT: 198.6 g

DIMENSIONS: 7.2 x 4.7 x 3.0 cm

COLOR: Medium gray (N5)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular -
Fracturing - None

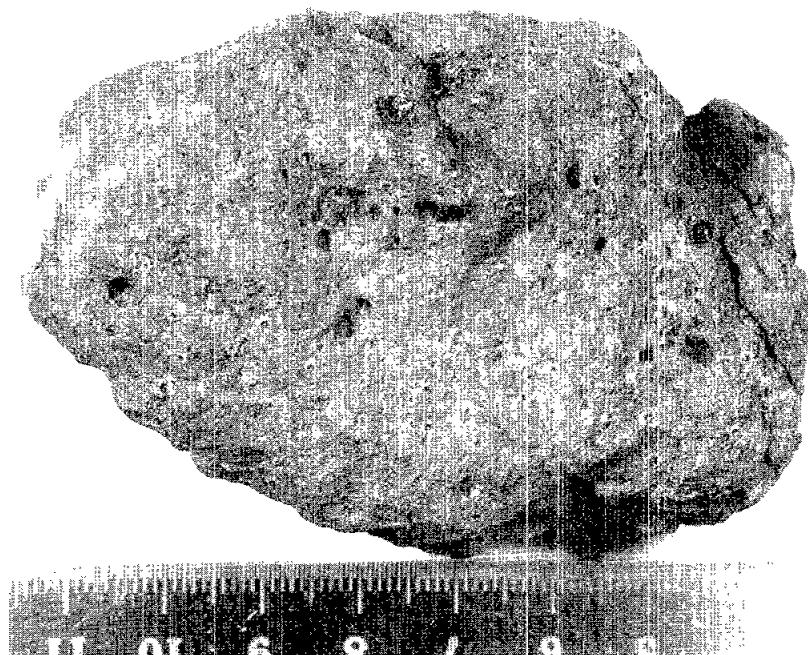
FABRIC/TEXTURE: Isotropic

CAVITIES: 2% vugs

SURFACE: Granulated

ZAP PITS: Many

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	< 0.1			
Pyrox	Reddish- brown	60	Irreg	< 0.1			
IIm	Black	10	Irreg	< 0.1			



78569,0

ROCK TYPE: Mare basalt, fine to medium

WEIGHT: 14.53 g

DIMENSIONS: 2.3 x 1.9 x 1.5 cm

COLOR: Medium dark gray (N_4)

SHAPE: Subangular to subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - One, near-penetrative

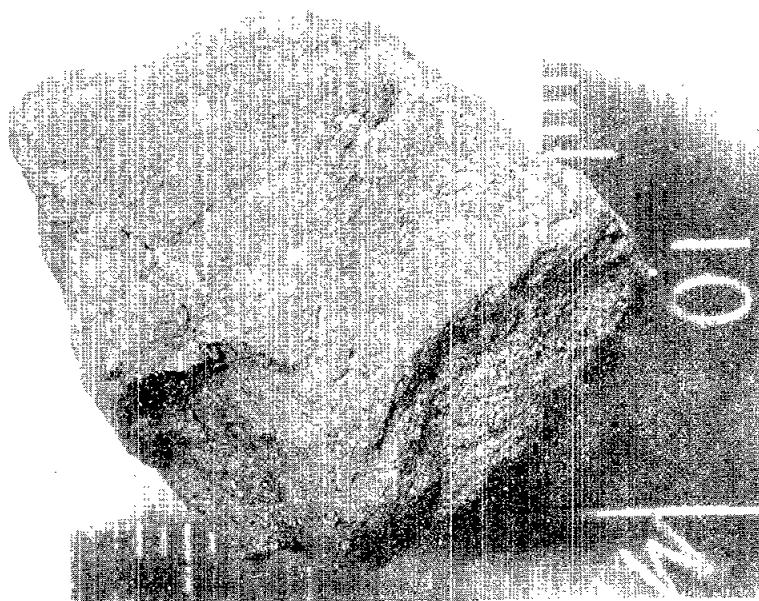
FABRIC/TEXTURE: Isotropic

CAVITIES: None

SURFACE: Granulated

ZAP PITS: None

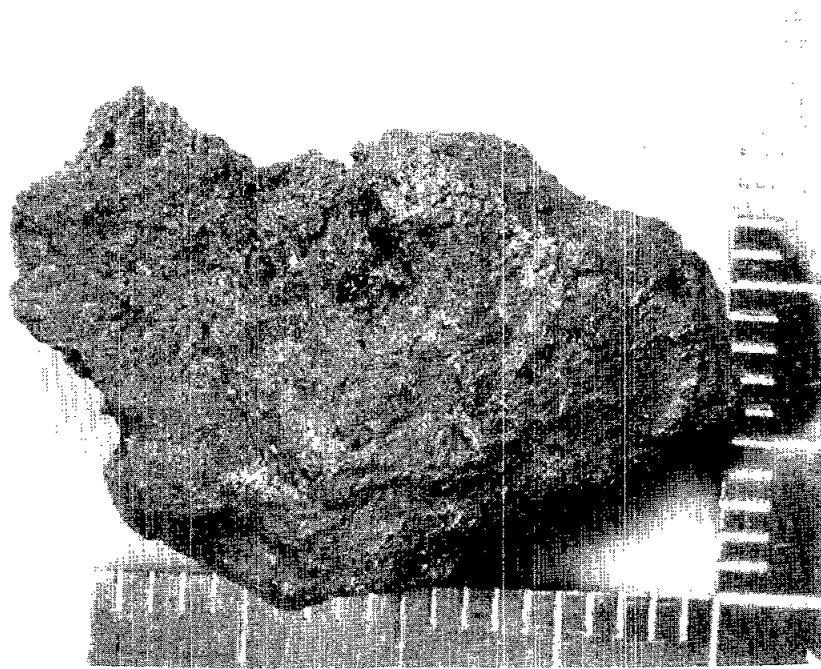
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
			<u>SHAPE</u>	<u>DOM.</u>	
Plag	White	30	Irreg	0.1	
Pyrox	Reddish-brown	60	Irreg	0.1	
Ilm	Black	10	Irreg	0.1	



71507,0

ROCK TYPE: Mare basalt, medium
 WEIGHT: 3.962 g
 DIMENSIONS: 2.2 x 1.4 x 0.6 cm
 COLOR: Dark gray (N3)
 SHAPE: Irregular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - Few, non-penetrative
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 1% vugs
 SURFACE: Granulated
 ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White	30		Irreg	0.3		
Pyrox	Reddish- brown	60		Irreg- prism	0.3		
IIm	Black	10		Irreg- tab	0.3		



71508,0

ROCK TYPE: Mare basalt, medium

WEIGHT: 3.423 g

DIMENSIONS: 1.4 x 1.3 x 1.0 cm

COLOR: Medium dark gray (N4)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - None

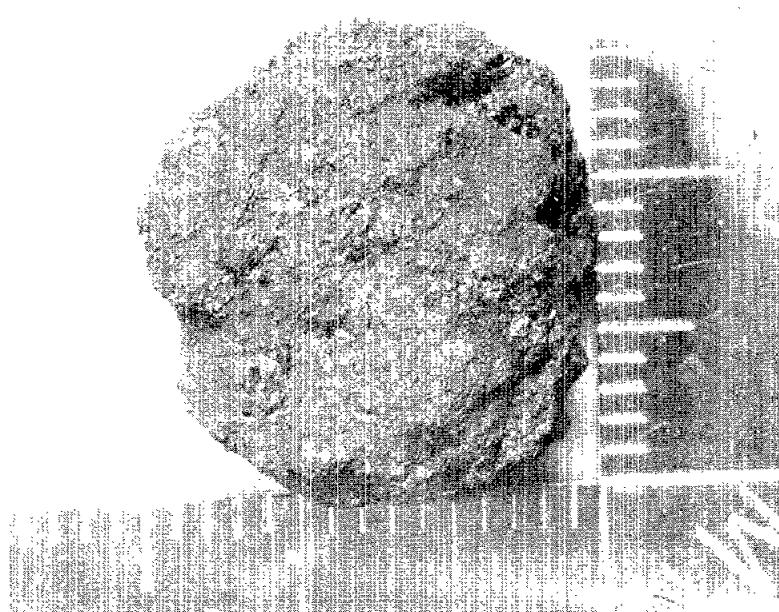
FABRIC/TEXTURE: Isotropic

CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITS: None

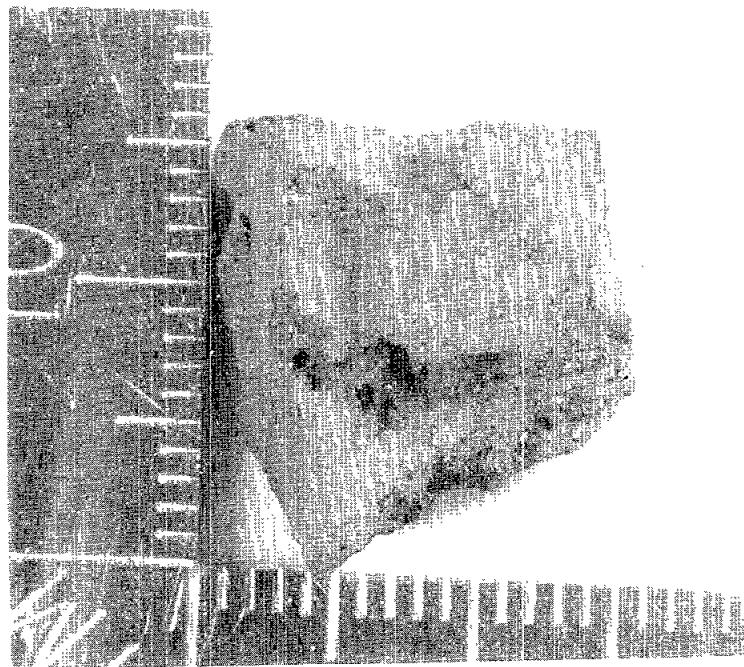
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm) RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	0.3		
Pyrox	Reddish- brown	60	Irreg - prism	0.3		
Ilm	Black	10	Irreg - tab	0.3		



71525,0

ROCK TYPE: Mare basalt, medium
 WEIGHT: 3.900 g
 DIMENSIONS: 1.7 x 1.3 x 1.2 cm
 COLOR: Medium gray (N⁴)
 SHAPE: Angular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - None
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 1% vugs
 SURFACE: Granulated
 ZAP PITs: None
 SPECIAL FEATURES: Covered with dust making description difficult.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>% OF</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag	White		Irreg	0.1		
Pyrox	Reddish- brown		Irreg	0.1		
Ilm	Black		Irreg	0.1		



71529,0

ROCK TYPE: Mare basalt, medium

WEIGHT: 6.025 g

DIMENSIONS: 1.8 x 1.7 x 1.7

COLOR: Medium dark gray (N4)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - Absent

FABRIC/TEXTURE: Isotropic

CAVITIES: 15% vesicles - ilmenite and other phases visible on
surfaces

SURFACE: Granulated

ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag	White		30	Irreg	0.1		
Pyrox	Reddish-			Irreg -	0.1		
	brown	70		prism			
Ilm	Black			Irreg -	0.1		
				tab			



71535,0

ROCK TYPE: Mare basalt, medium
 WEIGHT: 17.71 g
 DIMENSIONS: 2.7 x 2.2 x 2.0 cm
 COLOR: Dark brownish-gray (5YR 3/1)
 SHAPE: Subrounded
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - Few, non-penetrative
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 3% vugs or vesicles
 SURFACE: Granulated
 ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>% OF</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
					<u>DOM.</u>	<u>RANGE</u>
Plag	White	30		Irreg	0.2	
Pyrox	Reddish- brown	60		Irreg- prism	0.2	
Ilm	Black	10		Irreg- tab	0.2	



71539,0

ROCK TYPE: Mare basalt, medium

WEIGHT: 10.90 g

DIMENSIONS: 2.3 x 1.8 x 1.7 cm

COLOR: Dark gray (N3)

SHAPE: Subangular - blocky

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - None

FABRIC/TEXTURE: Isotropic

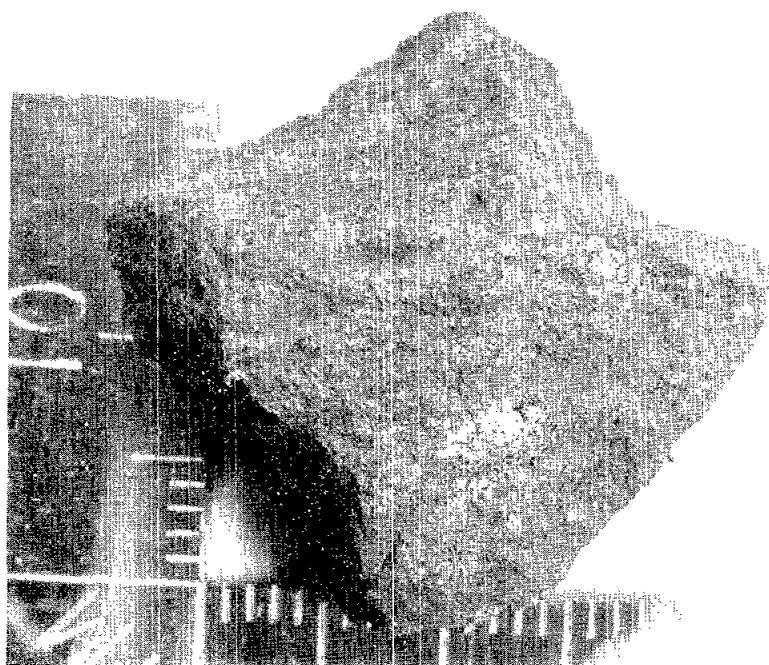
CAVITIES: 2% vugs

SURFACE: Granulated to hackly

ZAP PITS: None

SPECIAL FEATURES: Sample covered with dust making good description difficult.

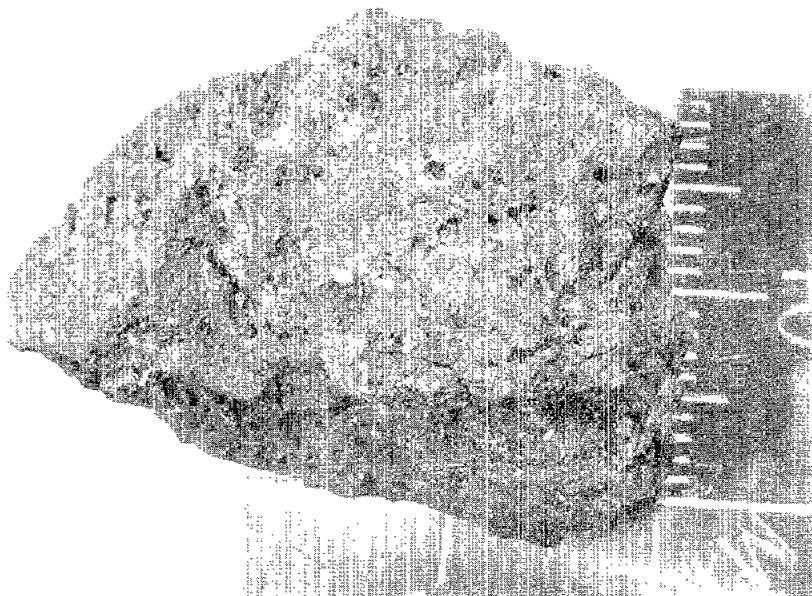
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	0.1	- 0.2	
Pyrox	Reddish- brown	60	Irreg- prism	0.1	- 0.2	
Ilm	Black	10	Irreg- tab	0.1	- 0.2	



71547,0

ROCK TYPE: Mare basalt, medium
 WEIGHT: 12.54 g
 DIMENSIONS: 3.0 x 2.5 x 1.7 cm
 COLOR: Dark gray (N3)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - Few, non-penetrative
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 5% vugs
 SURFACE: Granulated
 ZAP PITs: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	0.2		
Pyrox	Reddish- brown	58	Irreg- prism	0.2		
Ilm	Black	10	Irreg- tab	0.2		
Maf sil	Yellow- green	2	Irreg	0.2		Olivine



71548,0

ROCK TYPE: Mare basalt, medium

WEIGHT: 25.46 g

DIMENSIONS: Two pieces: (1) 1.8 x 1.0 x 0.8 cm
(2) 3.2 x 2.6 x 2.1 cm

COLOR: Dark gray (N3)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, penetrative and non-penetrative

FABRIC/TEXTURE: Isotropic

CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	0.3		
Pyrox	Reddish- brown	60	Irreg- prism	0.3		
Ilm	Black	10	Irreg- tab	0.3		



71549,0

ROCK TYPE: Mare basalt, medium
 WEIGHT: 7.903 g
 DIMENSIONS: 2.0 x 1.5 x 1.3 cm
 COLOR: Dark gray (M3)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - None
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 2% vugs
 SURFACE: Granular
 ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DQM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	0.3	0.1 - 1.0	
Pyrox	Reddish- brown	60	Irreg- prism	0.3	0.1 - 1.0	
Ilm	Black	10	Irreg- tab	0.3	0.1 - 1.0	



71555,0

ROCK TYPE: Mare basalt, medium

WEIGHT: 4.547 g

DIMENSIONS: 1.7 x 1.5 x 1.5 cm

COLOR: Dark gray (N3)

SHAPE: Subangular

VARIABILITY: Some surface variations (see SURFACE)

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

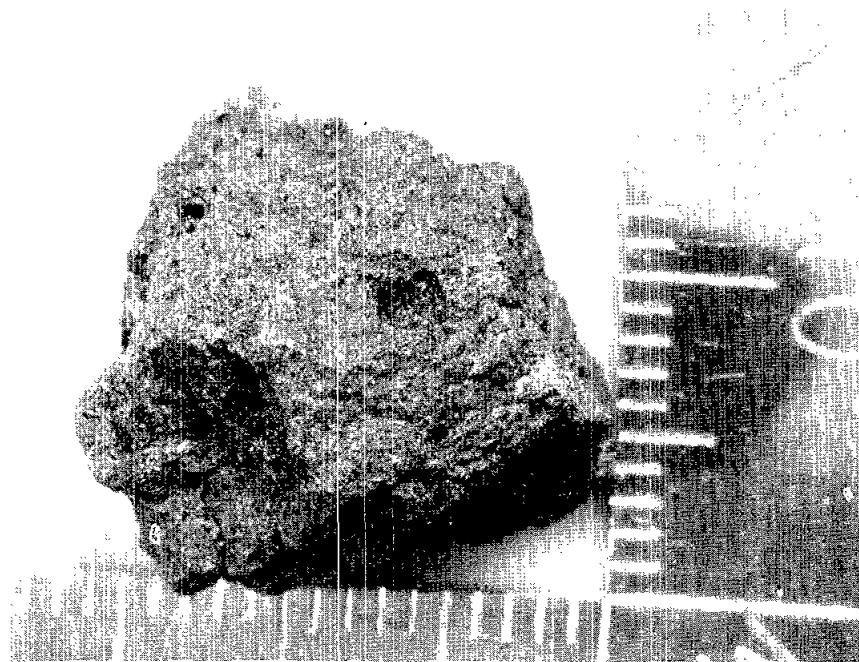
FABRIC/TEXTURE: Isotropic

CAVITIES: 1% vugs

SURFACE: Granulated - Some surfaces have areas of ilmenite plates, which may be parts of vesicles.

ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	0.1	- 0.2	
Pyrox	Reddish-brown	58	Irreg-prism	0.1	- 0.2	
Ilm	Black	10	Irreg-tab	0.1	- 0.2	
Maf sil	Yellow	2	Irreg	0.1	- 0.2	Olivine



71558,0

ROCK TYPE: Mare basalt, medium, moderately olivine-rich

WEIGHT: 15.81 g

DIMENSIONS: 3.6 x 2.0 x 1.5 cm

COLOR: Dark brownish-gray (5YR 3/1)

SHAPE: Subangular, subround

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

FABRIC/TEXTURE: Isotropic

CAVITIES: 5-10%, pyrox needles projecting into them

SURFACE: Granulated

ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	0.3			
Pyrox	Reddish- brown	55	Irreg- prism	0.3			
IIm	Black	10	Irreg- tab	0.2			
Maf sil	Yellow	5	Irreg	0.2			Olivine



71579,0

ROCK TYPE: Mare basalt, medium

WEIGHT: 7.937 g

DIMENSIONS: Two pieces: (1) 1.1 x 1.5 x 3.1 cm
(2) 3.1 x 1.5 x 1.1 cm

COLOR: Dark gray (N3)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - None

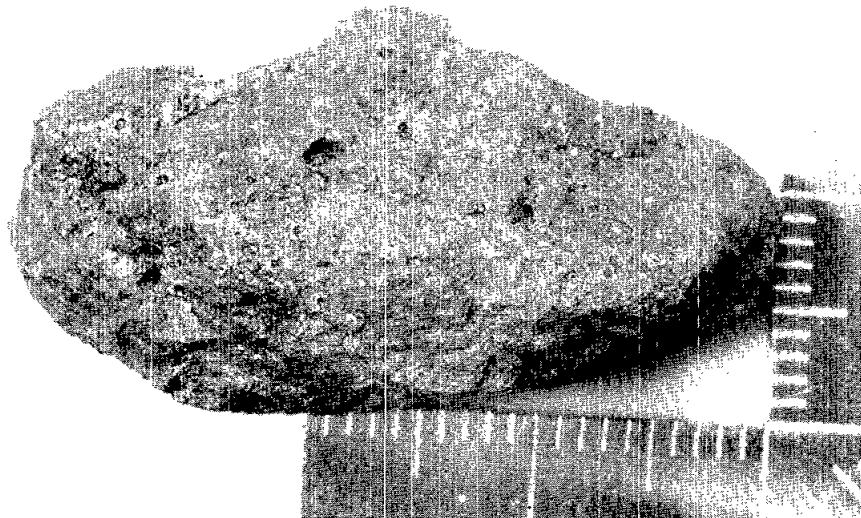
FABRIC/TEXTURE: Isotropic

CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SIZE (mm)</u>			<u>NOTES</u>
			<u>SHAPE</u>	<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	0.2		
Pyrox	Reddish-brown	60	Irreg-prism	0.2		
Ilm	Black	10	Irreg-tab	0.2		



71585,0

ROCK TYPE: Mare basalt, medium

WEIGHT: 13.86 g

DIMENSIONS: 3.8 x 2.2 x 1.2 cm

COLOR: Medium dark gray (N4)

SHAPE: Subangular, subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

FABRIC/TEXTURE: Isotropic

CAVITIES: 8% vugs

SURFACE: Granulated

ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	0.2		
Pyrox	Reddish- brown	58	Irreg- prism	0.2		
Ilm	Black	10	Irreg- tab	0.2		
Maf sil	Yellow- green	1	Irreg	0.2		Olivine
Maf sil	Yellow- orange	1	Irreg	0.5		



71586,0

ROCK TYPE: Mare basalt, medium

WEIGHT: 26.92 g

DIMENSIONS: 3.7 x 2.8 x 1.3 cm

COLOR: Dark gray (N3)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

FABRIC/TEXTURE: None

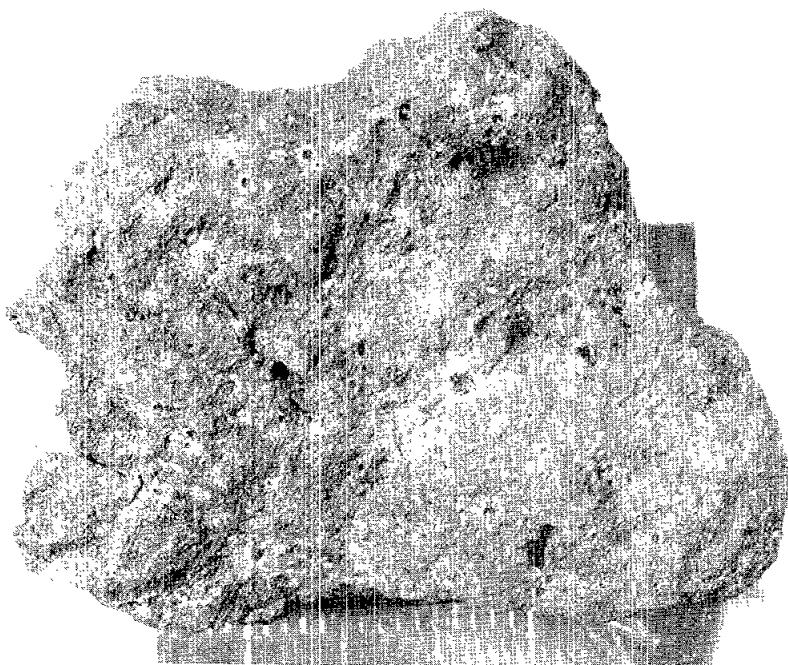
CAVITIES: 2% vugs, 5% vesicles

SURFACE: Granulated

ZAP PITS: Few to many

SPECIAL FEATURES: Relatively few large vesicles lined with plates of ilmenite and some long needles (probably pyroxene).

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	0.2		
Pyrox	Reddish- brown	59	Irreg- prism	0.2		More prismatic
Ilm	Black	10	Irreg-- tab	0.2		
Maf sil	Yellow- green	1	Irreg	0.2		Olivine



71587,0

ROCK TYPE: Mare basalt, medium
 WEIGHT: 41.27 g
 DIMENSIONS: 5.0 x 2.9 x 1.6 cm
 COLOR: Dark gray (N3)
 SHAPE: Subrounded
 VARIABILITY: Fine-grained, but coarser near vugs
 COHERENCE: Intergranular - Coherent
 Fracturing - None
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 1-2% vugs, ilmenite commonly project into vugs
 SURFACE: Granulated
 ZAP PITS: Few to many
 SPECIAL FEATURES: Possibly different from other basalts.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>% OF</u> <u>DOM.</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
					<u>RANGE</u>		
Plag	White	20	Irreg	0.1			
Pyrox	Reddish- brown	58	Irreg	0.1			
Ilm	Black	20	Irreg	0.1 .. 0.5			Gets large and abun- dant near vugs
Maf sil	Yellow- green	2	Irreg	0.1			Olivine



71588,0

ROCK TYPE: Mare basalt, medium; moderately olivine-rich

WEIGHT: 48.98 g

DIMENSIONS: 3.8 x 3.0 x 2.5 cm

COLOR: Dark gray (N3)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular .. Coherent

Fracturing .. Few, near-penetrative

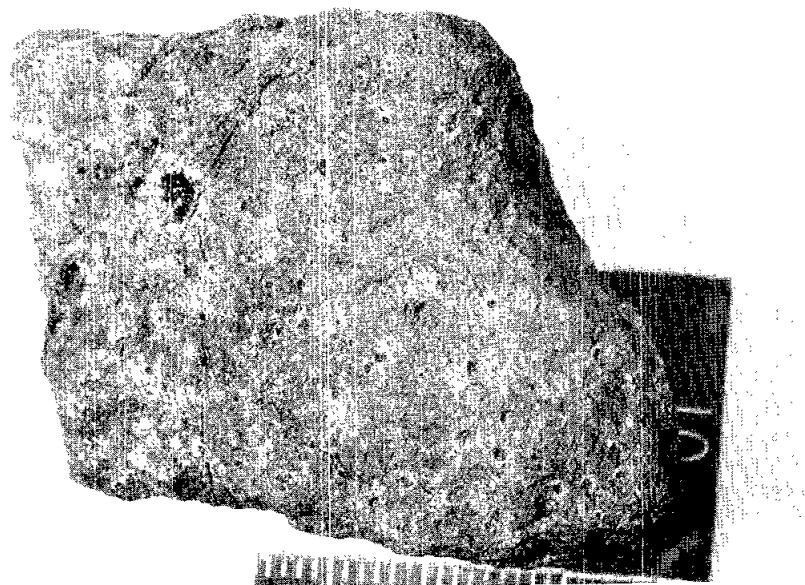
FABRIC/TEXTURE: Isotropic

CAVITIES: 2% vugs

SURFACE: Granulated

ZAP PITS: Few, one large one (3 mm)

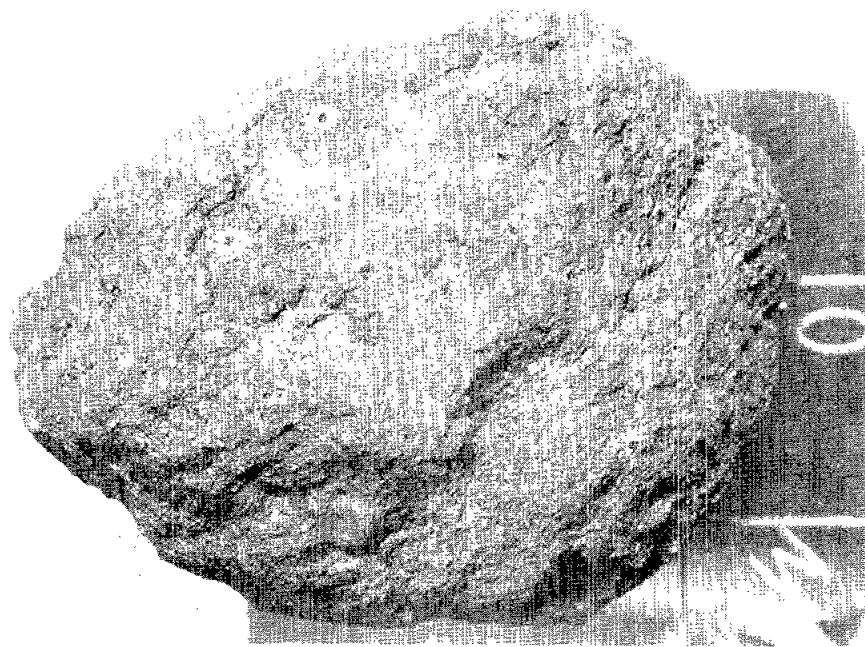
<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	0.2		
Pyrox	Reddish- brown	55	Irreg	0.2		
IIm	Black	10	Irreg	0.2		
Maf sil	Yellow- green	5	Irreg	0.2		Olivine



71595,0

ROCK TYPE: Mare basalt, medium
 WEIGHT: 25.21 g
 DIMENSIONS: 3.4 x 2.7 x 2.0 cm
 COLOR: Dark gray (N3)
 SHAPE: Subrounded
 VARIABILITY: Grain size varies
 COHERENCE: Intergranular - Coherent
 Fracturing - Few, non-penetrative
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 1-2% vugs
 SURFACE: Granulated
 ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DIM.</u>	<u>RANGE</u>	
Flag	White	30	Irreg	0.2		
Pyrox	Reddish- brown	58	Irreg- prism	0.2		
Ilm	Black	10	Irreg- tab	0.2		
Maf sil	Yellow	2	Irreg	0.2		Olivine



78579,0

ROCK TYPE: Mare basalt, medium

WEIGHT: 6.07 g

DIMENSIONS: 2.4 x 2.0 x 1.0 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few

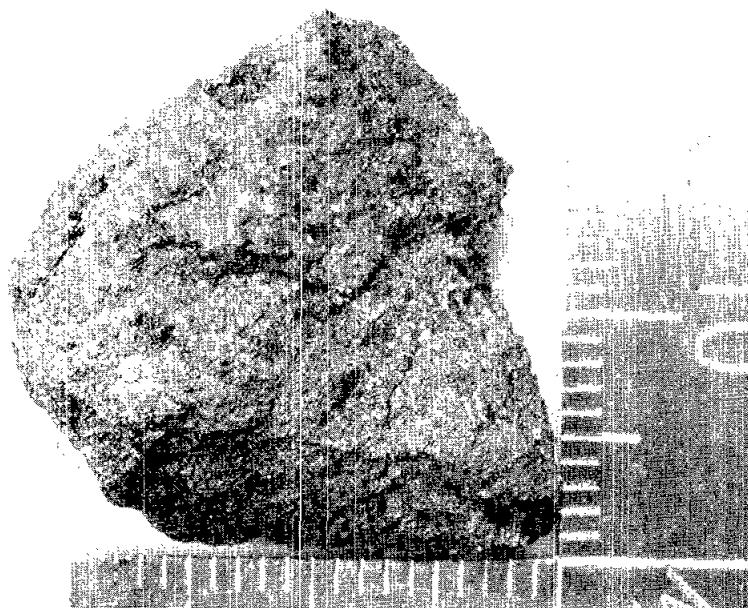
FABRIC/TEXTURE: Isotropic

CAVITIES: 3% vugs

SURFACE: Granulated

ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg		0.3	
Pyrox	Reddish- brown	59	Irreg- prism		0.3	
IIm	Black	10	Irreg- tab		0.3	
Maf sil	Yellow	1	Irreg		0.7	Olivine



78597,0

ROCK TYPE: Mare basalt, medium
 WEIGHT: 319.1 g
 DIMENSIONS: 6.7 x 5.7 x 5.0 cm
 COLOR: Medium dark gray (N4)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - None
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 5% vesicles
 SURFACE: Granulated
 ZAP PITS: None

SPECIAL FEATURES: Large crystals of olivine and pyroxene in vesicles.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>% OF</u>	<u>SIZE (mm)</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	0.2			
Pyrox	Reddish- brown	57	Irreg	0.2			
Ilm	Black	10	Irreg	0.2			
Maf sil	Green	3	Irreg	0.2			Olivine



77516,0

ROCK TYPE: Mare basalt, medium to coarse

WEIGHT: 103.7 g

DIMENSIONS: 5.5 x 4 x 3

COLOR: GRAY (N₄ to N₅) with brownish tint

SHAPE: Subrounded to subangular, somewhat slabby

VARIABILITY: Inhomogeneous distribution of vugs

COHERENCE: Intergranular - Tough

Fracturing - One penetrative parallel to slabby direction

FABRIC/TEXTURE: Variolitic, locally trachytic

CAVITIES: 1 - 2%; up to 8 mm; contain projecting ilmenite, pyroxene, and plagioclase crystals

SURFACE: Uneven, finely hackly

ZAP PITS: Zapped on all sides.

COMPONENT	COLOR	ROCK	SHAPE	SIZE (mm)			NOTES
				DOM.	RANGE		
Plag		35	Lath	0.75	0.5 - 3		1
Pyrox	Root beer brown	45-50	Equant		0.1 - 0.5		
Opaques	Black	10-15	Platy		<0.1 - 1		
Oliv	Green	5	Equant	0.5	0.2 - 1.0		2

NOTES:

1. Plagioclase is lath-shaped, commonly has pyroxene(?) prisms growing down center of laths.
2. Appears to be concentrated in one part of rock.



71509,0

ROCK TYPE: Mare basalt, coarse; moderately olivine-rich

WEIGHT: 1.690 g

DIMENSIONS: Two pieces: (1) 1.2 x 0.7 x 0.3 cm
(2) 1.8 x 0.9 x 0.5 cm

COLOR: Dark brownish-gray (5YR 3/1)

SHAPE: Irregular (two large pieces plus 2 crumbs)

VARIABILITY: None

COHERENCE: Intergranular - Friable to coherent
Fracturing - Few, penetrative

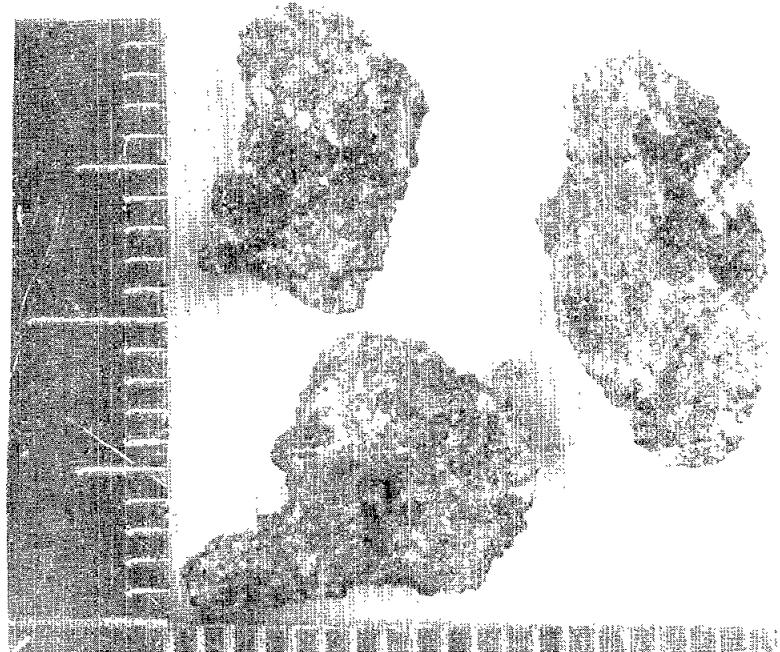
FABRIC/TEXTURE: Isotropic

CAVITIES: None

SURFACE: Granulated

ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag	White	30	Irreg	0.4		
Pyrox	Reddish- brown	55	Irreg- prism	0.4		
Ilm	Black	10	Irreg- tab	0.4		
Maf sil	Yellow- green	5	Irreg	0.4		Olivine



71536,0

ROCK TYPE: Mare basalt, coarse

WEIGHT: 5.322 g

DIMENSIONS: 2.4 x 1.6 x 0.9 cm

COLOR: Brownish-gray (5YR 4/1)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - None

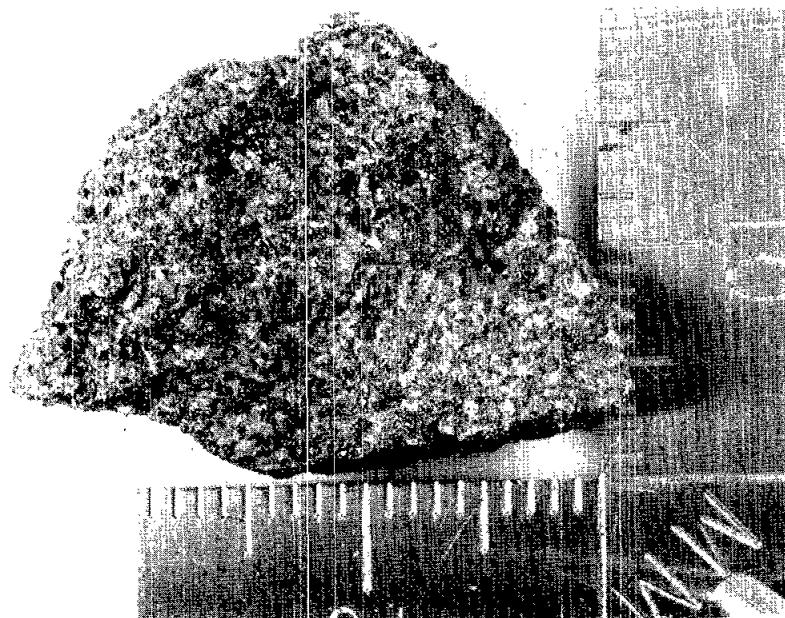
FABRIC/TEXTURE: Isotropic

CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITS: None

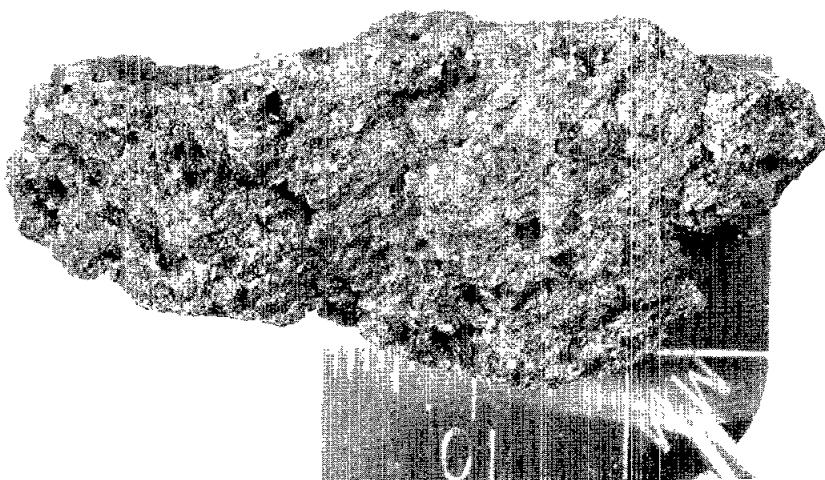
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm) RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	0.5		
Pyrox	Reddish- brown	60	Irreg- prism	0.5		
IIm	Black	10	Irreg- tab	0.5		



71556,0

ROCK TYPE: Mare basalt, coarse
 WEIGHT: 29.14 g
 DIMENSIONS: 4.8 x 2.3 x 2.2 cm
 COLOR: Dark brownish-gray (5YR 3/1)
 SHAPE: Subrounded
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - Few, non-penetrative
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 5% vugs, with mainly pyroxene crystals projecting
 into them
 SURFACE: Granulated
 ZAP PITTS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	0.5	0.1 - 1.0	
Pyrox	Reddish- brown	60	Irreg- prism	0.5	0.1 - 1.0	
Ilm	Black	10	Irreg- tab	0.3	0.1 - 0.5	



71557,0

ROCK TYPE: Mare basalt, coarse

WEIGHT: 40.35 g

DIMENSIONS: 3.2 x 2.7 x 2.5 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

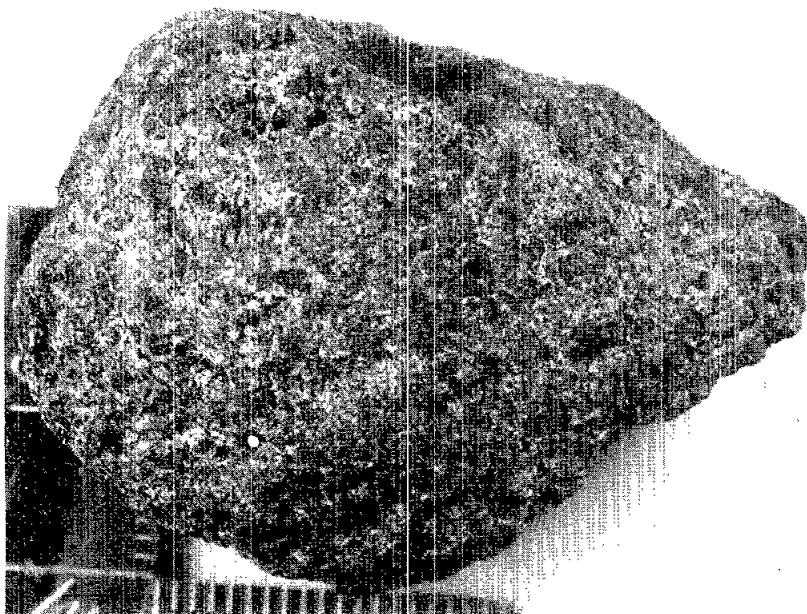
FABRIC/TEXTURE: Isotropic

CAVITIES: 2% vugs

SURFACE: Granulated

ZAP PITS: None

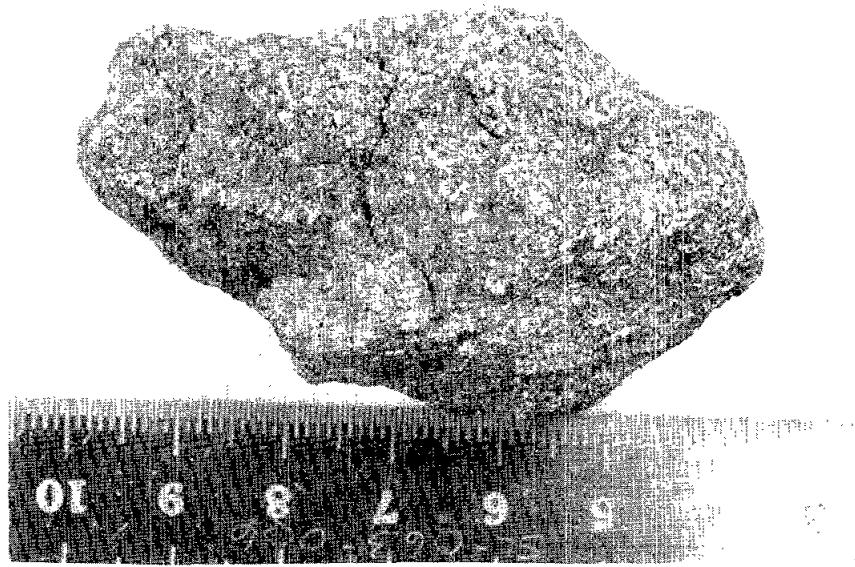
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SIZE (mm)</u>			<u>NOTES</u>
			<u>SHAPE</u>	<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	0.4		
Pyrox	Reddish- brown	60	Irreg- prism	0.4		
IIm	Black	10	Irreg- tab	0.4		



71559,0

ROCK TYPE: Mare basalt, coarse
 WEIGHT: 82.16 g
 DIMENSIONS: 6.3 x 3.5 x 3.4 cm
 COLOR: Dark gray (N3)
 SHAPE: Blocky - subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Friable
 Fracturing - Few, nearly penetrative
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 1% vugs
 SURFACE: Granulated
 ZAP PITS: None

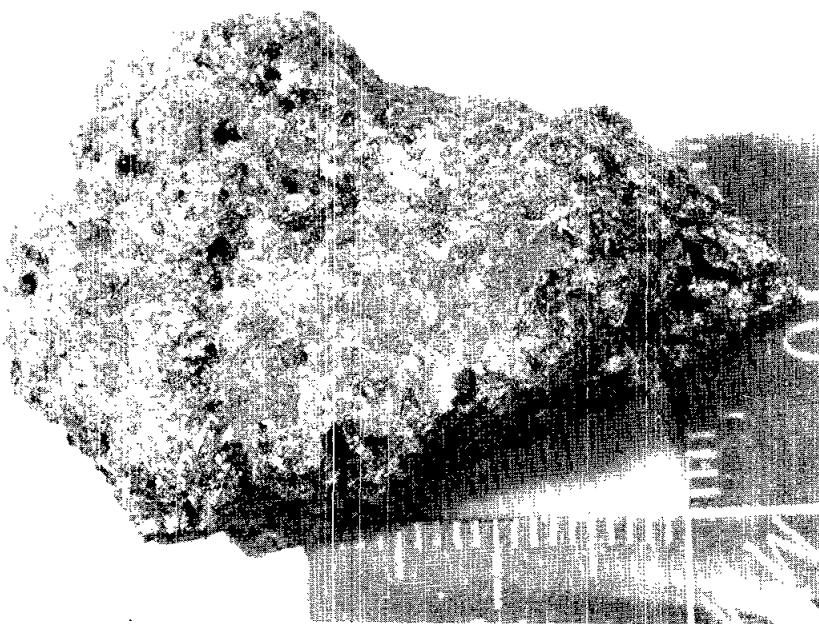
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White	30		Irreg	0.5			
Pyrox	Reddish- brown	60		Irreg- prism	0.5			
Ilm	Black	10		Irreg- tab	0.3			



71565,0

ROCK TYPE: Mare basalt, coarse
 WEIGHT: 24.09 g
 DIMENSIONS: 3.2 x 2.4 x 1.7 cm
 COLOR: Dark gray (N3)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - None
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 3% vugs
 SURFACE: Granulated
 ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	0.4			
Pyrox	Reddish- brown	56	Irreg- prism	0.4			
Ilm	Black	10	Irreg- tab	0.4			
Maf sil	Yellow- green	4	Irreg	0.4			Olivine



71566,0

ROCK TYPE: Mare basalt, coarse

WEIGHT: 415.4 g

DIMENSIONS: 10.6 x 6.3 x 4.7 cm

COLOR: Medium dark gray (N4)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, nearly penetrative

FABRIC/TEXTURE: Isotropic

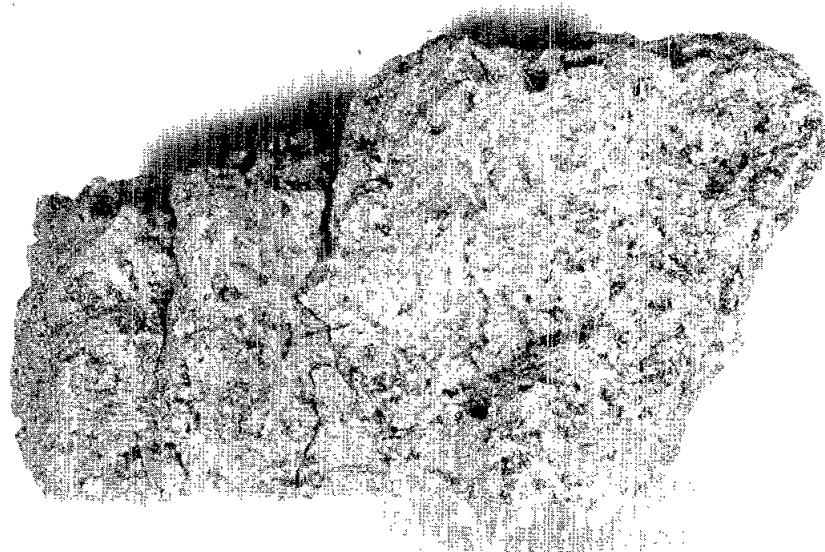
CAVITIES: 2% vugs, 1% vesicles

SURFACE: Granulated

ZAP PITS: None

SPECIAL FEATURES: Vesicles lined with ilmenite.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>% OF</u> <u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	0.4		
Pyrox	Reddish- brown	60	Irreg	0.4		
Ilm	Black	10	Irreg	0.3		



71567,0

ROCK TYPE: Mare basalt, coarse

WEIGHT: 146.0 g

DIMENSIONS: 5.8 x 5.0 x 4.2 cm

COLOR: Medium dark gray (N4)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

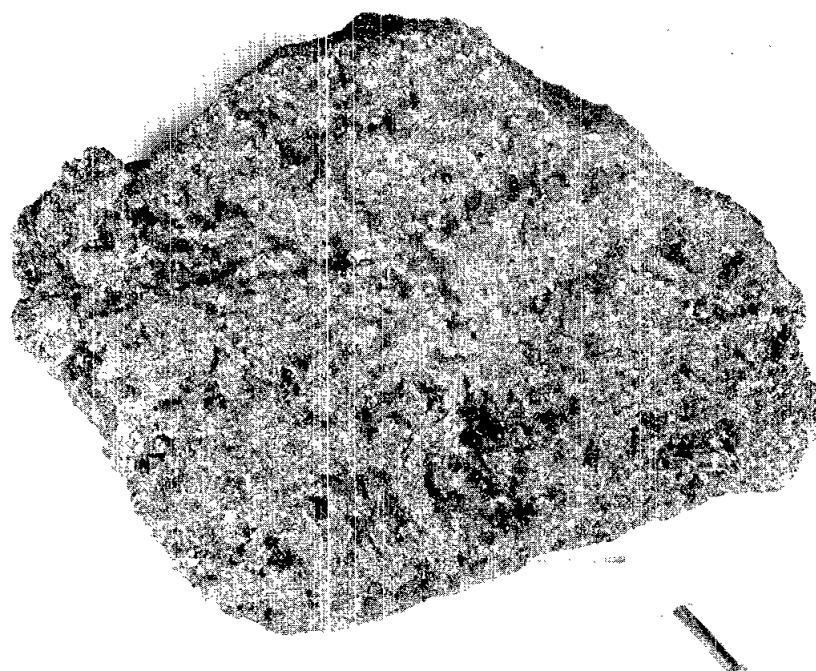
FABRIC/TEXTURE: Isotropic

CAVITIES: 5% vugs

SURFACE: Granulated

ZAP PITS: None

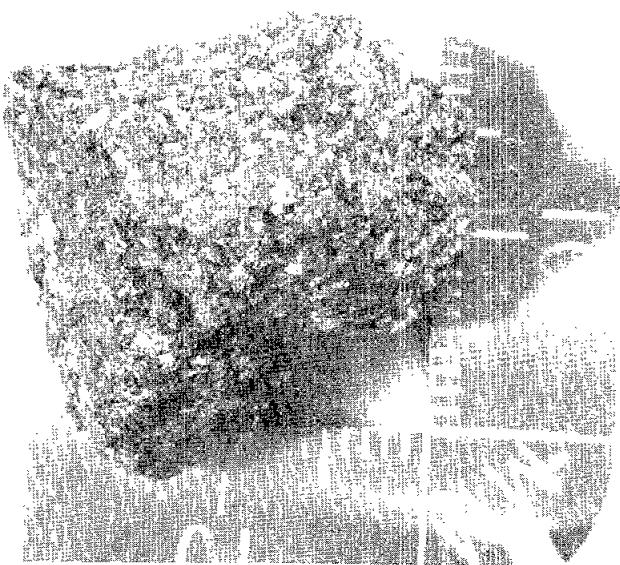
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag	White	30	Irreg	0.5		
Pyrox	Reddish- brown	59	Irreg- prism	0.5		
IIm	Black	10	Irreg- tab	0.4		
Maf sil	Yellow- green	1	Irreg	0.5		Olivine



71568,0

ROCK TYPE: Mare basalt, coarse
 WEIGHT: 10.02 g
 DIMENSIONS: 2.2 x 2.1 x 1.7 cm
 COLOR: Dark brownish-gray (5YR 3/1)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - Few, non-penetrative
 FABRIC/TEXTURE: Isotropic
 CAVITIES: None
 SURFACE: Granulated
 ZAP PITS: None

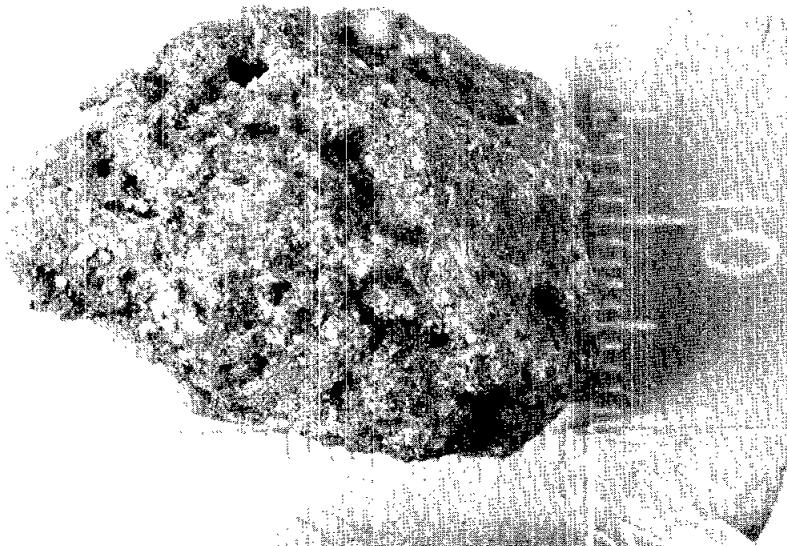
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White	30	Irreg	0.6			
Pyrox	Reddish- brown	59	Irreg- prism	0.6			
Ilm	Black	10	Irreg- tab	0.6			
Maf sil	Yellow- green	1	Irreg	0.6			Olivine



71597,0

ROCK TYPE: Mare basalt, coarse - very olivine-rich
 WEIGHT: 12.35 g
 DIMENSIONS: 2.6 x 2.2 x 1.7 cm
 COLOR: Olive gray (5Y 4/1)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - Few, non-penetrative
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 5% vugs
 SURFACE: Granulated
 ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag	White	20	Irreg	0.5		
Pyrox	Pinkish- brown	45	Irreg- prism	0.5		
IIm	Black	10	Irreg- tab	0.3		
Maf sil	Yellow- green	25	Irreg	1.0		Olivine



77535,0

ROCK TYPE: Mare basalt, coarse

WEIGHT: 577.8 g

DIMENSIONS: 10.5 x 8.5 x 3.5

COLOR: Gray with brownish cast (N5)

SHAPE: Slabby subrounded

COHERENCE: Intergranular - Tough

Fracturing - None

FABRIC/TEXTURE: Large poikilitic plagioclases

CAVITIES: 1%, from <1 cm to 6 mm vugs with projecting pyroxene and opaque crystals.

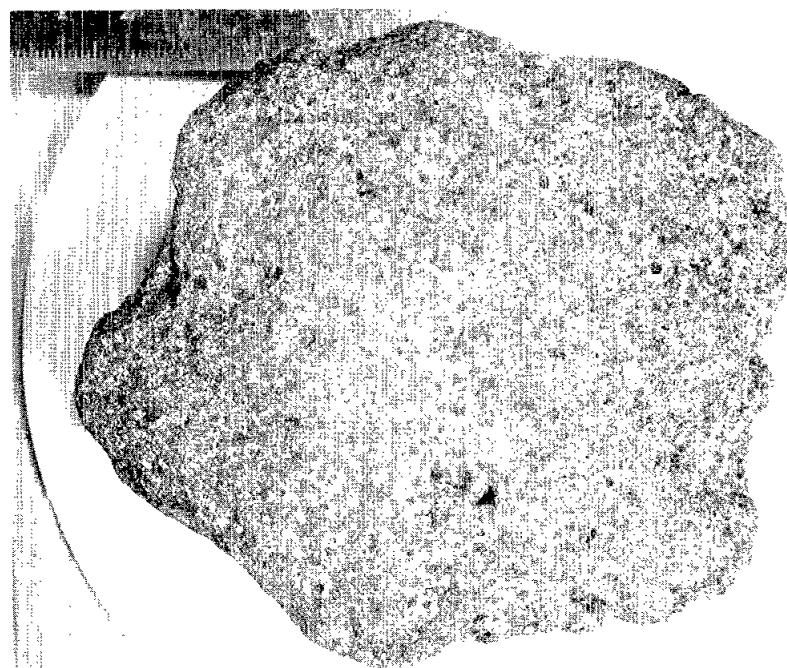
SURFACE: Hackly. Partial glass coating one surface.

ZAP PITS: Zapped on all sides.

COMPONENT	COLOR	ROCK	SHAPE	% OF		SIZE (mm)	NOTES
				DOM.	RANGE		
Plag	White	35	Laths	1.5	1 to 7x5		1
Pyrox	Brown	45-50	Equant	0.5	0.1 - 1		2
Opaque	Black	10-15	Equant	0.5	0.1 - 1		
Oliv(?)	Green	Tr	Equant	<1			

NOTES:

1. Poikilitic grains.
2. Intergrowths of pyroxene and ilmenite, about 1x2 mm, form 5% of the rock.



77536,0

ROCK TYPE: Mare basalt, coarse

WEIGHT: 355.3 g

DIMENSIONS: 11 x 7.0 x 3.5 cm

COLOR: Brownish gray (5 YR 4/1)

SHAPE: Tabular, subrounded

VARIABILITY: Some textural variation

COHERENCE: Intergranular - Tough

Fracturing - Penetrative normal to major and intermediate axes.

FABRIC/TEXTURE: Subophitic

CAVITIES: 1% vugs with projecting pyroxenes, and ilmenite to 2 mm.

SURFACE: Hackly; one side has partial glass coating

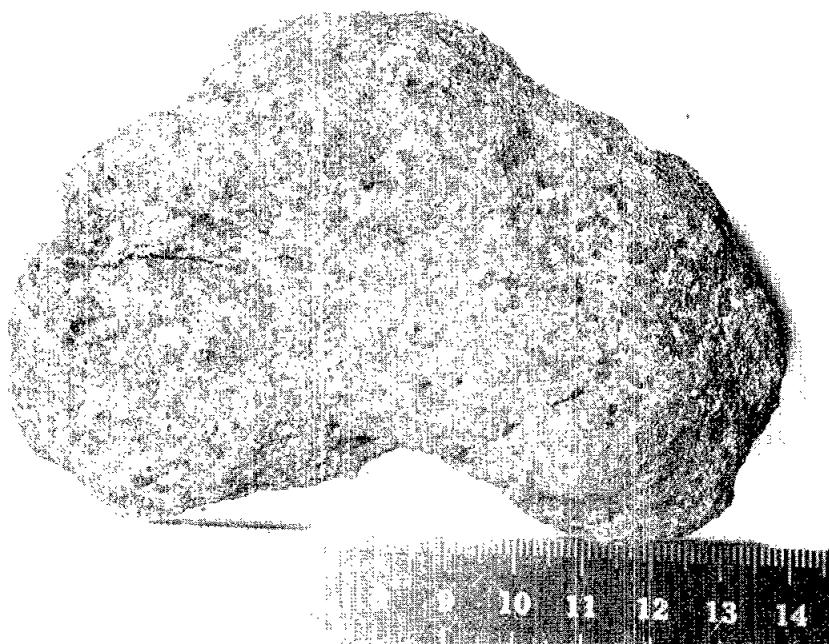
ZAP PITS: All zapped except glass-coated side

SPECIAL FEATURES: Glass on unpitted side, also one 1 cm square area on this surface looks slickensided. Plagioclase laths may have weak preferred orientation. Brown mafic clots of 80% pyroxene and 20% opaques average 3 x 4 mm and reach 10 x 15 mm.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Pyrox	Brown	55			1.0	
Plag	White	25-30			1x5	1
Ilm	Black	20	Equant		1.5	2
Oliv	Green	1 - <1			<1	3

NOTES:

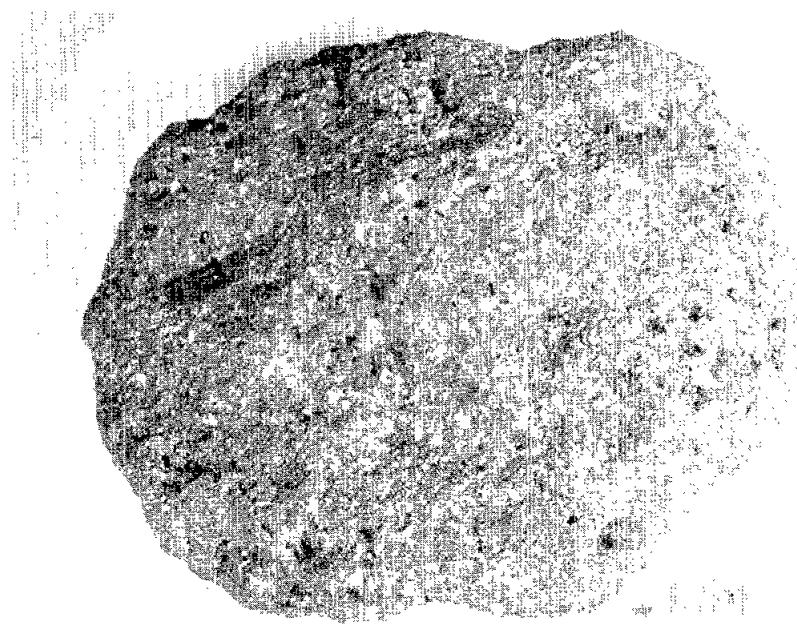
1. One plagioclase crystal is 10 x 3 cm and is poikilitic.
2. Equant to rounded clusters.
3. Enclosed by plagioclase.



78575,0

ROCK TYPE: Mare basalt, coarse
 WEIGHT: 140.0 g
 DIMENSIONS: 5.8 x 4.8 x 3.4 cm
 COLOR: Medium gray (N5)
 SHAPE: Subrounded
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - None
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 2% vugs
 SURFACE: Granulated
 ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag	White	30			1		
Pyrox	Reddish- brown	59			1	0.5 - 0.8	
IIm	Black	10				0.5 - 0.8	
Maf sil	Yellow- green	1				0.5 - 0.8	Olivine



73576,0

ROCK TYPE: Mare basalt, coarse

WEIGHT: 11.64 g

DIMENSIONS: 3.0 x 1.6 x 1.5 cm

COLOR: Brownish gray (5YR 4/1)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - Few, near-penetrative

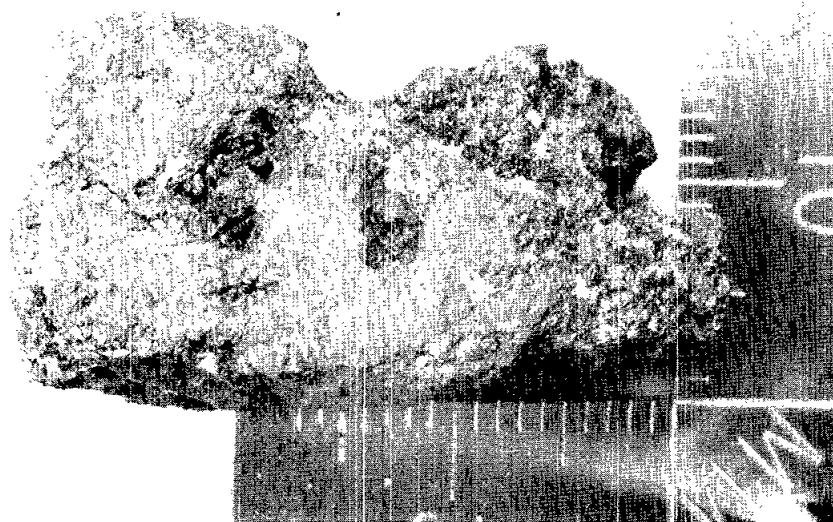
FABRIC/TEXTURE: Isotropic

CAVITIES: Few vugs

SURFACE: Granulated

ZAP PITS: None

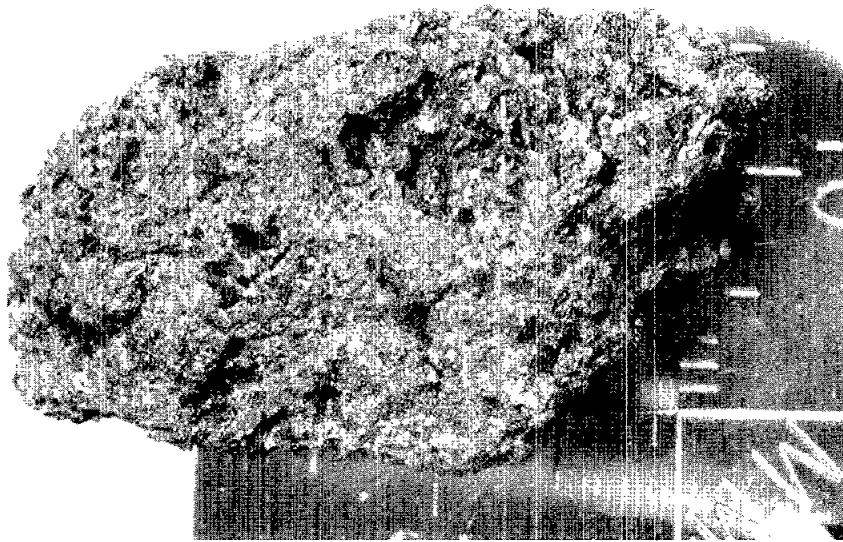
<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	30	Irreg	0.4		
Pyrox	Reddish- brown	60	Irreg- prism	0.4		
Ilm	Black	10	Irreg- tab	0.4		



78577,0

ROCK TYPE: Mare basalt, coarse
 WEIGHT: 8.84 g
 DIMENSIONS: 3.0 x 1.7 x 1.1 cm
 COLOR: Medium dark gray (N^4)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - None
 FABRIC/TEXTURE: Isotropic
 CAVITIES: 5% vugs
 SURFACE: Granulated
 ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF</u> <u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>	<u>RANGE</u>	<u>NOTES</u>
Flag	White	30	Irreg	0.5		
Pyrox	Reddish- brown	60	Irreg- prism	0.5		
Ilm	Black	10	Irreg- tab	0.5		



78578,0

ROCK TYPE: Mare basalt, coarse

WEIGHT: 17.13 g

DIMENSIONS: 3.6 x 1.7 x 1.7 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - Few, non-penetrative

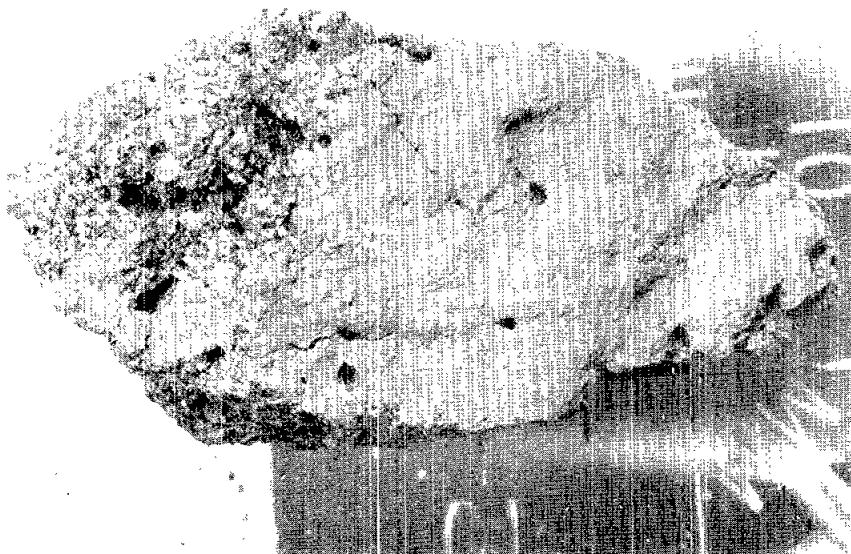
FABRIC/TEXTURE: Isotropic

CAVITIES: 5% with crystals projecting into it

SURFACE: Granulated

ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag	White	30	Irreg		0.4 - 0.6	
Pyrox	Reddish- brown	60	Irreg-prism		0.4 - 0.6	
Ilm	Black	10	Irreg-tab		0.4 - 0.6	



3.2.2 Mare basalt breccia, agglutinated

71515,0

ROCK TYPE: Mare basalt breccia, agglutinated

WEIGHT: 1.635 g

DIMENSIONS: 2.5 x 1.0 x 0.6 cm

COLOR:

SHAPE: Subrounded

VARIABILITY: Parts glassy, parts soil (?) breccia

COHERENCE: Intergranular - Friable

Fracturing - Few

FABRIC/TEXTURE: Fine breccia and glass

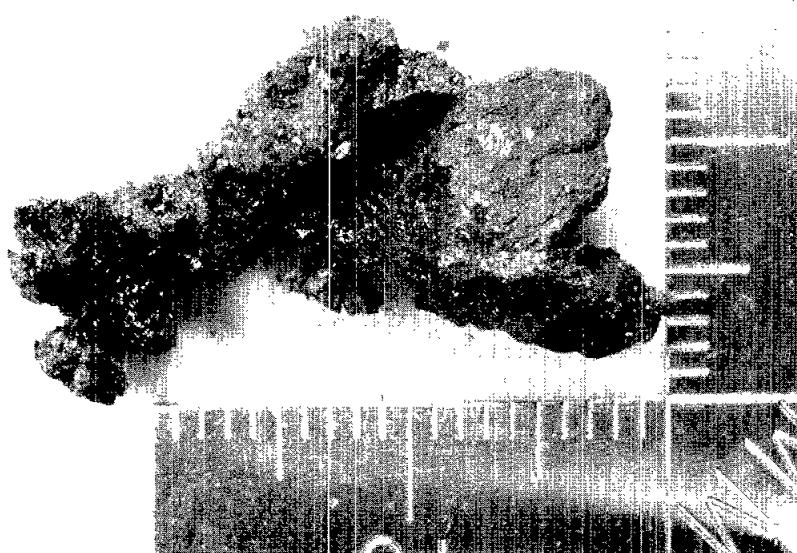
CAVITIES: None

SURFACE: Smooth and granulated (variously)

ZAP PITTS: None

SPECIAL FEATURES: Mare basalt clasts and soil derived from mare basalt, agglutinated by dark glass.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>% OF DOM.</u>	<u>SIZE (mm) RANGE</u>	<u>NOTES</u>
Plag	White					
Pyrox	Reddish-					
	brown					
Ilm	Black					
Maf sil	Yellow-					Olivine
	green					



3.2.3 Anorthosite, cataclastic

72559,0

ROCK TYPE: Anorthosite, cataclastic

WEIGHT: 27.84 g

DIMENSIONS: 3.4 x 2.3 x 1.6 cm

COLOR: Light olive gray (5Y 6/1)

SHAPE: Rounded

VARIABILITY: None

COHERENCE: Intergranular - Ccherent

Fracturing - Few, non-penetrative

FABRIC/TEXTURE: Microbreccia

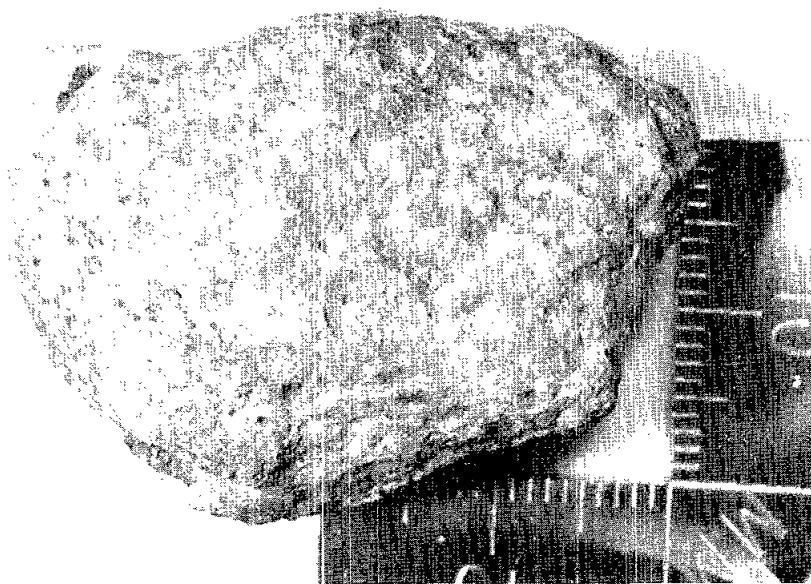
CAVITIES: None

SURFACE: Granulated

ZAP PITS: Few

SPECIAL FEATURES: Probably cataclastic anorthosite.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag	White	99+	Irreg		<0.1 - >2.0	



3.2.4 Anorthositic norite or troctolite

78527,0

ROCK TYPE: Anorthositic norite or troctolite

WEIGHT: 5.16 g

DIMENSIONS: 1.8 x 1.3 x 1.2 cm

COLOR: Greenish gray (5GY 6/1)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

FABRIC/TEXTURE: Isotropic

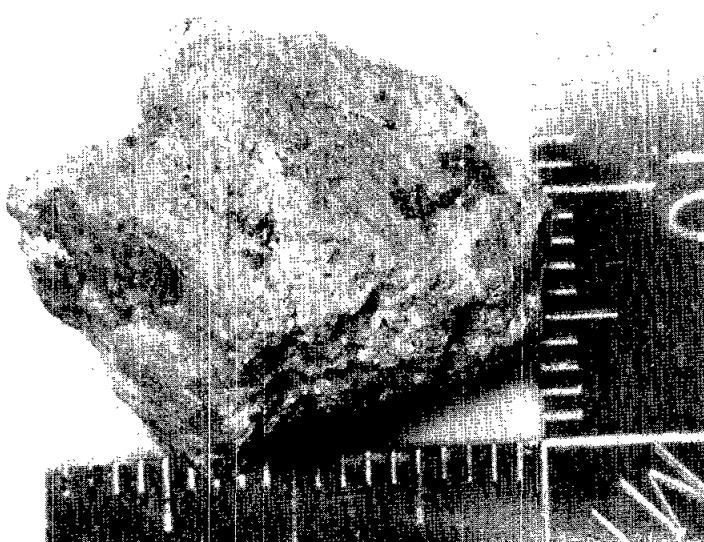
CAVITIES: Few

SURFACE: Granulated

ZAP PITS: None

SPECIAL FEATURES: Probably not a primary texture.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>% OF</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
					<u>DCM.</u>	<u>RANGE</u>	
Plag	White	75	Irreg			0.2 - 0.5	
Maf sill	Green to dark	25	Irreg			0.2 - 0.5	Olivine



3.2.5 Microbreccia

3.2.5.1 Coherent-matrix microbreccia

72505,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 3.09 g

DIMENSIONS: 1.7 x 1.4 x 0.8 cm

COLOR: Medium dark gray (N4)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - None

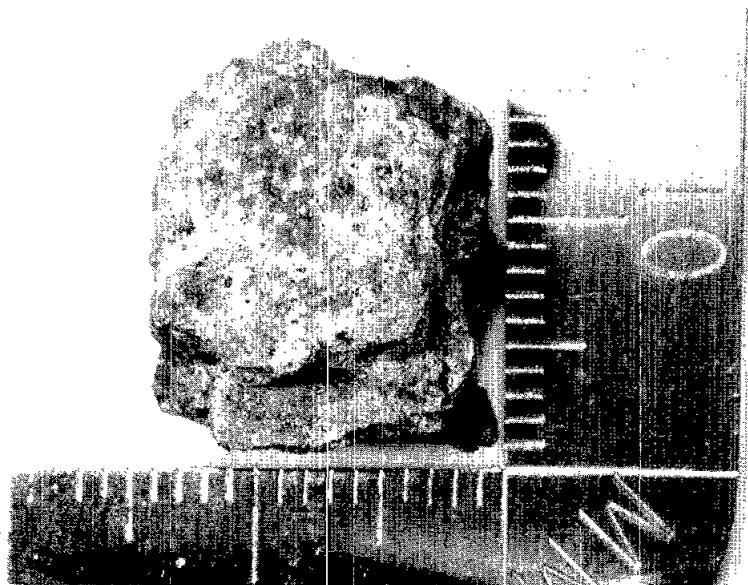
FABRIC/TEXTURE: Microbreccia

CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITS: Many

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
					<u>RANGE</u>	
Plag clasts	White	3			1 - 2	
Maf sil	Yellow- green	1			1 - 2	
Matrix	White & dark					Possibly melted cr recrystal- lized



72535,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 221.4 g

DIMENSIONS: 7.6 x 6.8 x 5.9 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - Few, non-penetrative

FABRIC/TEXTURE: Microbreccia

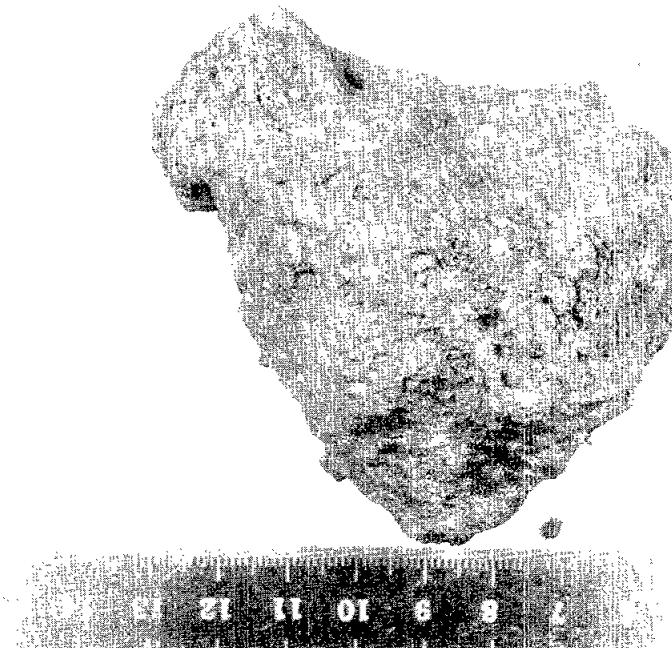
CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITS: Many

SPECIAL FEATURES: One surface has a thin layer of dark glass.

COMPONENT	COLOR	ROCK	SHAPE	SIZE (mm)		NOTES
				DOM.	RANGE	
Plagioclase	White	5	Irreg		1 - 2	
Lithic	White &	3	Irreg		2 - 10	Anorthositic
Clasts	brown					
Matrix	White & dark	92			<0.1 - 1.0	



72536,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 52.30 g

DIMENSIONS: 2.1 x 2.9 x 5.5 cm

COLOR: Medium dark gray (N4)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated

ZAP PITS: Many

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag clasts	White	3	Irreg		0.5 - 2.0	
Lithic clasts	Mostly white	2	Irreg		0.5 - 2.0	Feldspathic with some light- colored mafics
Maf sil	Yellow- green	1	Irreg		0.5 - 1.0	
Matrix	White & dark	94			<0.1 - 1.0	



72537,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 5.192 g

DIMENSIONS: 2.1 x 1.2 x 1.5 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

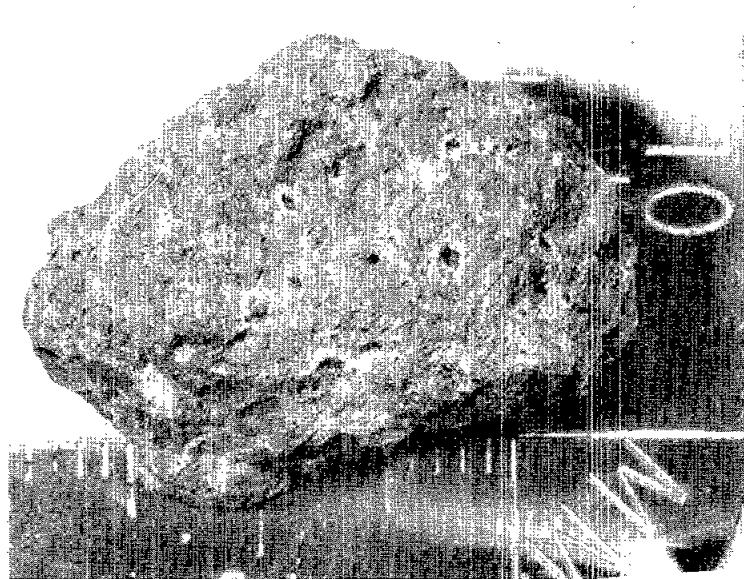
FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated

ZAP PITS: Few

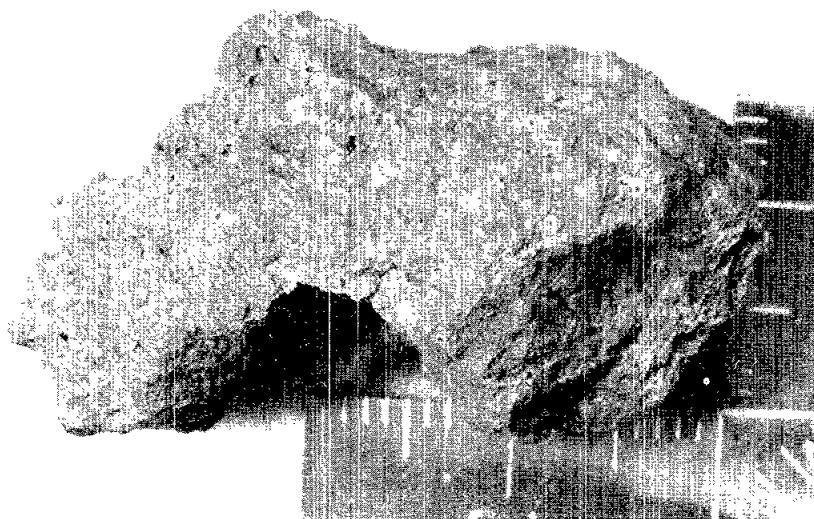
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag clasts	White	3	Irreg		1 - 2	
Maf sil	Yellow-green	1.	Irreg		1 - 2	
Matrix	White & dark	96			< 0.1 - 1.0	



72538,0

ROCK TYPE: Microbreccia, coherent-matrix
 WEIGHT: 11.09 g
 DIMENSIONS: 3.3 x 2.1 x 1.6 cm
 COLOR: Dark gray (N₄)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - None
 FABRIC/TEXTURE: Microbreccia
 CAVITIES: 1% vugs
 SURFACE: Granulated
 ZAP PITS: Few to many

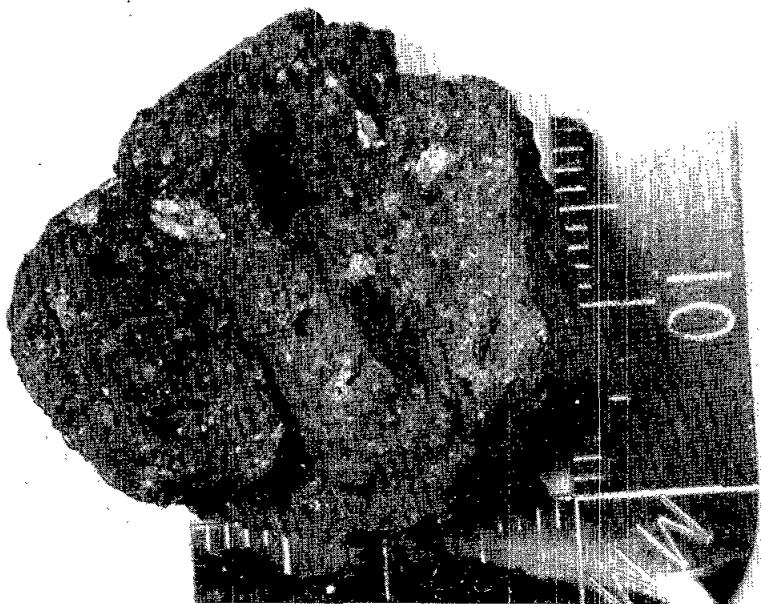
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag clasts	White	5	Irreg		1 - 2	
Spin clasts	Red	<1	Irreg	0.4		
Maf sil clasts	Yellow-green	2	Irreg		0.5 - 1.0	
Matrix	White & dark	92			<0.1 - 1.0	



72539,0

ROCK TYPE: Microbreccia, coherent-matrix
 WEIGHT: 11.22 g
 DIMENSIONS: 2.5 x 2.5 x 1.3 cm
 COLOR: Medium dark gray (N⁴)
 SHAPE: Subrounded
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - Few, non-penetrative
 FABRIC/TEXTURE: Microbreccia
 CAVITIES: 4% vesicles
 SURFACE: Granulated
 ZAP PITS: Few
 SPECIAL FEATURES: Clasts are embedded in dark gray, very fine matrix that appears to be a devitrified glass.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>% OF</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag clasts	White	6				1 - 2	
Lithic clasts	White	2				1 - 3	Anorthositic
Maf sil	Yellow- green	1				1	
Matrix	Dark gray	91				<0.1	Very fine, possibly finely cry- stalline



72545,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 4.055 g

DIMENSIONS: 1.7 x 1.2 x 0.8 cm

COLOR: Medium dark gray (N4)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - None

FABRIC/TEXTURE: Microbreccia

CAVITIES: <1% vugs

SURFACE: Granulated

ZAP PITS: None

SPECIAL FEATURES: Part of the matrix resembles that of rock 72705.

COMPONENT	COLOR	ROCK	SHAPE	% OF		SIZE (mm) RANGE	NOTES
				DOM.			
Plag clasts	White	3	Irreg			0.5 - 2.0	
Lithic clasts	Mostly white	3	Irreg	4			
Maf sil	Yellow- green	1	Irreg			0.5 - 1.0	
Matrix	Dark	93			<0.1		



72546,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 4.856 g

DIMENSIONS: 1.8 x 1.7 x 1.0 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - None

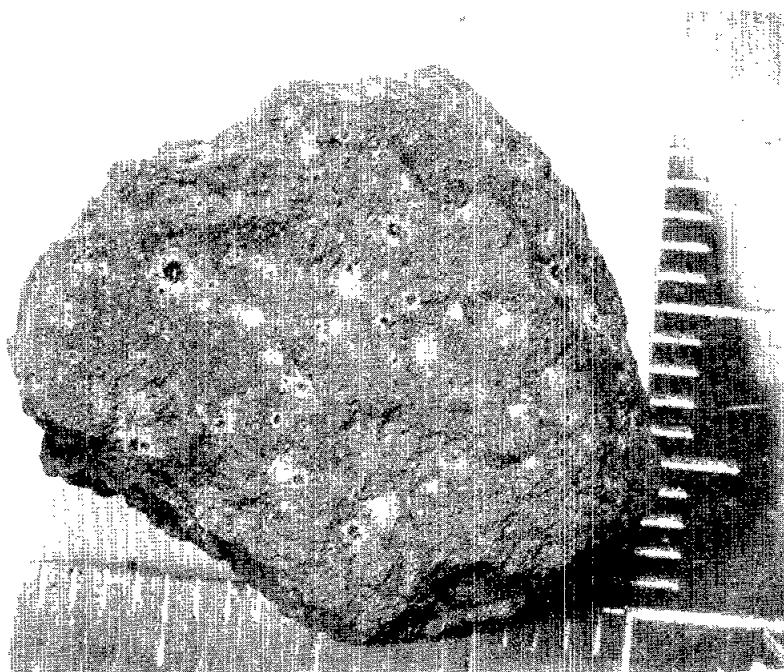
FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated

ZAP PITS: Many (on one surface)

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag clasts	White	2	Irreg		0.5 - 1.0	
Lithic clasts	White &	5	Irreg		1 - 5	Feldspar and honey- brown mafic silicate
Matrix	White & dark	93			<0.1 - 1.0	



72547,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 5.045 g

DIMENSIONS: 2.0 x 1.7 x 1.1 cm

COLOR: Medium dark gray (N4)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

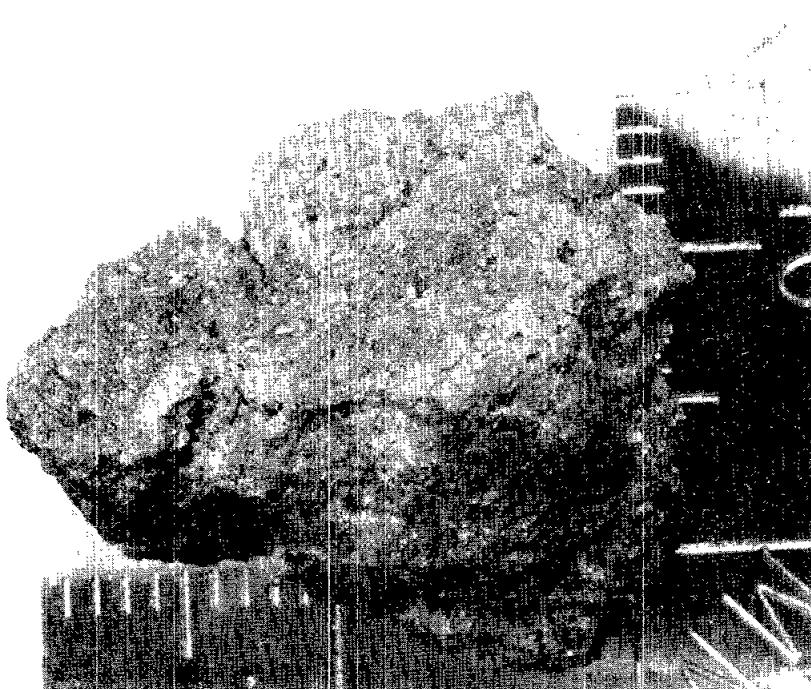
FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated

ZAP PITs: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag clasts	White	5			1 .. 2	
Maf sil	Yellow- green	2			1	
Maf sil	Orange	3			1	
Matrix	White & black	90			<0.1 - 1.0	



72548,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 29.29 g

DIMENSIONS: 4.1 x 2.5 x 2.0 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

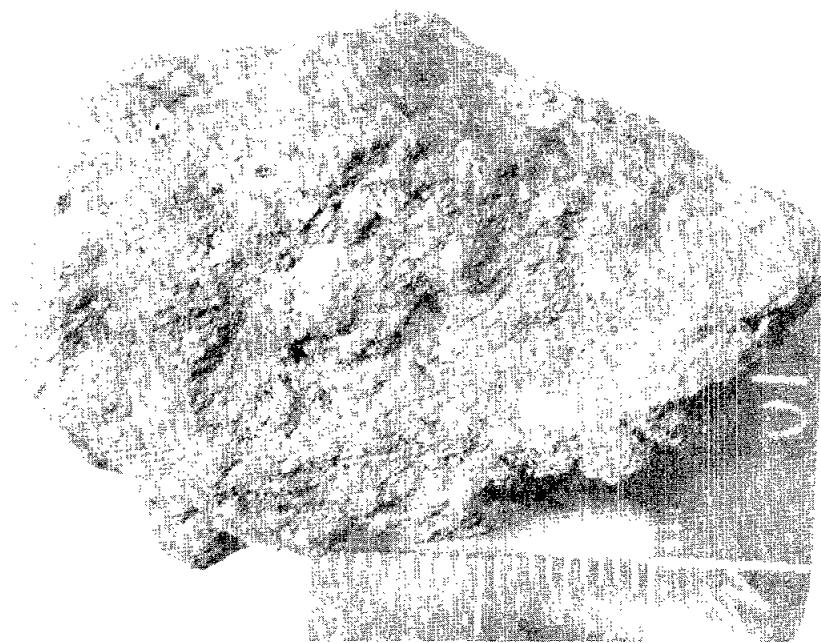
FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated

ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag clasts	White	3			1 - 2	
Maf sil	Yellow-green	1			1 - 2	
Maf sil	Dark brown	2			1 - 2	
Matrix	White & dark	94			<0.1 - 1.0	



72549,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 21.00 g

DIMENSIONS: 2.8 x 2.5 x 2.4 cm

COLOR: Medium dark gray (N4)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - None

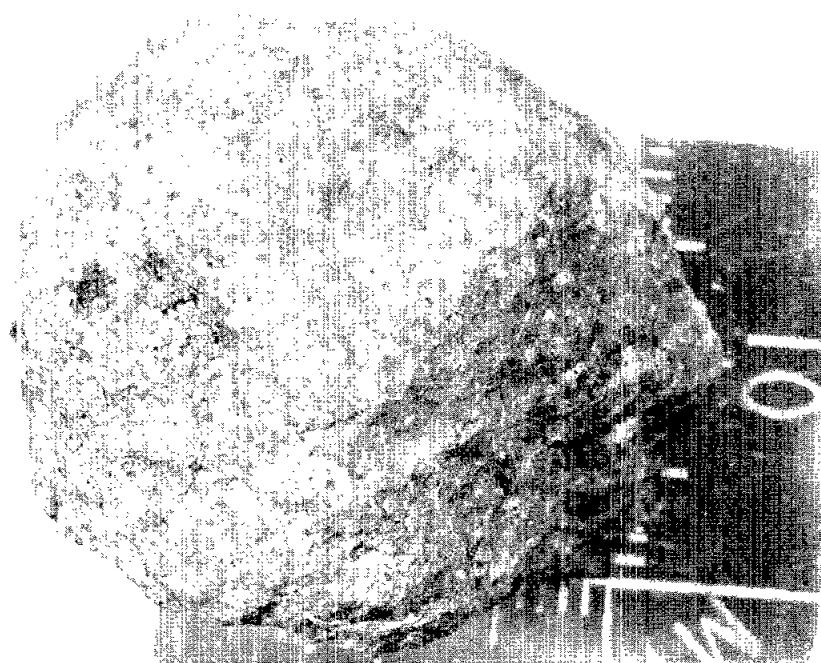
FABRIC/TEXTURE: Microbreccia

CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITS: Few

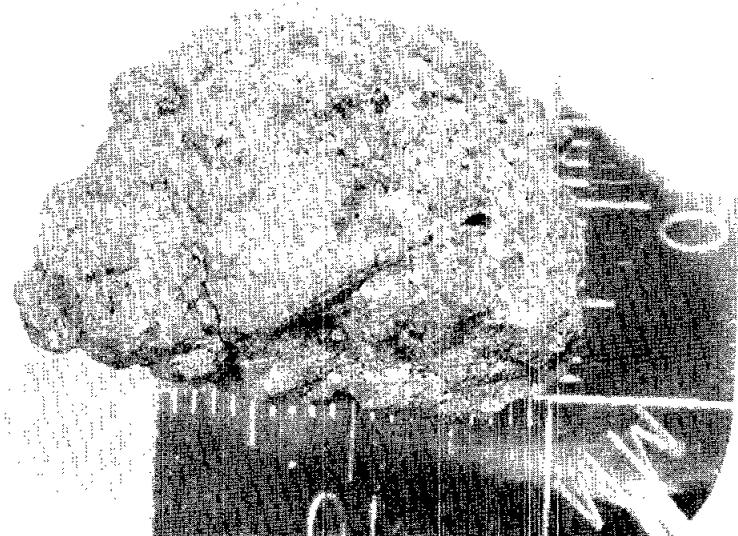
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
					<u>RANGE</u>	
Plag clasts	White	5	Irreg		1 - 2	
Pyrox	Reddish- brown	2	Irreg		1 - 2	
Maf sil	Yellow- green	2	Irreg		1 - 2	
Matrix	White & dark	91				Possibly melted or recrystall- lized



72555,0

ROCK TYPE: Microbreccia, coherent-matrix
 WEIGHT: 10.48 g
 DIMENSIONS: 2.6 x 1.8 x 1.7 cm
 COLOR: Medium dark gray (N₄)
 SHAPE: Subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - Few, non-penetrative
 FABRIC/TEXTURE: Microbreccia
 CAVITIES: 1% vugs
 SURFACE: Granulated
 ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag clasts	White	5		Irreg		1 - 2	
IIm	Black	1		Tab		1	
Maf sil	Yellow-green	2		Irreg		0.5 - 1.5	
Matrix	White & dark	92				< 0.1 - 1.0	



72556,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 3.861 g

DIMENSIONS: 1.5 x 1.5 x 1.5 cm

COLOR: Medium gray (N5)

SHAPE: Subangular

VARIABILITY:

COHERENCE: Intergranular - Coherent

Fracturing - None

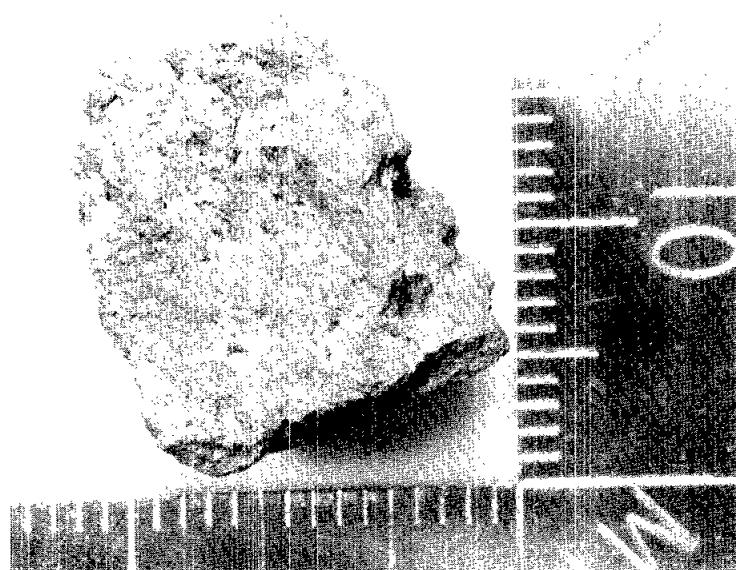
FABRIC/TEXTURE: Microbreccia

CAVITIES: 3% vugs

SURFACE: Granulated

ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Flag clasts	White	2	Irreg	<0.5		
Maf sil	Yellow & green	1	Irreg	<0.5		
Matrix	White & dark	97		<0.1		



72557,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 4.559 g

DIMENSIONS: 2.0 x 1.8 x 1.6 cm

COLOR: Medium gray (N5)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - None

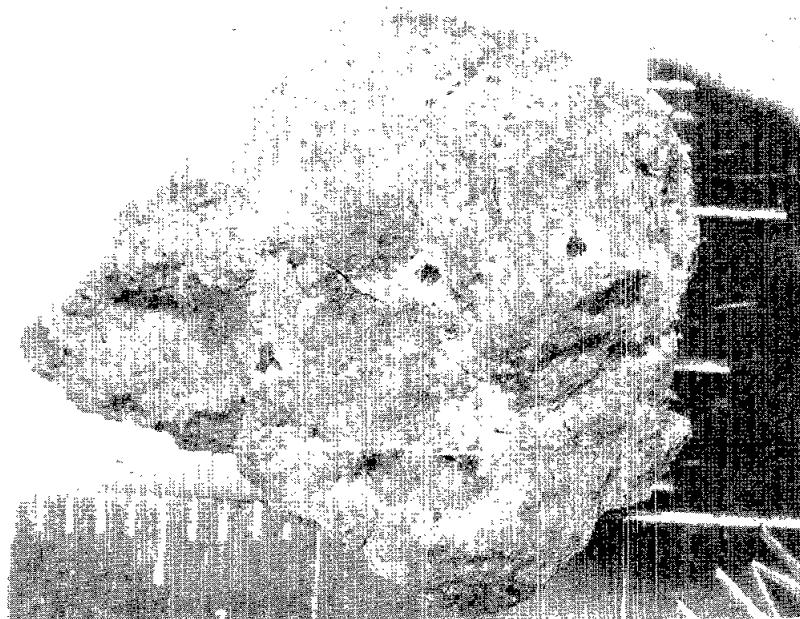
FABRIC/TEXTURE: Microbreccia

CAVITIES: <1% vugs

SURFACE: Granulated

ZAP PITS: Many on one side

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>% OF</u>	<u>SIZE (mm)</u>	<u>DOM.</u>	<u>RANGE</u>	<u>NOTES</u>
Plag clasts	White	2	Irreg		<0.5 - 2.0			
Maf sil	Yellow-green	1	Irreg		0.5 - 1.0			
Matrix	White & dark	97			<0.1			



72558,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 5.713 g

DIMENSIONS: 1.8 x 1.5 x 1.4 cm

COLOR: Medium gray (N5)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - None

FABRIC/TEXTURE: Microbreccia

CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Plag clasts	White	3	Irreg		0.5 - 1.5	
Maf sil	Yellow- green to brown	5	Irreg		< 0.1 - 1.0	
Matrix	White & dark	92		< 0.1		



72705,0

ROCK TYPE: Microbreccia, coherent matrix

WEIGHT: 2.39 g

DIMENSIONS: 1.6 x 1 x 0.7 cm

COLOR: Medium dark gray (N4)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

FABRIC/TEXTURE: Microbreccia

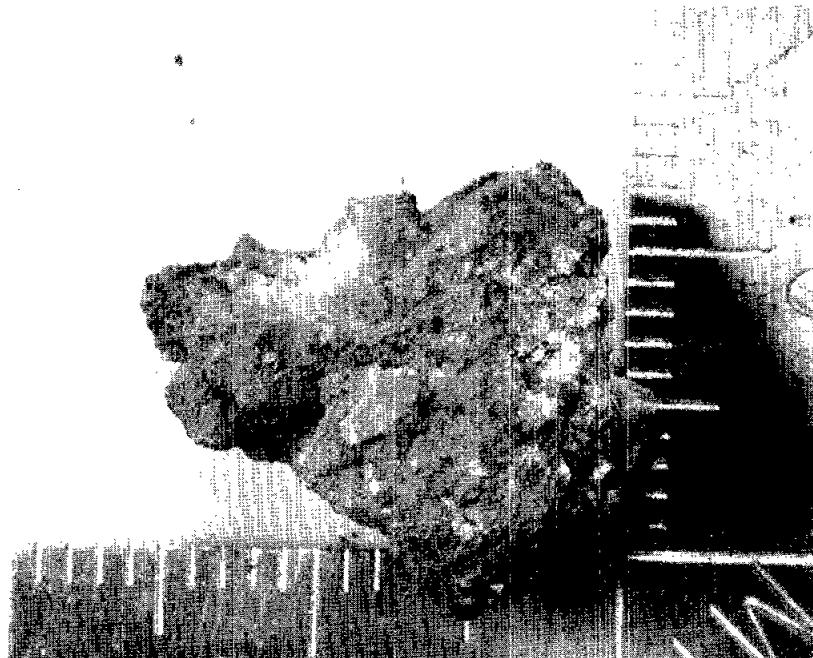
CAVITIES: 1% small vugs

SURFACE: Granulated

ZAP PITS: None

SPECIAL FEATURES: Consists of white plagioclase clasts embedded in dark gray, very fine matrix that appears to be a devitrified glass.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
					<u>% OF</u>	<u>RANGE</u>	
Plagioclase clasts	White	10	Irreg			1 - 3	
Matrix	Dark	90		< 0.1			Very fine, possibly crystalline



72735,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 51.11 g

DIMENSIONS: 4.2 x 3.5 x 3.0 cm

COLOR: Medium dark gray (N4)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - Few, non-penetrative

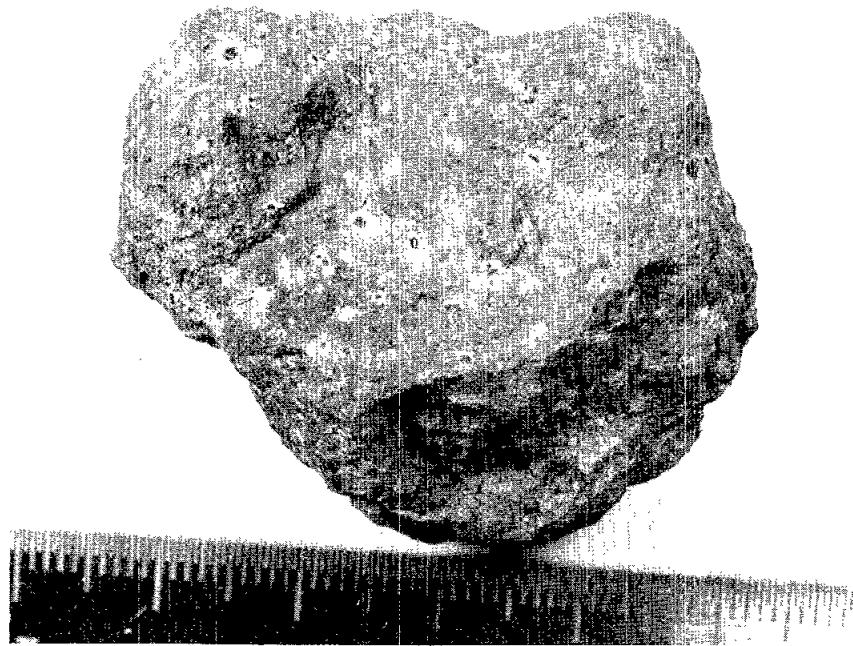
FABRIC/TEXTURE: Microbreccia

CAVITIES: 5% vugs

SURFACE: Granulated

ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
					<u>RANGE</u>	<u>SIZE (mm)</u>	
Plag clasts	White	5	Irreg		0.5	- 2.0	
Maf sil	Yellow-green	1	Irreg		0.5	- 1.0	
Matrix	Dark	94		< 0.1			



72736,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 28.73 g

DIMENSIONS: 5.0 x 2.6 x 1.8 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, near-penetrative

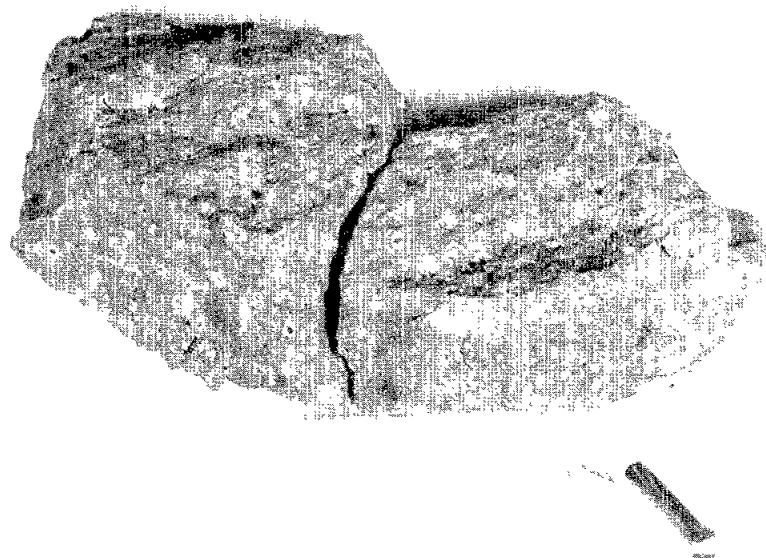
FABRIC/TEXTURE: Microbreccia

CAVITIES: 1% vugs

SURFACE: Granulated

ZAP PITS: Many

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag clasts	White	5	Irreg		1 - 2	
Matrix	White & dark	95		< 0.1		



100

72737,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 3.33 g

DIMENSIONS: 1.5 x 1.1 x 1.1 cm

COLOR: Medium gray (N5)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

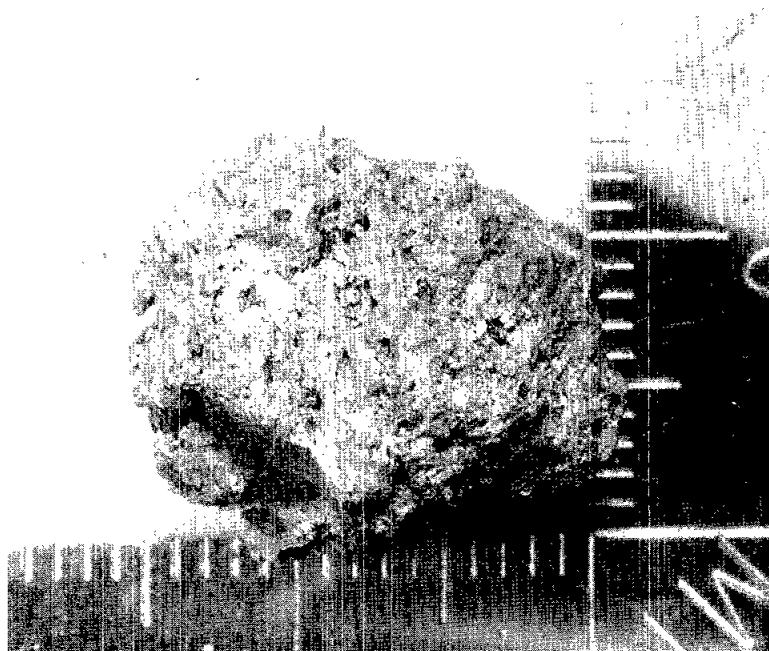
FABRIC/TEXTURE: Microbreccia

CAVITIES: <1% vugs

SURFACE: Granulated

ZAP PITTS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm) DOM.</u>	<u>RANGE</u>	<u>NOTES</u>
Plag clasts	White	5	Irreg		1 - 2	
Maf sil	Yellow- green	2	Irreg		1 - 2	
Matrix	White & dark	93		<0.1 - 1.0		Fine granu- lated feld- spar & minor dark minerals



72738,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 23.75 g

DIMENSIONS: 3.8 x 2.9 x 2.5 cm

COLOR: Medium dark gray (N₄)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - None

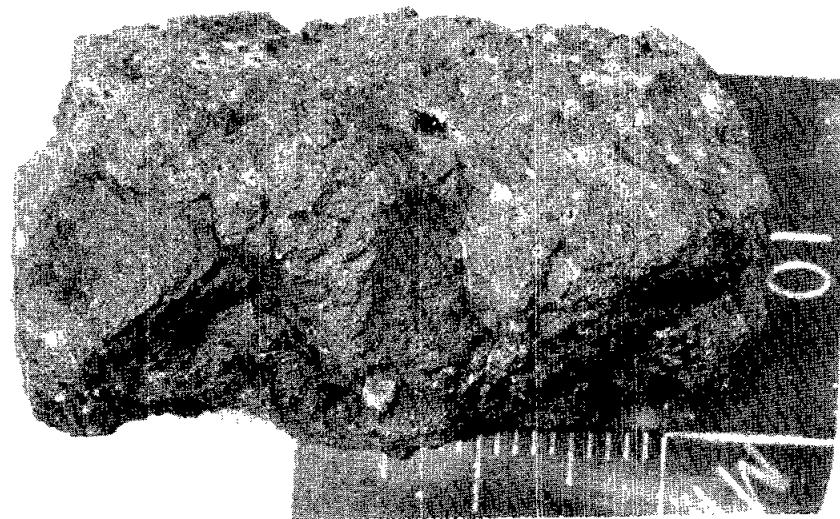
FABRIC/TEXTURE: Microbreccia

CAVITIES: Few vugs

SURFACE: Granulated

ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Flag clasts	White	5	Irreg		<0.5 - 2.0	
Lithic clasts	Mostly white	4	Irreg		up to 6.0	
Maf sil	Yellow- green	1	Irreg		0.5 - 1.0	
Matrix	White & dark	90				



77515,0

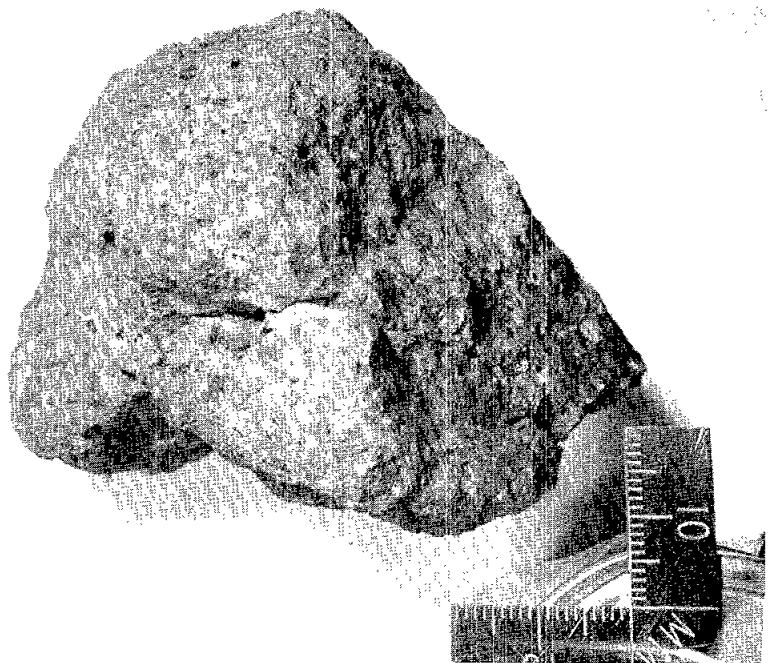
ROCK TYPE: Microbreccia, coherent-matrix
 WEIGHT: 337.6 g
 DIMENSIONS: 7.5 x 6.5 x 5.5
 COLOR: Medium light gray (N6 to N7)
 SHAPE: Blocky, subangular
 VARIABILITY: Homogeneous on hand specimen scale
 COHERENCE: Intergranular - Coherent
 Fracturing - None penetrative
 FABRIC/TEXTURE: Annealed
 CAVITIES: 10%, cavities vary from ellipsoidal smooth-walled cavities to very irregularly shaped cavities. All have drusy linings with some metal. Size varies from <1 mm to 1.0 cm. Slit-like cavities also occur, which are 5 mm x 1 mm.
 SPECIAL FEATURES: Slit cavities show preferred orientation and are concentrated in a zone <1 cm thick.

<u>COMPONENTS</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>RANGE</u>	<u>NOTES</u>
Clasts						
Lithic I	Yellowish gray	<1	Subrnd		9x7	1
Lithic II	Light brownish gray	<u><1</u>	Subrnd		8x6	2
Lithic III	White	<1	Subrnd		2	3
Lithic IV	Blue gray	1	Subang	1	Up to 2	4
Plag	White				Up to 2	
Maf sil	Yellow green	<u><2</u>			Up to 2	
Maf sil	Resinous brown				2	
Matrix		95				5

NOTES:

1. Yellow-green mineral (45%) and plagioclase (55%). Fragment is partly surrounded with a 0.5 - 1.5 mm thick blue-gray selvage.
2. Appears to be broken plagioclase with grain size up to 2 mm. A second clast of this type has 3 mm fragments.
3. One finely sugary aggregate of plagioclase.
4. Aphanitic.
5. Composed of mineral debris identical to larger mineral fragments, fine grained sugary light gray material, and cavities which have metal particles including iron(?) and troilite(?).

77515,0



104

77517,0

ROCK TYPE: Microbreccia, coherent-matrix
 WEIGHT: 45.6 g
 DIMENSIONS: 4 x 4 x 3 cm
 COLOR: Light gray (N7 to N8)
 SHAPE: Blocky, rounded
 VARIABILITY: Homogeneous in fragment distribution and matrix characteristics
 COHERENCE: Intergranular - Moderately tough
 Fracturing - Several penetrative
 FABRIC/TEXTURE: Breccia, annealed breccia
 CAVITIES: <1%, <1 mm
 SURFACE: All surfaces uneven
 ZAP PITS: Zapped on all but freshly broken face.
 SPECIAL FEATURES: Matrix cement appears to be feldspar, cleavage flashes suggest either matrix is recrystallized or presence of a large number of relict plagioclase fragments up to 1 mm. This rock does not fit any of the breccia categories based on boulder or large rock samples.

<u>COMPONENT</u> Clast Type	<u>COLOR</u>	<u>% OF</u> <u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>			<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>		
I	N5-N6	20-25	Ang blocky		<1 - 5		1
II	N6		Ang blocky		10x10		2
III	Yellow green	<u>≤1</u>			<1 - 1		3
IV	Light bluish gray	1 - 2			1 - 2		4
V	Yellow green to brown	Tr			2		5
Maf sil	Green	<u>≤1</u>			<u>≤1</u>		
Maf sil	Brown				<u>≤1</u>		
Matrix		80 - 75					6

NOTES:

1. Cryptocrystalline and very uniform; contain no clasts.
2. Like type I but more vitreous.
3. Mineral debris.
4. Crushed feldspar(?), cryptocrystalline.
5. Yellow green rim, reddish brown interior.
6. Fine-grained, sugary white material plus small fragments of lithic and mineral debris.

105

77517,0



77518,0

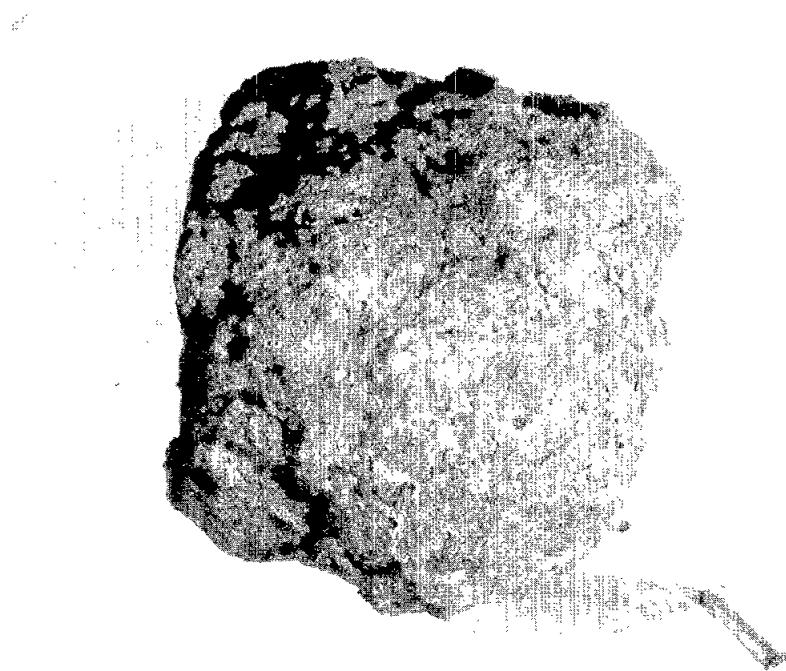
ROCK TYPE: Microbreccia, coherent-matrix
 WEIGHT: 42.5 g
 DIMENSIONS: 3.5 x 3.5 x 2.5 cm
 COLOR: Medium light gray (N6)
 SHAPE: Blocky, subround
 VARIABILITY: Homogeneous
 COHERENCE: Intergranular - Tough
 Fracturing - None
 FABRIC/TEXTURE: Annealed
 CAVITIES: 3 x 5 mm to <1 mm, irregular. 2% cavities have some coarse (0.5 mm) euhedral blocky crystals, suggesting grain growth, but do not have fine druses as in most rocks of this type. One area has slit-like cavities with preferred orientation.
 SURFACE: Rough
 ZAP PITS: Pitted all sides

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>
Clasts					
Maf sil	Yellow green- brown	<1	Prism	1.5x1	1
Maf sil	Deep reddish brown	<1	Ang	1	2
Maf sil	Yellow green		Equant	1	
Lithic	Med gray aphanitic	<1	Ang		Up to 1x2
Matrix					4

NOTES:

1. Zoned to brown at edge, probably pyroxene.
2. Pyroxene(?).
3. Very fine-grained.
4. Annealed fine-grained mixture of half gray and half white components with about 5% opaque specks.

77518,0



77519,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 27.4 g

DIMENSIONS: 3.5 x 2.5 x 2

COLOR: Gray (N6 to N7) with faint greenish tint

SHAPE: Blocky subrounded broken on one surface.

VARIABILITY: Irregular distribution of cavities.

COHERENCE: Intergranular - Tough

Fracturing - Some irregular penetrative fractures.

FABRIC/TEXTURE: Annealed

CAVITIES: 5%, <0.1 to 10 mm; irregular to slit-like cavities are locally aligned; biggest cavities have drusy linings except for the largest one.

SURFACE: Uneven

ZAP PITS: Zapped on all but broken face.

SPECIAL FEATURES: No blue gray clasts.

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Clasts						
Lithic	Yellow gray	≤1	Subrnd		4x3	1
Lithic	Light gray	<1	Subrnd	<1	2x2 - <1	2
Maf sil	Yellow green	1	Irreg to equant	1		
Plag	Light gray	≤1	Subrnd		2x1	3
Maf sil	Honey brown	<1		1		4
Matrix		97				5

NOTES:

1. Granular aggregate (granoblastic) of yellow green mineral (40%) and plagioclase (60%) with an average grain size of 0.5 cm. A small opaque speck is in a yellow green mineral.
2. May be single plagioclase grains.
3. In aggregates with 0.3 cm grain size.
4. Pyroxene(?)
5. Annealed intergrowth of extremely fine-grained material <<0.1 mm, which consists of white and light gray, scattered fine mineral debris.

77519,0



77526,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 1.07 g

DIMENSIONS: 1.5 x 1 x 0.5 cm

SHAPE: Tabular

COHERENCE: Intergranular - Tough
Fracturing - None penetrative

CAVITIES: 1%

SURFACE: Tough

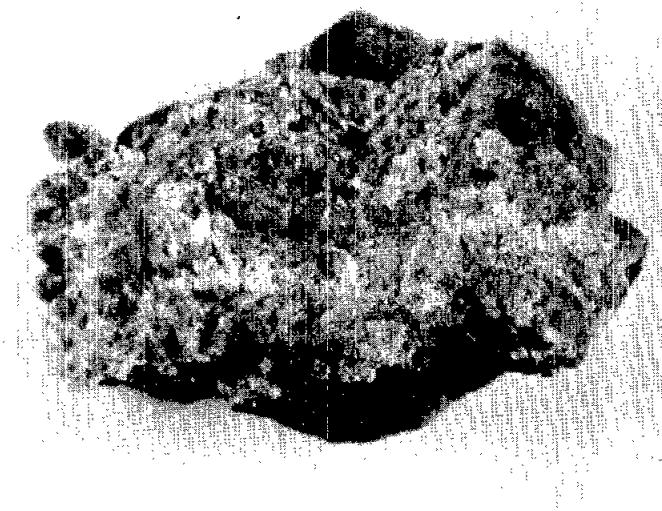
ZAP PITS: Dusty and pitted on one surface

SPECIAL FEATURES: This rock resembles 77517 and is probably a chip from it.

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Clast	Light gray	50		Ang	1	Up to 4x3	1
Matrix	White	50			<1		2

NOTES:

1. Cryptocrystalline, sugary, appearance.
2. Fine-grained white material with dull luster, probably crushed plagioclase. One metallic spherule seen in matrix. Some 1 mm² areas have vitreous luster and look like maskelynite. Also cleavages flashes are locally visible.



1 cm

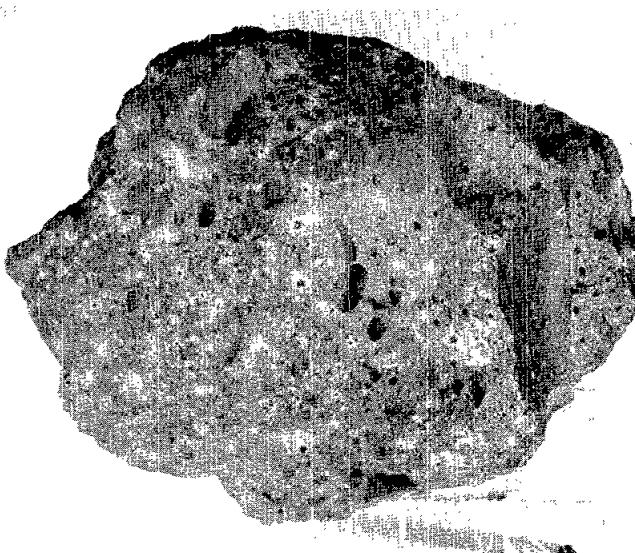
77537,0

ROCK TYPE: Microbreccia, coherent-matrix
 WEIGHT: 71.7 g
 DIMENSIONS: 5 x 4.5 x 3 cm
 COLOR: Tan luster (N5 to N6)
 SHAPE: Somewhat tabular, wedge-shaped, subangular
 VARIABILITY: Homogeneous
 COHERENCE: Intergranular - Tough
 Fracturing - None
 FABRIC/TEXTURE: Annealed metaclastic
 CAVITIES: <1 mm to 15 mm, 20-25%, ellipsoidal, have a preferred orientation, smooth-walled drusy coating with grain size smaller than matrix grain size. Metal in several cavities.
 SURFACE: Hackly
 ZAP PITS: Pitted all over
 SPECIAL FEATURES: Walls of some of larger cavities have smaller cavities developed on them. In one case two adjacent 5 mm cavities are joined by tabular cavities penetrating a 0.1 mm thick wall. Preferred orientation of cavities.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>RANGE</u>	<u>NOTES</u>
Clasts			% OF			
Vitreous	Gray		Tabular		2x1	
Maf sil	Yellow-green				1	
Maf sil	Waxy yellow-green		Prism		1.5x2.5	
I	Med gray		Rnd		1x1	1
Matrix		99				2

NOTES:

1. Cryptocrystalline.
2. Fine-grained, sugary intergrowth of gray (80%) and white (20%).



77538,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 47.2 g

DIMENSIONS: 4 x 3.5 x 3

COLOR: Very light gray (N7 to N8)

SHAPE: Subangular wedge-shaped

COHERENCE: Intergranular - Moderately coherent

Fracturing - Quite a few non-penetrative fractures (may not be annealed).

CAVITIES: None

SURFACE: Hackly

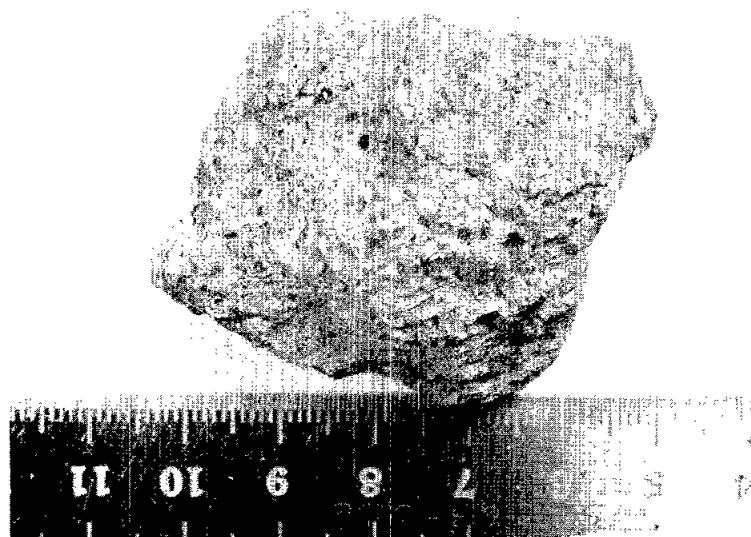
ZAP PITS: Zapped on all but one surface

SPECIAL FEATURES: Similar to knobby breccia group from Station 2 but without haloed fragments. Does not appear to be completely recrystallized and may not be annealed.

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Clasts						
Lithic I	Med gray	5	Ang		<1 - 3	1
Lithic II	White	<1			2	2
Lithic III	Reddish brown	<1		1		
Matrix	Light gray	94		<1		3

NOTES:

1. Forms several fragments to nearly 3 mm; aphanitic to vitreous.
2. Very fine chalky white.
3. Matrix contains clast types in seriate sizes down to limit of resolution, plus some plagioclase debris.



77539,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 39.6 g

DIMENSIONS: 5 x 2 x 2

COLOR: Light gray (N6 to N7) with pale tan coat

SHAPE: Slightly slabby, subangular

COHERENCE: Intergranular - Tough

Fracturing - Two penetrative features

FABRIC/TEXTURE: Annealed

CAVITIES: 15-20%, <1 mm to 11 mm, irregular to slit-like; the slit cavities are lined, have drusy coatings. In one well-exposed cavity, the drusy coating has very fine sugary material with tiny opaque grains.

SURFACE: Rough, very hackly

ZAP PITS: Zapped all over

SPECIAL FEATURES: Large single clast of very fine sugary material forms about 30% of rock.

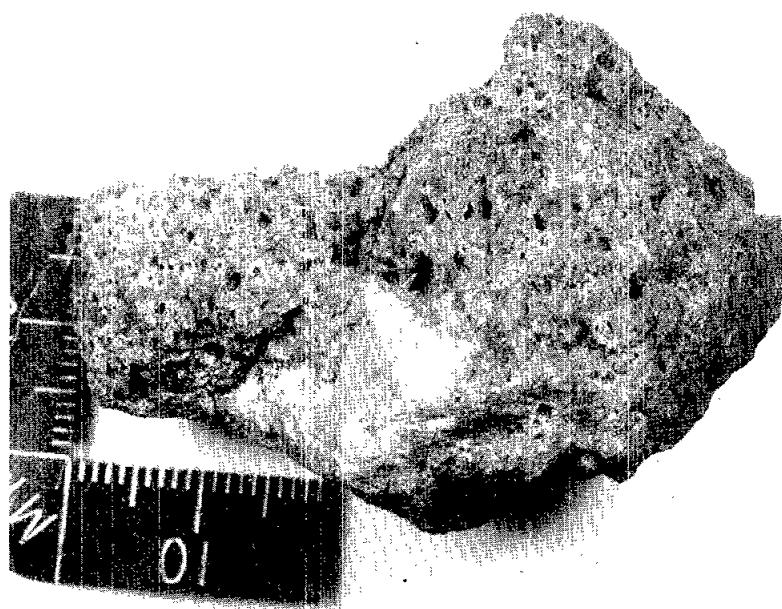
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Clasts						
Lithic I	Very light gray	30	Slabby Subang		21x14x12	1
Lithic II	Yellow green				4x3	2
Lithic III	Pale brownish gray		Subrnd		1x2 - 3x4	3
Plag		<1	Ang		<1 - 1.5	
Maf sil	Yellow green	<1	Ang		1 - 1.5	
Matrix	Gray	70		<1		4

NOTES:

1. Single large clast; very finely sugary, grain size is <0.1 mm; yellow green mineral (3%) occurs in patches up to 2 mm.
2. 65% yellow green in grains to 3 mm; 35% plagioclase in grains to 1 mm.
3. Very finely crystalline; second clast is 3x4 mm.
4. Very fine sugary intergrowth with scattered mineral debris.

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77539,0



77545,0

ROCK TYPE: Microbreccia, coherent-matrix
 WEIGHT: 29.5 g
 DIMENSIONS: 3.5 x 3 x 2.5 cm
 COLOR: Medium light gray (N6)
 SHAPE: Blocky, subangular
 VARIABILITY: Homogeneous
 COHERENCE: Intergranular - Tough
 Fracturing - None
 FABRIC/TEXTURE: Fragmental and granoblastic
 CAVITIES: 25%. 1 cm - size ellipsoidal to <1 mm ellipsoidal to spherical,
 average 4 mm. Smooth-walled. Fine druse and metal particles
 on some cavity walls. Yellow green mineral at edge of one
 cavity. Troilite and Fe in some cavities.
 SURFACE: Rough
 ZAP PITS: Zapped all over
 SPECIAL FEATURES: No slit cavities. Well developed, very fine druses
 on exceptionally smooth-walled cavities, similar to
 76215 in this respect.

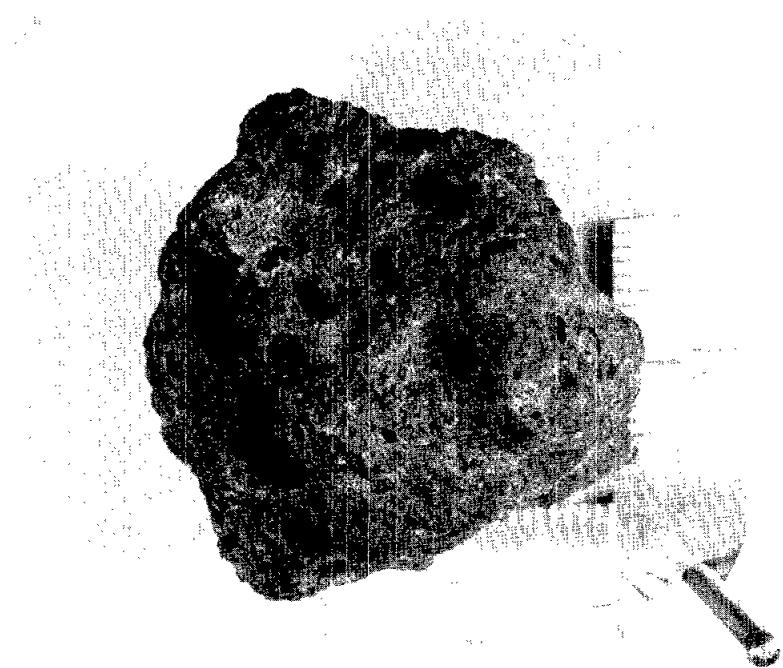
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Clasts						
Lithic I	Greenish yellow	1	Ang		6x6	1
Lithic II	Yellowish green	1	Ang		6x6	2
Maf sil	Yellow green	1	Blocky		To 1.5	
Plag	Gray				1x1	
Glass	Gray		ang		1	
Matrix		98				3

NOTES:

1. Vitreous luster. 30% plagioclase, 20% waxy mafic silicate. Possibly pyroxene (brown) grain size up to 4 mm; plag is interstitial.
2. Fractured. All waxy mafic silicate; looks glassy, grain size 4 mm.
3. Opaque specks to 2% with very fine-grained intergrowth of white and light gray components, some mineral debris, some metal, troilite, and some vitreous blebs.

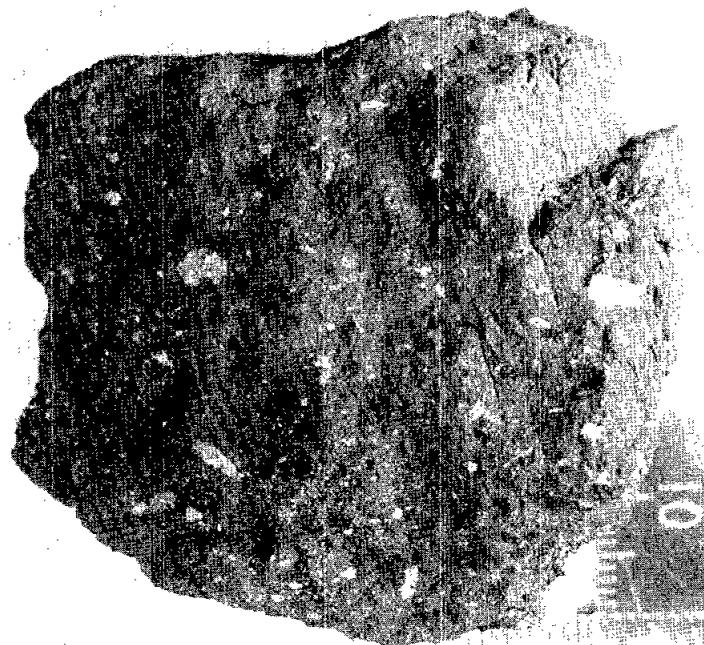
116

77545,0



78535, 0

COMPONENT	COLOR	% OF ROCK	SHAPE	SIZE (mm)		NOTES
				DOM.	RANGE	
Lithic clasts	White to gray	5	Irreg		up to 2	
Plag	White	5	Irreg		up to 2	
Matrix	Dark gray	90	Irreg	< 0.1		Not glassy



78536,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 8.67 g

DIMENSIONS: 3.0 x 1.8 x 1.3 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Many, near-penetrative

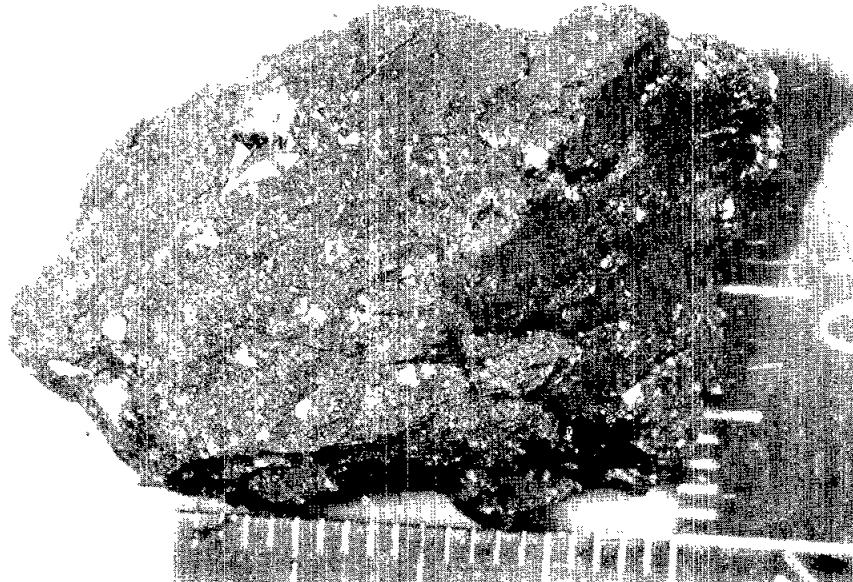
FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated

ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Lithic clasts	White to gray	3	Irreg		up to 2	
Plag	White	5	Irreg		up to 2	
Maf sil	Yellow-green	<1	Irreg		up to 0.5	Olivine
Matrix	Medium dark gray	92		<0.1		



78537,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 11.76 g

DIMENSIONS: 3.0 x 2.0 x 1.9 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Many, near-penetrative

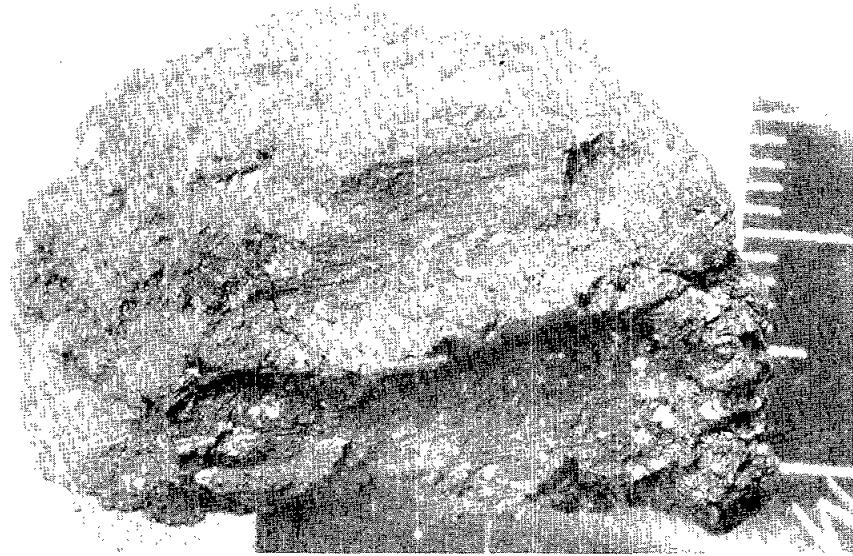
FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated

ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Lithic clasts	White to gray	5	Irreg		up to 3	
Plag	White	8	Irreg		up to 8	
Matrix	Medium dark gray	87		< 0.1		Partly glassy



78538,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 5.82 g

DIMENSIONS: 2.1 x 1.8 x 1.0 cm

COLOR: Dark gray (N3)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - Few, non-penetrative

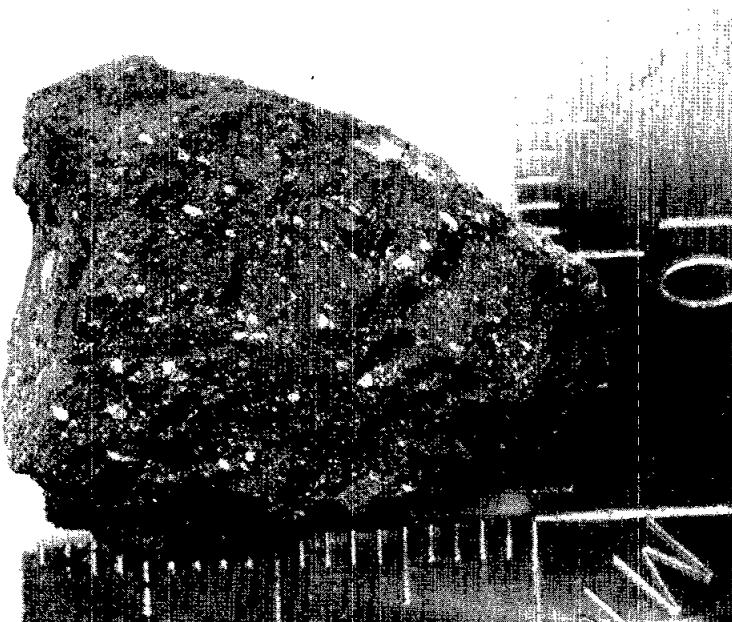
FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated

ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Lithic clasts	White to gray	3	Irreg		up to 2	
Plag	White	5	Irreg		up to 2	
Maf sil	Yellow-green	<1	Irreg		up to 0.5	Olivine Partly glassy
Matrix	Dark gray	92		<0.1		



78539,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 3.73 g

DIMENSIONS: 2.4 x 1.5 x 1.1 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - Few, non-penetrative

FABRIC/TEXTURE: Microbreccia

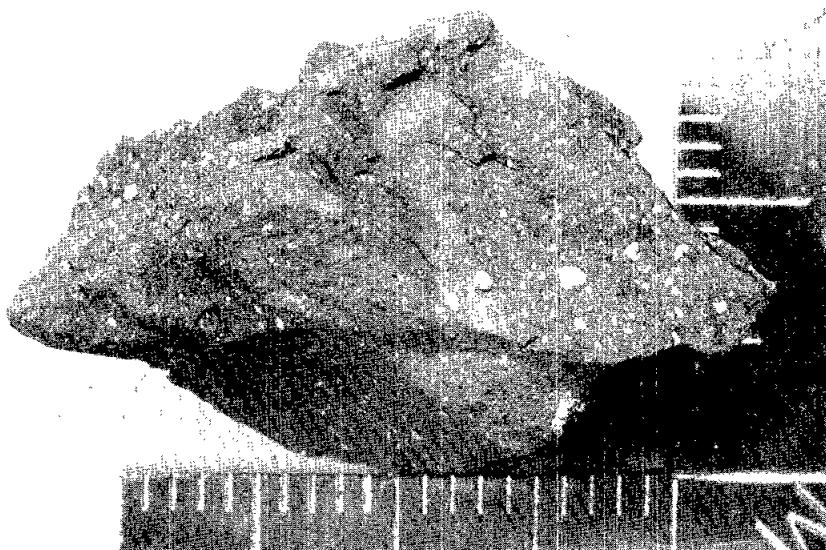
CAVITIES: None

SURFACE: Granulated

ZAP PITS: None

SPECIAL FEATURES: Matrix is dark gray, not glassy, somewhat transitional to soil clods.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Lithic clasts	White to gray	3	Irreg		up to 2	
Plag	White	3	Irreg		up to 2	
Matrix	Medium dark gray	94		< 0.1		



78545,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 8.6 g

DIMENSIONS: 2.5 x 2.0 x 2.0 cm

COLOR: Medium dark gray (N4)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - None

FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated

ZAP PITS: None

SPECIAL FEATURES: One large clast, mare basalt.

COMPONENT	COLOR	ROCK	SHAPE	% OF		NOTES
				DOM.	RANGE	
Lithic clasts	White to light gray	3	Irreg		0.2 - 3.0	Some anor- thositic, some darker
Plag	White	2	Irreg		<0.1 - 1.0	
Maf sil	Yellow- green	<1	Irreg		0.2 - 1.0	Olivine
Matrix	Medium dark gray	95			<0.1 - 1.0	



78546,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 42.66 g

DIMENSIONS: 4.9 x 3.9 x 2.5 cm

COLOR: Medium gray (N5)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

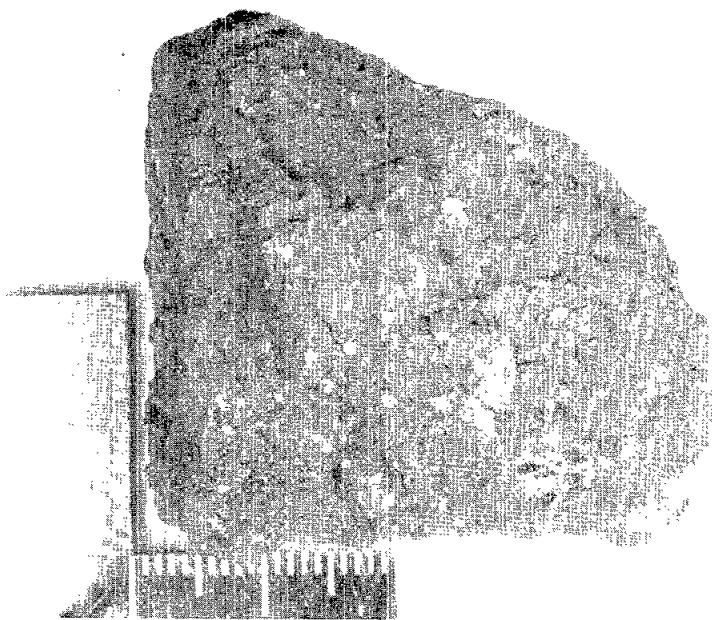
FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated

ZAP PITS: Few, many on one side

COMPONENT	COLOR	ROCK	SHAPE	SIZE (mm)		NOTES
				% OF	DOM.	
Lithic clasts	White to gray	5	Irreg		up to 6	
Plag	White	8	Irreg		up to 2	
Maf sil	Green	< 1	Irreg		up to 2	Olivine
Matrix	Medium Gray	87				



78556,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 9.50 g

DIMENSIONS: 3.4 x 2.0 x 1.3 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated

ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag	White	5	Irreg		up to 3	
Maf sil	Yellow to green	< 1	Irreg		up to 2	Olivine
Matrix	Medium dark gray	95			< 0.1	



78557,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 7.19 g

DIMENSIONS: 3.0 x 1.8 x 1.2 cm

COLOR: Medium dark gray (N4)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

FABRIC/TEXTURE: Microbreccia

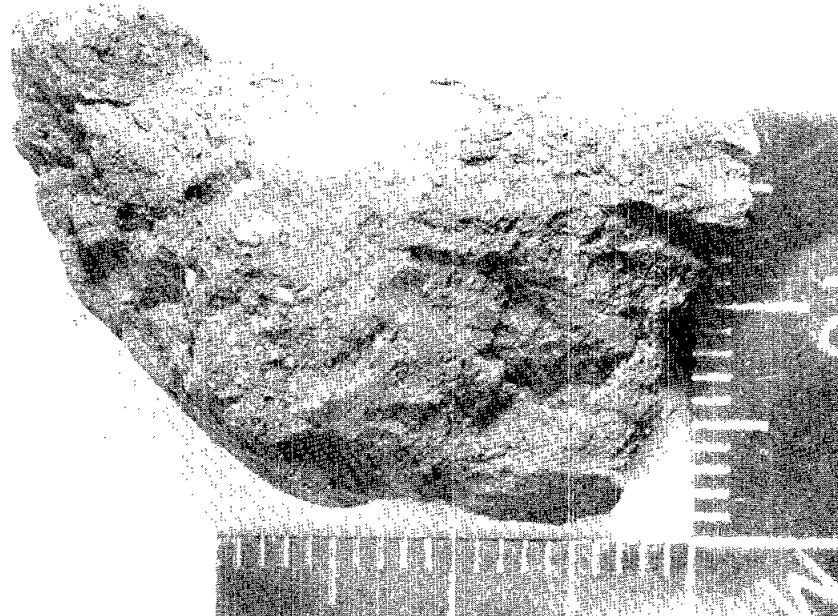
CAVITIES: None

SURFACE: Granulated

ZAP PITS: Many on one side

SPECIAL FEATURES: Slickenside (shiny) on one side.

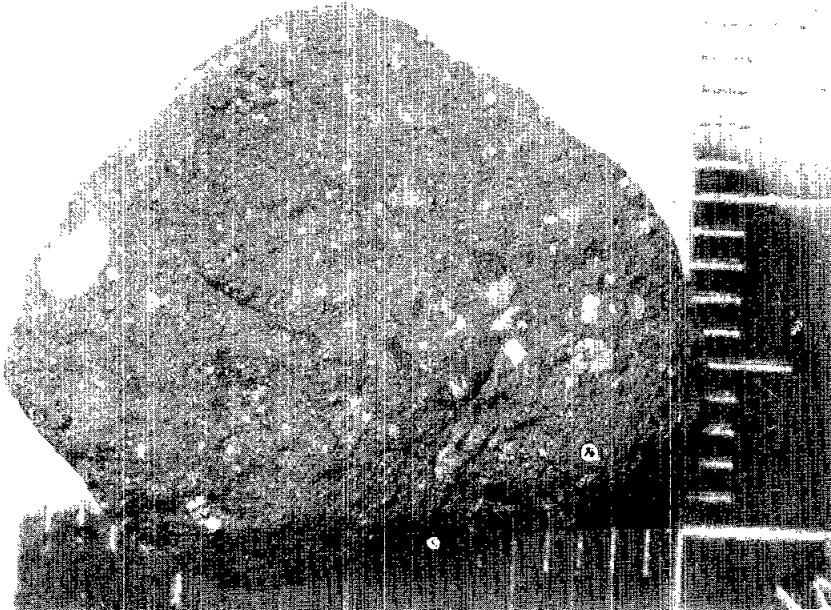
<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Lithic clasts	White to gray	3	Irreg		up to 3	
Plag	White	3	Irreg		< 1	
Matrix	Medium dark gray	94			< 0.1	



78565,0

ROCK TYPE: Microbreccia, coherent-matrix
 WEIGHT: 3.50 g
 DIMENSIONS: 1.9 x 1.5 x 1.0 cm
 COLOR: Medium dark gray (N4)
 SHAPE: Subrounded to subangular
 VARIABILITY: None
 COHERENCE: Intergranular - Coherent
 Fracturing - Few
 FABRIC/TEXTURE: Microbreccia
 CAVITIES: None
 SURFACE: Granulated
 ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Lithic clasts	White to gray	2	Irreg		up to 2	
Plag	White	3	Irreg		<1.5	
Maf sil	Yellow-green	<1	Irreg			Olivine
Matrix	Medium dark gray	95		<0.1		



78567,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 18.88 g

DIMENSIONS: 3.1 x 2.4 x 2.2 cm

COLOR: Medium dark gray (N4)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - Few, non-penetrative

FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated

ZAP PITS: Many on one side

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Lithic clasts	White to gray	5	Irreg		up to 8	
Plag	White	8	Irreg		up to 3	
Maf sil	Yellow-green	<1	Irreg		up to 0.5	
Matrix	Medium dark gray	87		< 0.1		



78568,0

ROCK TYPE: Microbreccia, coherent-matrix

WEIGHT: 3.57 g

DIMENSIONS: 1.6 x 1.5 x 1.3 cm

COLOR: Medium dark gray (N4)

SHAPE: Angular

VARIABILITY: None

COHERENCE: Intergranular - Coherent
Fracturing - Numerous, partly penetrative

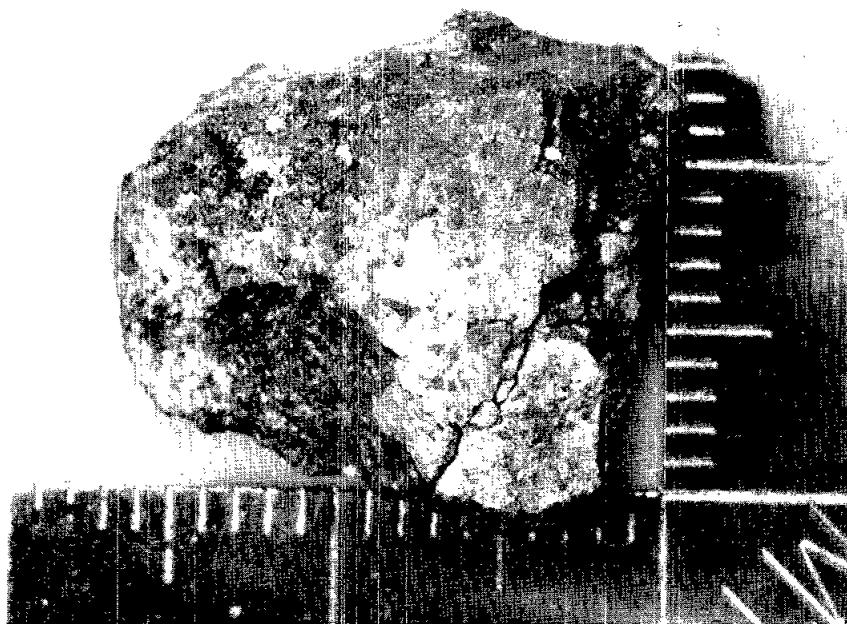
FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated to glassy

ZAP PTS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Lithic clasts	White to gray	10	Irreg		up to 3	
Plag	White	8	Irreg		up to 2	
Matrix	Black	82				Glassy



3.2.5.2 Friable-matrix microbreccia

78547,0

ROCK TYPE: Microbreccia, friable-matrix

WEIGHT: 29.91 g

DIMENSIONS: 4.0 x 2.8 x 2.4 cm

COLOR: Medium dark gray (N4)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Friable to coherent
Fracturing -

FABRIC/TEXTURE: Microbreccia

CAVITIES: None

SURFACE: Granulated to powdery

ZAP PITS: None

SPECIAL FEATURES: Some irregular grains of either glass or olivine
were observed.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Lithic clasts	Dark to white	7	Irreg		0.2 - 7.0	Some anorthositic, some possibly mare basalts
Plag	White	2	Irreg		0.1 - 0.5	
Maf sil	Green	< 1	Irreg		0.4	Olivine
Matrix	Medium dark gray	90			<0.1 - 0.2	



78555,0

ROCK TYPE: Microbreccia, friable-matrix
 WEIGHT: 6.64 g
 DIMENSIONS: 2.6 x 1.8 x 1.1 cm
 COLOR: Brownish gray (5YR 3/1)
 SHAPE: Subrounded
 VARIABILITY: None
 COHERENCE: Intergranular - Friable to coherent
 Fracturing - Few, non-penetrative
 FABRIC/TEXTURE: Microbreccia
 CAVITIES: None
 SURFACE: Granulated to powdery
 ZAP PITS: None
 SPECIAL FEATURES: Red, yellow, brown, green and orange clasts were also observed.

COMPONENT	COLOR	ROCK	SHAPE	SIZE (mm)		NOTES
				DOM.	RANGE	
Lithic clasts	White	5-10	Irreg		0.5 - 3.0	Mainly anorthositic
Plag Matrix	White	5	Irreg		0.2 - 1.0	
	Dark brownish gray	85			<0.1 - 0.5	

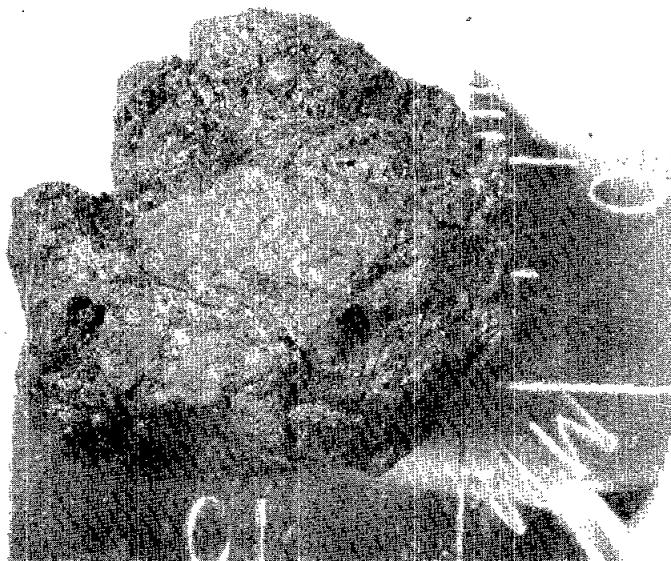


3.2.6 Green glassy rock (probably melted breccia)

78526,0

ROCK TYPE: Green glassy rock, probably melted breccia
WEIGHT: 8.77 g
DIMENSIONS: 2.2 x 1.6 x 1.6 cm
COLOR: Dark greenish gray (5GY 4/1)
SHAPE: Subangular
VARIABILITY: None
COHERENCE: Intergranular - Coherent
Fracturing - Few, non-penetrative
FABRIC/TEXTURE: Microbreccia
CAVITIES: Few
SURFACE: Glassy
ZAP PITS: Many
SPECIAL FEATURES: Possibly glassy, possibly crystalline.

<u>COMPONENT</u>	<u>COLOR</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	% OF	<u>SIZE (mm)</u>	<u>NOTES</u>
					100		
Gray-green							see SPECIAL FEATURES



78525,0

ROCK TYPE: Agglutinate

WEIGHT: 5.11 g

DIMENSIONS: 2.6 x 2.1 x 1.7 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subangular

VARIABILITY: None

COHERENCE: Intergranular - Coherent

Fracturing - None

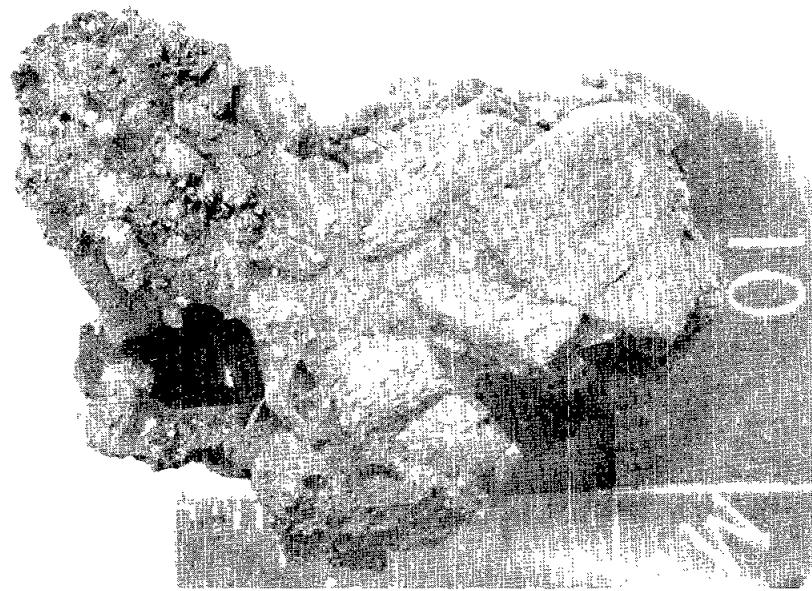
FABRIC/TEXTURE: Agglutinated microbreccia

CAVITIES: Very numerous vesicles

SURFACE: Glassy and granulated

ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Glass	Black	50	Irreg			
Micro- breccia, coherent, dark matrix	Dark gray	50	Irreg			Vesiculated



78548,0

ROCK TYPE: Soil clod, friable
 WEIGHT: 15.95 g
 DIMENSIONS: 2.6 x 2.2 x 2.1 cm
 COLOR: Medium dark gray (N4)
 SHAPE: Rounded
 VARIABILITY: None
 COHERENCE: Intergranular - Friable
 Fracturing - Few

FABRIC/TEXTURE: Soil clod

CAVITIES: None

SURFACE: Powdery

ZAP PITS: None

SPECIAL FEATURES: Green glass spherule

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm)</u>	<u>NOTES</u>
Plag	White	1	Irreg		0.1 - 0.3	
Glass spherule	Green	< 1	Rounded		0.5	
Matrix	Dark gray	98			< 0.05	



78566,0

ROCK TYPE: Soil clod, friable

WEIGHT: 0.77 g

DIMENSIONS: Two pieces: (1) 1.3 x 0.7 x 0.5 cm
(2) 0.7 x 0.5 x 0.3 cm

COLOR: Medium gray (N5)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Friable
Fracturing - None

FABRIC/TEXTURE: Soil clod

CAVITIES: None

SURFACE: Powdery

ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF</u>	<u>ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>	<u>RANGE</u>	<u>NOTES</u>
Plag	White		1	Irreg	< 0.5		
Matrix	Medium gray	99			< 0.1		



3.2.8.2 Soil clod, transitional to friable-matrix
microbreccia

78549,0

ROCK TYPE: Soil clod, transitional to friable-matrix
microbreccia

WEIGHT: 16.09 g

DIMENSIONS: 3.2 x 2.6 x 1.4 cm

COLOR: Medium dark gray (N⁴)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Friable to coherent
Fracturing - Very few, non-penetrative

FABRIC/TEXTURE: Soil clod transitional to microbreccia

CAVITIES: None

SURFACE: Powdery

ZAP PITS: None

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>		<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	
Lithic clasts	Gray to white	< 1	Irreg		up to 4 mm	
Plag	White	< 1	Irreg		< 1	
Glass spherule	Dark gray	< 1	Spherical		1	
Matrix	Medium dark gray	100			< 0.1	



78558,0

ROCK TYPE: Soil clod, transitional to friable-matrix microbreccia

WEIGHT: 3.78 g

DIMENSIONS: 2.2 x 1.5 x 1.4 cm

COLOR: Dark gray (N3)

SHAPE: Subrounded

VARIABILITY: None

COHERENCE: Intergranular - Friable

Fracturing - None

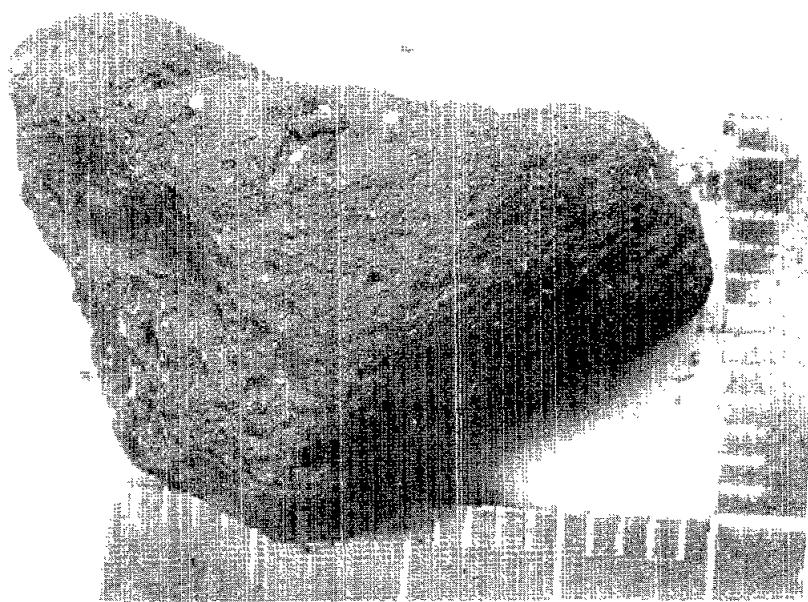
FABRIC/TEXTURE: Soil clod transitional to microbreccia

CAVITIES: None

SURFACE: Powdery

ZAP PITS: Few

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>DOM.</u>	<u>SIZE (mm) RANGE</u>	<u>NOTES</u>
Plag	White	1	Irreg		< 1	
Matrix	Dark gray	99			< 0.1	



78559,0

ROCK TYPE: Soil clod, transitional to friable-matrix
microbreccia

WEIGHT: 3.05 g

DIMENSIONS: 2.2 x 1.5 x 0.8 cm

COLOR: Dark brownish gray (5YR 3/1)

SHAPE: Subrounded

VARIABILITY: see SPECIAL FEATURES

COHERENCE: Intergranular - Friable
Fracturing - Few

FABRIC/TEXTURE: Soil clod to microbreccia

CAVITIES: None, but see SPECIAL FEATURES

SURFACE: Powdery to granulated

ZAP PITS: None

SPECIAL FEATURES: Some small areas are vesiculated and have apparently been melted.

<u>COMPONENT</u>	<u>COLOR</u>	<u>% OF ROCK</u>	<u>SHAPE</u>	<u>SIZE (mm)</u>			<u>NOTES</u>
				<u>DOM.</u>	<u>RANGE</u>	<u>0.2 - 0.5</u>	
Lithic clasts	White	2	Irreg				Mainly anorthositic
Plag Matrix	White	2	Irreg				
	Dark brownish gray	96					< 0.1 - 0.2



4. Numerical sample inventory and sample index

Sample No.	Weight (in grams)	Rock Type	Page
71507,0	3.962	Mare basalt, medium	37
71508,0	3.423	Mare basalt, medium	38
71509,0	1.690	Mare basalt, coarse; moderately olivine-rich	59
71515,0	1.635	Mare basalt, agglutinated	76
71525,0	3.900	Mare basalt, medium	39
71526,0	12.91	Mare basalt, fine	13
71527,0	2.186	Mare basalt, fine	14
71528,0	11.25	Mare basalt, fine	15
71529,0	6.025	Mare basalt, medium	40
71535,0	17.71	Mare basalt, medium	41
71536,0	5.322	Mare basalt, coarse	60
71537,0	12.25	Mare basalt, fine	16
71538,0	8.038	Mare basalt, fine	17
71539,0	10.90	Mare basalt, medium	42
71545,0	17.26	Mare basalt, fine	18
71546,0	150.7	Mare basalt, fine	19
71547,0	12.54	Mare basalt, medium	43
71548,0	25.46	Mare basalt, medium	44
71549,0	7.903	Mare basalt, medium	45
71555,0	4.547	Mare basalt, medium	46
71556,0	29.14	Mare basalt, coarse	61

Sample No.	Weight (in grams)	Rock Type	Page
71557,0	40.35	Mare basalt, coarse	62
71558,0	15.81	Mare basalt, medium, moderately olivine-rich	47
71559,0	82.16	Mare basalt, coarse	63
71565,0	24.09	Mare basalt, coarse	64
71566,0	415.4	Mare basalt, coarse	65
71567,0	146.0	Mare basalt, coarse	66
71568,0	10.02	Mare basalt, coarse	67
71569,0	289.6	Mare basalt, fine	20
71575,0	2.113	Mare basalt, fine	21
71576,0	23.54	Mare basalt, fine	22
71577,0	234.7	Mare basalt, fine	23
71578,0	353.9	Mare basalt, fine	24
71579,0	7.937	Mare basalt, medium	48
71585,0	13.86	Mare basalt, medium	49
71586,0	26.92	Mare basalt, medium	50
71587,0	41.27	Mare basalt, medium	51
71588,0	48.98	Mare basalt, medium; moderately olivine-rich	52
71589,0	6.860	Mare basalt, fine	25
71595,0	25.21	Mare basalt, medium	53
71596,0	61.05	Mare basalt, fine; moderately olivine-rich	26
71597,0	12.35	Mare basalt, coarse-very olivine-rich	68

Sample No.	Weight (in grams)	Rock Type	Page
72505,0	3.09	Microbreccia, coherent-matrix	82
72535,0	221.4	Microbreccia, coherent-matrix	83
72536,0	52.30	Microbreccia, coherent-matrix	84
72537,0	5.192	Microbreccia, coherent-matrix	85
72538,0	11.09	Microbreccia, coherent-matrix	86
72539,0	11.22	Microbreccia, coherent-matrix	87
72545,0	4.055	Microbreccia, coherent-matrix	88
72546,0	4.856	Microbreccia, coherent-matrix	89
72547,0	5.045	Microbreccia, coherent-matrix	90
72548,0	29.29	Microbreccia, coherent-matrix	91
72549,0	21.00	Microbreccia, coherent-matrix	92
72555,0	10.48	Microbreccia, coherent-matrix	93
72556,0	3.861	Microbreccia, coherent-matrix	94
72557,0	4.559	Microbreccia, coherent-matrix	95
72558,0	5.713	Microbreccia, coherent-matrix	96
72559,0	27.84	Anorthosite, cataclastic	78
72705,0	2.39	Microbreccia, coherent-matrix	97
72735,0	51.11	Microbreccia, coherent-matrix	98
72736,0	28.73	Microbreccia, coherent-matrix	99
72737,0	3.33	Microbreccia, coherent-matrix	100
72738,0	23.75	Microbreccia, coherent-matrix	101
77515,0	337.6	Microbreccia, coherent-matrix	102
77516,0	103.7	Mare basalt, medium to coarse	57

Sample No.	Weight (in grams)	Rock Type	Page
77517,0	45.6	Microbreccia, coherent-matrix	104
77518,0	42.5	Microbreccia, coherent-matrix	106
77519,0	27.4	Microbreccia, coherent-matrix	108
77526,0	1.07	Microbreccia, coherent-matrix	110
77535,0	577.8	Mare basalt, coarse	69
77536,0	355.3	Mare basalt, coarse	70
77537,0	71.7	Microbreccia, coherent-matrix	111
77538,0	47.2	Microbreccia, coherent-matrix	112
77539,0	39.6	Microbreccia, coherent-matrix	113
77545,0	29.5	Microbreccia, coherent-matrix	115
78525,0	5.11	Agglutinate	129
78526,0	8.77	Green glassy rock, probably melted breccia	127
78527,0	5.16	Anorthositic norite or troctolite	80
78528,0	7.00	Mare basalt, fine	27
78535,0	103.4	Microbreccia, coherent-matrix	111
78536,0	8.67	Microbreccia, coherent-matrix	112
78537,0	11.76	Microbreccia, coherent-matrix	113
78538,0	5.82	Microbreccia, coherent-matrix	114
78539,0	3.73	Microbreccia, coherent-matrix	115
78545,0	8.6	Microbreccia, coherent-matrix	116
78546,0	42.66	Microbreccia, coherent-matrix	117
78547,0	29.91	Microbreccia, friable-matrix	124
78548,0	15.95	Soil clod, friable	133

Sample No.	Weight (in grams)	Rock Type	Page
78549,0	16.09	Soil clod, transitional to friable-matrix microbreccia	134
78555,0	6.64	Microbreccia, friable-matrix	125
78556,0	9.50	Microbreccia, coherent-matrix	118
78557,0	7.19	Microbreccia, coherent-matrix	119
78558,0	3.78	Soil clod, transitional to friable-matrix microbreccia	135
78559,0	3.05	Soil clod, transitional to friable-matrix microbreccia	136
78565,0	3.50	Microbreccia, coherent-matrix	120
78566,0	0.77	Soil clod, friable	132
78567,0	18.88	Microbreccia, coherent-matrix	121
78568,0	3.57	Microbreccia, coherent-matrix	122
78569,0	14.53	Mare basalt, fine to medium	35
78575,0	140.0	Mare basalt, coarse	71
78576,0	11.64	Mare basalt, coarse	72
78577,0	8.84	Mare basalt, coarse	73
78578,0	17.13	Mare basalt, coarse	74
78579,0	6.07	Mare basalt, medium	54
78586,0	10.73	Mare basalt, very fine	10
78587,0	11.48	Mare basalt, very fine	11
78588,0	3.77	Mare basalt, fine	28
78589,0	4.10	Mare basalt, fine	29
78595,0	4.19	Mare basalt, fine	30

Sample No.	Weight (in grams)	Rock Type	Page
78596,0	7.55	Mare basalt, fine	31
78597,0	319.1	Mare basalt, medium	55
78598,0	224.1	Mare basalt, fine	32
78599,0	198.6	Mare basalt, fine	33

ACKNOWLEDGMENT

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