Antarctic Meteorite Newsletter

Volume 32, Number 2 September 2009

A periodical issued by the Meteorite Working Group to inform scientists of the basic characteristics of specimens recovered in the Antarctic.

Edited by Cecilia Satterwhite and Kevin Righter, NASA Johnson Space Center, Houston, Texas 77058

Curator's Comments

Kevin Righter
NASA-JSC

This newsletter reports 198 new meteorites from the 2006, 2007 and 2008 ANSMET seasons from Dominion Range (DOM), Graves Nunataks (GRA), Larkman Nunatak (LAR), the Miller Range (MIL), and Scott Icefield (SCO). These new samples include one each of a lodranite, acapulcoite, transitional acapulcoite-lodranite, ureilite, two possible mesosiderite clasts, 3 eucrites, three type 3 ordinary chondrites, an L5 chondrite with an impact melt clast, an EH3 the largest, 2.66 kg, ever collected by ANSMET, 2 EL4 chondrites, and 13 carbonaceous chondrites (a CM1/2, a CK, 4 CM, 7 CO).

The US Antarctic meteorite collection had 44 requests at the Spring meeting, and had over 25 since then, so we have been trying to fill as many of the approved requests as possible, while continuing initial processing of the 2006 and 2007 season samples. In addition, our thin section technician, Carla Reed, gave birth to a baby boy in early July! So, we have taken the opportunity of her absence from the lab to upgrade a few things – we have added new polishing equipment as well as a new imaging system for the thin section lab. Other upgrades will continue in the Fall. We don't anticipate that this will cause any delays in getting thin sections out to our PIs.

Next newsletter (Spring 2010) will be earlier than usual

Because the 41st Lunar and Planetary Science Conference will be held the first week of March, 2010, and the Meteorite Working Group meets the Friday and Saturday after the LPSC meeting, our Spring newsletter will be released a few weeks earlier than it usually does. This is just a heads up to all of you that sample requests will come sooner than you think next Spring.

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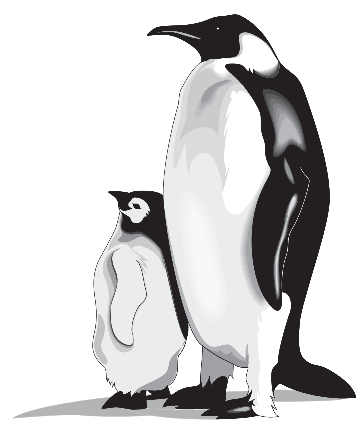
Inside this Issue



Sample Request Deadline
Sept. 09, 2009

MWG Meets
Sept. 24-25, 2009

New email address for submitting sample requests

Our new email address for requesting samples has been working well. Please continue to use it for sample requests for this newsletter and all future requests:

JSC-ARES-MeteoriteRequest@nasa.gov

The new address should ensure that requests will be processed in due time since they can be read by several JSC staff rather than just one person.

Webpage additions – images and HED Compendium in the works

First, the number of images of Antarctic meteorites available on our webpage continues to grow, with many new pages added since the Spring. We hope these will help you better appreciate and understand the samples available in the collection. Please let us know if you see any pages that are not working properly, or if there are certain samples you are interested in, but can find no information online. Many thanks to Alison Gale and Lauren LaCroix at the Smithsonian Institution, and Patricia Huynh and Nancy Todd at NASA-JSC for getting these images produced, organized, and formatted for uploading to our webpages.

Second, with the DAWN spacecraft approaching asteroid 4 Vesta the arrival in 2011, we are starting to organize information we have on the howardite-eucrite-diogenite clan of meteorites, as well as mesosiderites, and to produce a sample compendium for HED meteorites, as the curation office has done for martian and lunar meteorites, and Apollo lunar samples. This summer, Josh Garber, a 2009 B.S. Geology graduate of Univ. of Texas at Austin, has worked with Kevin Righter in preparing an overview summary and the first 10-12 focused chapters on specific classic and Antarctic HEDs such as Stannern, Nuevo Laredo, Pasamonte, Johnstown, Bununu, Moore County, EET A79002, EET 87503 (and pairs), and PCA 91007. These will become available online sometime this fall, and we plan on adding chapters slowly over time, but in sync with the DAWN mission timeline. If there are specific samples you'd like to see summarized, please let K. Righter know and we will try to cover those.

Report from the Smithsonian

Cari Corrigan, Geologist (Dept. of Mineral Sci.)

This newsletter announces the classification of all but 11 of the '06 meteorites and continues working through the newly received '08's. Things are looking up here in the Division of Meteorites at the Smithsonian. While we are sad to have recently lost Dr. Rhiannon Mayne, our meteorite post doc (who has just started a faculty/curatorial position at Texas Christian University), we have secured a new post doc to begin in January (watch this space in the next newsletter!). Most importantly, however, we have come through our rough year without a thin section technician and have recently welcomed Jonathon Cooper to our staff to replace Tim Gooding, who made our sections for over 10 years. Jon comes to us from Washington (state), where received a B.S. in Geology (with a concentration in Geophysics) from Western Washington University in Bellingham. He then spent two years working in the oil and gas industry before joining us this past June. We put him straight to work and he has picked up the fine art of thin section making very quickly, making over half of the thin sections we probed for this newsletter. We are extremely pleased to welcome Jon and will continue to make sure the high level of service that you have come to expect from the Smithsonian continues.

Plans for the 2009-2010 Field Season

Ralph Harvey, Principal Investigator (ANSMET)

In all likelihood, the readers of this newsletter are very aware of this summer's 40th anniversary of the Apollo 11 lunar landing and its subsequent impact on planetary materials research. You may be less aware that 2009 marks another significant 40th anniversary for planetary materials; the first systematic recovery of meteorites from the East Antarctic icesheet took place in December of 1969. Meteorites had been found in Antarctica during some of the earliest inland explorations, starting with the Adelie Land meteorite recovered in 1912; this find was followed by several others as the continent was explored in more detail in the early 60's. What the members of the Japanese Antarctic Research Expedition (JARE) found just before Christmas in 1969, however, was not one, but 9 meteorites spread across a few kilometers of blue ice near the Queen

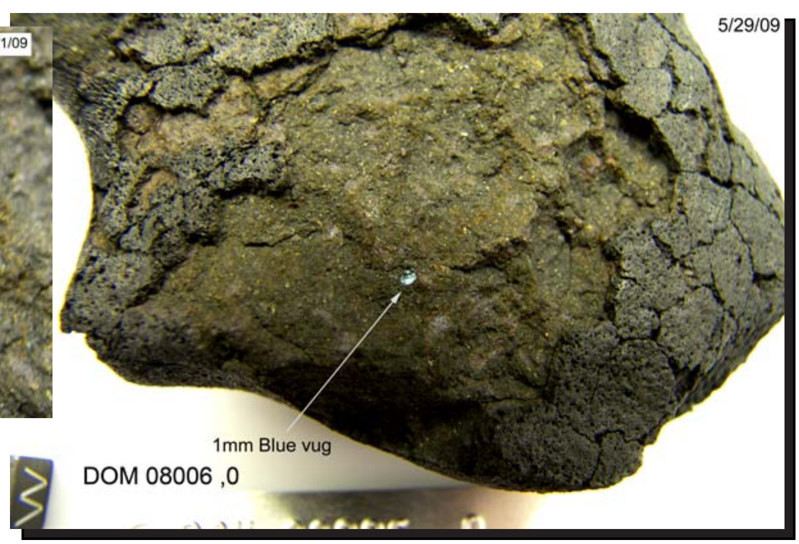
Fabiola (Yamato) Mountains. Subsequent petrographic examinations showed that the specimens represented 5 distinct meteorite groups and suggested the existence of significantly more numerous specimens somewhere out on that ice. Forty years later, with roughly 45,000 Antarctic Meteorite specimens recovered by Japanese, American, Chinese and other expeditions, this resource has joined the Apollo samples among the most important sources of extraterrestrial research material.

During the upcoming 2009-2010 ANSMET field season, we'll try to contribute to this total through another systematic search of the icefields adjacent to the Miller Range in the central Transantarctic Mountains. There have been four previous visits to these icefields. The first, a short reconnaissance visit by helicopter, took place in 1985 and yielded a single specimen. A two-person, three-day expedition in 1999 yielded 30 specimens, and a 4-person, 7-day expedition in 2003 yielded about 100 more. Full-scale systematic searching in 2005-06 and 2007 subsequently contributed to a total of over 1000 MIL meteorites recovered so far (including several lunar and martian specimens). Our 8-person team will spend 6 weeks combing the large areas of blue ice not yet searched. And indeed, we share some of that same anticipation and excitement first felt by the JARE expedition 40 years ago; knowing that something out-of-this-world awaits us, stuff from space that you can hold in your hand and examine in your laboratories.

As we've done in several recent seasons, we hope to maintain a blog with daily entries; to see what's happening visit us at:

http://geology.case.edu/~ansmet

Field Photo of DOM 08006



DOM 08006 showing vug with blue crystal

2006, 2007 and 2008 Collections

Pages 5-19 contain preliminary descriptions and classifications of meteorites that were completed since publication of issue 32(1), March 2009. Specimens of special petrologic type (carbonaceous chondrite, unequilibrated ordinary chondrite, achondrite, etc.) are represented by separate descriptions unless they are paired with previously described meteorites. However, some specimens of non-special petrologic type are listed only as single line entries in Table 1. For convenience, new specimens of special petrological type are also recast in Table 2.

Macroscopic descriptions of stony meteorites were performed at NASA/JSC. These descriptions summarize hand-specimen features observed during initial examination. Classification is based on microscopic petrography and reconnaissance-level electron microprobe analyses using polished sections prepared from a small chip of each meteorite. For each stony meteorite the sample number assigned to the preliminary examination section is included. In some cases, however, a single microscopic description was based on thin sections of several specimens believed to be members of a single fall.

Meteorite descriptions contained in this issue were contributed by the following individuals:

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NASA Johnson Space Center
Houston, Texas

Linda Welzenbach, Cari Corrigan and Tim McCoy
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U.S. National Museum of Natural History
Smithsonian Institution
Washington, D.C.

Antarctic Meteorite Locations

ALH — Allan Hills
BEC — Beckett Nunatak
BOW — Bowden Neve
BTN — Bates Nunataks
CMS — Cumulus Hills
CRA — Mt.Cranfield Ice Field
CRE — Mt. Crean
DAV — David Glacier
DEW — Mt. DeWitt
DNG — D'Angelo Bluff
DOM — Dominion Range
DRP — Derrick Peak
EET — Elephant Moraine
FIN — Finger Ridge
GDR — Gardner Ridge
GEO — Geologists Range
GRA — Graves Nunataks
GRO — Grosvenor Mountains
HOW — Mt. Howe
ILD — Inland Forts
KLE — Klein Ice Field
LAP — LaPaz Ice Field
LAR — Larkman Nunatak
LEW — Lewis Cliff
LON — Lonewolf Nunataks
MAC — MacAlpine Hills
MBR — Mount Baldr
MCY — MacKay Glacier
MET — Meteorite Hills
MIL — Miller Range
ODE — Odell Glacier
OTT — Outpost Nunatak
PAT — Patuxent Range
PCA — Pecora Escarpment
PGP — Purgatory Peak
PRA — Mt. Pratt
PRE — Mt. Prestrud
QUE — Queen Alexandra Range
RBT — Roberts Massif
RKP — Reckling Peak
SAN — Sandford Cliffs
SCO — Scott Glacier
STE — Stewart Hills
TEN — Tentacle Ridge
TIL — Thiel Mountains
TYR — Taylor Glacier
WIS — Wisconsin Range
WSG — Mt. Wisting

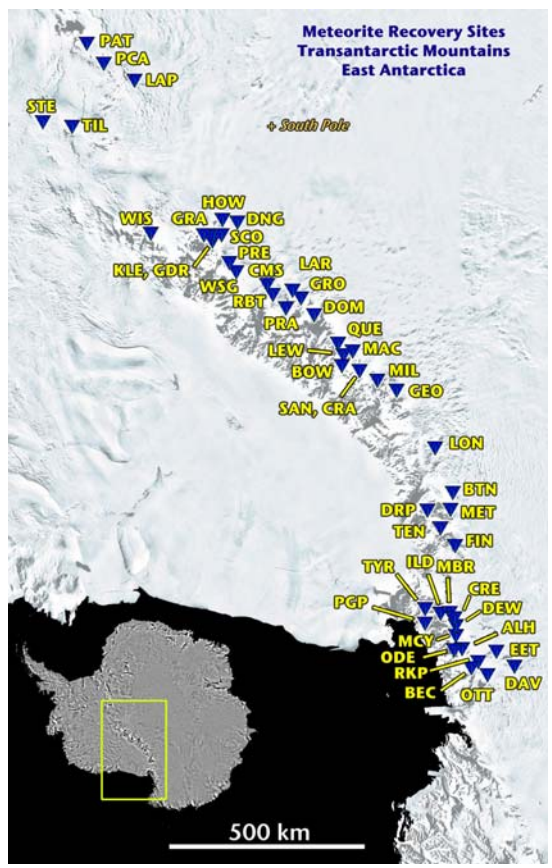

Table 1

List of Newly Classified Antarctic Meteorites **

Sample Number		Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
GRA 06110	~	205.4	L5 CHONDRITE	C	C		
GRA 06111	~	599.6	L5 CHONDRITE	C	A/B		
GRA 06116		1853.3	H5 CHONDRITE	B/C	C	18	16
GRA 06117		1022.5	H5 CHONDRITE	C	C	18	16
GRA 06126	~	682.1	L5 CHONDRITE	A/B	A		
GRA 06140	~	139.3	L5 CHONDRITE	B/C	A		
GRA 06141	~	135.4	H6 CHONDRITE	B/C	A/B		
GRA 06142	~	111.3	LL5 CHONDRITE	A/B	A		
GRA 06143	~	244.3	L5 CHONDRITE	B/C	A/B		
GRA 06144	~	57.2	L6 CHONDRITE	B/C	A/B		
GRA 06145	~	84.9	L5 CHONDRITE	B/C	A		
GRA 06146	~	192.4	LL5 CHONDRITE	A	A		
GRA 06147	~	143.5	LL5 CHONDRITE	A/B	A/B		
GRA 06148	~	362.6	L6 CHONDRITE	B/C	A		
GRA 06149	~	60.1	LL5 CHONDRITE	B/C	A/B		
GRA 06174	~	95.8	L6 CHONDRITE	B/C	A		
GRA 06175	~	73.3	LL5 CHONDRITE	A/B	A/B		
GRA 06176	~	95.8	L5 CHONDRITE	B/C	A		
GRA 06177	~	92.7	L5 CHONDRITE	B/C	A/B		
GRA 06178		37.0	L3.5 CHONDRITE	B	A	7-35	2-5
GRA 06179		46.1	LL4 CHONDRITE	A/B	A	30	25
LAR 06251	~	2217.9	L6 CHONDRITE	B/C	A		
LAR 06252		2660.1	EH3 CHONDRITE	Be	A/B	1	1-4
LAR 06257	~	1721.4	LL6 CHONDRITE	B/C	A		
LAR 06259	~	924.5	LL6 CHONDRITE	A/B	A		
LAR 06273	~	837.9	L6 CHONDRITE	B/C	A		
LAR 06274	~	905.6	H6 CHONDRITE	B/Ce	A		
LAR 06275	~	707.3	H6 CHONDRITE	B/C	A		
LAR 06276	~	1140.2	H6 CHONDRITE	B/Ce	B		
LAR 06277	~	1032.2	H5 CHONDRITE	B/Ce	A		
LAR 06278	~	1196.8	H6 CHONDRITE	B/Ce	A/B		
LAR 06280	~	1313.4	H6 CHONDRITE	B/C	A		
LAR 06281	~	762.4	H5 CHONDRITE	B/Ce	A		
LAR 06282	~	694.1	LL5 CHONDRITE	B/C	A		
LAR 06284	~	1261.0	L5 CHONDRITE	B/Ce	A/B		
LAR 06285	~	982.2	LL6 CHONDRITE	A/B	A/B		
LAR 06286		741.8	H6 CHONDRITE	B/C	A	19	17
LAR 06287	~	574.7	L5 CHONDRITE	B/C	A/B		
LAR 06288	~	630.4	L6 CHONDRITE	A/Be	A		
LAR 06289	~	524.1	H6 CHONDRITE	B/Ce	A		
LAR 06290	~	452.8	L5 CHONDRITE	B	A		
LAR 06291	~	329.7	L6 CHONDRITE	A/B	A		

Sample Number		Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
LAR 06292	~	623.7	LL5 CHONDRITE	A/B	A		
LAR 06293	~	583.5	LL6 CHONDRITE	A/B	A		
LAR 06294	~	291.8	L5 CHONDRITE	B	A		
LAR 06296	~	381.8	H6 CHONDRITE	B/Ce	A		
LAR 06297	~	331.2	H5 CHONDRITE	B/Ce	A		
LAR 06300	~	990.3	LL6 CHONDRITE	A/B	A		
LAR 06301		803.6	LL3.8 CHONDRITE	B	A	11-33	6-34
LAR 06303	~	2583.7	L5 CHONDRITE	A	A		
LAR 06306	~	263.5	H6 CHONDRITE	C	C		
LAR 06307	~	354.5	LL6 CHONDRITE	Be	A/B		
LAR 06308	~	465.5	L6 CHONDRITE	B	A/B		
LAR 06309	~	601.8	H6 CHONDRITE	C	A/B		
LAR 06310	~	815.1	L5 CHONDRITE	B/C	A/B		
LAR 06311	~	234.5	L6 CHONDRITE	B/C	A/B		
LAR 06312	~	423.8	LL6 CHONDRITE	B	A		
LAR 06313	~	821.9	LL5 CHONDRITE	B	A		
LAR 06314	~	518.1	L5 CHONDRITE	B	A		
LAR 06315	~	347.7	L5 CHONDRITE	B/C	A		
LAR 06316	~	277.0	H6 CHONDRITE	C	C		
LAR 06321	~	248.1	H6 CHONDRITE	B/C	A		
LAR 06322	~	325.2	L5 CHONDRITE	B	A/B		
LAR 06323	~	320.6	L6 CHONDRITE	B/Ce	A		
LAR 06324	~	202.3	LL5 CHONDRITE	A/B	A		
LAR 06325	~	257.4	L5 CHONDRITE	B/C	A/B		
LAR 06326	~	272.2	LL6 CHONDRITE	A/B	A		
LAR 06327	~	286.1	LL6 CHONDRITE	B/Ce	A		
LAR 06328	~	151.1	H6 CHONDRITE	C	B/C		
LAR 06329	~	135.3	L6 CHONDRITE	B/C	A/B		
LAR 06330	~	179.3	LL6 CHONDRITE	A/B	A		
LAR 06331	~	87.8	LL5 CHONDRITE	A/B	A		
LAR 06332	~	129.3	H6 CHONDRITE	B/C	A/B		
LAR 06333	~	138.5	L6 CHONDRITE	B/C	A/B		
LAR 06334	~	59.1	L5 CHONDRITE	Ce	A/B		
LAR 06335	~	10.5	L5 CHONDRITE	B	A		
LAR 06336	~	346.8	L5 CHONDRITE	B/C	A		
LAR 06337	~	83.9	H6 CHONDRITE	B/C	A/B		
LAR 06338	~	72.7	L6 CHONDRITE	B/C	A		
LAR 06339	~	66.2	L6 CHONDRITE	B/C	A		
LAR 06399		16.9	L4 CHONDRITE	B	A/B	24	20
LAR 06400	~	134.8	LL6 CHONDRITE	A/B	A		
LAR 06402	~	84.3	L4 CHONDRITE	B	A		
LAR 06403	~	94.7	LL6 CHONDRITE	A/B	A		
LAR 06404	~	83.6	L4 CHONDRITE	B/C	A		
LAR 06405	~	160.0	LL6 CHONDRITE	B/C	A		
LAR 06406	~	105.7	L4 CHONDRITE	B/C	A		
LAR 06407	~	68.3	LL6 CHONDRITE	B/C	A		
LAR 06408	~	63.7	L4 CHONDRITE	B	A		
LAR 06409	~	35.2	LL6 CHONDRITE	B/C	A		

Sample Number		Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
LAR 06470	~	10.6	LL5 CHONDRITE	A/B	A		
LAR 06471	~	19.6	L6 CHONDRITE	B/C	A		
LAR 06472	~	38.8	H6 CHONDRITE	B/C	A		
LAR 06473	~	14.4	H6 CHONDRITE	B/C	A		
LAR 06474	~	9.1	L6 CHONDRITE	B/Ce	A		
LAR 06475	~	18.9	L6 CHONDRITE	Be	A		
LAR 06476	~	13.9	H5 CHONDRITE	B/C	A		
LAR 06477	~	26.6	H5 CHONDRITE	B/Ce	A		
LAR 06478	~	4.3	H5 CHONDRITE	B/C	A		
LAR 06479	~	14.3	L6 CHONDRITE	B	A		
LAR 06500	~	18.1	H5 CHONDRITE	C	B/C		
LAR 06501	~	8.8	H6 CHONDRITE	C	A/B		
LAR 06503	~	10.4	H6 CHONDRITE	C	A/B		
LAR 06504	~	12.2	H6 CHONDRITE	C	A/B		
LAR 06505	~	20.7	L5 CHONDRITE	B	A/B		
LAR 06506	~	6.6	H6 CHONDRITE	C	B		
LAR 06508		22.9	L6 CHONDRITE	C	B	25	21
LAR 06509	~	67.0	L5 CHONDRITE	B/C	B		
LAR 06512		29.0	MESOSIDERITE	A/B	A/B	31	22-58
LAR 06542		10.6	L5 CHONDRITE	C	A/B	24	20
LAR 06560	~	159.6	L5 CHONDRITE	C	B		
LAR 06561	~	125.0	H5 CHONDRITE	C	B		
LAR 06562	~	111.1	L6 CHONDRITE	C	A		
LAR 06563	~	213.4	H5 CHONDRITE	C	A		
LAR 06564	~	125.3	H5 CHONDRITE	C	B		
LAR 06565	~	154.9	L6 CHONDRITE	Ce	C		
LAR 06566	~	216.4	L5 CHONDRITE	C	A/B		
LAR 06567	~	145.5	H5 CHONDRITE	C	A		
LAR 06568	~	81.8	H5 CHONDRITE	C	A		
LAR 06569	~	122.8	H6 CHONDRITE	C	A		
LAR 06570	~	47.4	H5 CHONDRITE	Ce	A/B		
LAR 06571	~	57.5	H5 CHONDRITE	C	B		
LAR 06572	~	56.4	L5 CHONDRITE	B	A/B		
LAR 06573	~	23.2	L5 CHONDRITE	B	A/B		
LAR 06574	~	53.2	L5 CHONDRITE	C	B		
LAR 06575	~	37.0	L5 CHONDRITE	B	A/B		
LAR 06576	~	35.7	L5 CHONDRITE	B/C	B		
LAR 06577	~	30.2	LL5 CHONDRITE	C	B		
LAR 06578	~	38.3	H6 CHONDRITE	C	B		
LAR 06579	~	25.6	L5 CHONDRITE	B	A/B		
LAR 06600	~	13.7	LL6 CHONDRITE	B/C	B		
LAR 06601		25.7	H4 CHONDRITE	C	A/B	19	16
LAR 06602	~	21.1	H6 CHONDRITE	C	B		
LAR 06603	~	5.0	L6 CHONDRITE	C	C		
LAR 06604	~	10.7	L5 CHONDRITE	B	B		
LAR 06605		34.6	ACAPUL/LODRANITE	B	B	12	12
LAR 06606	~	19.7	L6 CHONDRITE	B/C	B		

Sample Number		Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
LAR 06607	~	27.3	L5 CHONDRITE	B/Ce	B		
LAR 06608	~	13.5	L5 CHONDRITE	B	A/B		
LAR 06609	~	10.4	H6 CHONDRITE	C	C		
LAR 06626		22.4	EL4 CHONDRITE	C	A/B		0-2
LAR 06636		6.3	CK6 CHONDRITE	Ce	C	34	10
LAR 06654		10.2	L5 CHONDRITE	C	B	25	21
LAR 06659		20.2	EL4 CHONDRITE	CE	B		0-2
LAR 06673		35.5	LL5 CHONDRITE	B	A/B	28	23
LAR 06674		31.2	LL3.8 CHONDRITE	B	B	14-33	14-28
LAR 06686		21.9	CM2 CHONDRITE	B/C	A/B	0-45	0-1
LAR 06691		17.7	MESOSIDERITE	B/C	A		28-35
LAR 06800	~	371.2	L5 CHONDRITE	B/C	A		
LAR 06801	~	257.9	L6 CHONDRITE	B/C	A		
LAR 06802	~	445.1	LL6 CHONDRITE	A/B	A		
LAR 06803	~	472.6	L5 CHONDRITE	B/C	A		
LAR 06804	~	130.0	H6 CHONDRITE	B/Ce	A/B		
LAR 06805	~	337.6	L6 CHONDRITE	B/C	A/B		
LAR 06806	~	454.3	L5 CHONDRITE	B/Ce	A/B		
LAR 06807	~	250.0	H5 CHONDRITE	B/C	A		
LAR 06808	~	237.9	L5 CHONDRITE	Be	A/B		
LAR 06809	~	371.2	L5 CHONDRITE	B/Ce	A		
LAR 06810	~	121.3	L6 CHONDRITE	B/C	A/B		
LAR 06811	~	150.4	LL6 CHONDRITE	B	A		
LAR 06812	~	96.7	LL6 CHONDRITE	A/Be	A/B		
LAR 06813	~	170.4	H6 CHONDRITE	C	A/B		
LAR 06814	~	56.1	L6 CHONDRITE	B/C	B		
LAR 06815	~	89.9	LL6 CHONDRITE	A/B	A		
LAR 06816	~	97.9	LL6 CHONDRITE	B	A/B		
LAR 06817	~	73.0	H5 CHONDRITE	B/C	A		
LAR 06818	~	71.2	H6 CHONDRITE	B/Ce	A		
LAR 06819	~	48.5	H6 CHONDRITE	B/Ce	A		
LAR 06820	~	63.0	L5 CHONDRITE	B	A/B		
LAR 06821	~	66.9	H5 CHONDRITE	C	A/B		
LAR 06822	~	65.7	H6 CHONDRITE	C	A/B		
LAR 06823	~	47.5	LL6 CHONDRITE	B	B		
LAR 06824	~	52.5	L5 CHONDRITE	B/C	B		
LAR 06825	~	33.6	H6 CHONDRITE	C	A/B		
LAR 06826	~	29.5	H6 CHONDRITE	C	A/B		
LAR 06827	~	20.2	H6 CHONDRITE	C	B		
LAR 06828	~	12.6	LL6 CHONDRITE	A/B	A		
LAR 06829	~	22.0	L5 CHONDRITE	B	A/B		
LAR 06878	~	16.6	H6 CHONDRITE	B/C	A		
LAR 06879	~	13.2	L5 CHONDRITE	Be	A		
LAR 06880	~	254.4	LL6 CHONDRITE	A/B	A		
SCO 06030		11.4	LODRANITE	C	C	8	11

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
MIL 07531	2.7	CO3 CHONDRITE	B	A/B	1-51	1-11
MIL 07552	0.4	CO3 CHONDRITE	C	A/B	1-48	1-4
MIL 07555	2.7	CO3 CHONDRITE	B	A/B	1-32	5-9
MIL 07560	16.4	CO3 CHONDRITE	B	A/B	0-37	1-2
MIL 07582	12.4	ACAPULCOITE	B/C	A	10	11
MIL 07668	3.0	CM2 CHONDRITE	B	A/B	1-40	
MIL 07677	1.2	CM1/2 CHONDRITE	Be	C	1	
DOM 08004	294.5	CO3 CHONDRITE	B	B	0-51	1-15
DOM 08005	88.8	EUCRITE (BRECCIATED)	B	B		26-62
DOM 08006	667.3	CO3 CHONDRITE	A/B	A	1-33	0-3
DOM 08010	8.3	CM2 CHONDRITE	B/C	B/C	1-17	2
DOM 08011	3.4	EUCRITE (BRECCIATED)	A/B	A		28-63
DOM 08012	18.6	UREILITE	B	A	3-22	
DOM 08013	28.8	CM2 CHONDRITE	B/C	B	1-55	1-6
DOM 08014	19.6	EUCRITE (BRECCIATED)	A/B	A		27-63
DOM 08015	8.4	CM2 CHONDRITE	B	B	1-52	

Table 2

Newly Classified Specimens Listed By Type

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
Achondrites						
MIL 07582	12.4	ACAPULCOITE	B/C	A	10	11
LAR 06605	34.6	ACAPUL/LODRANITE	B	B	12	12
DOM 08005	88.8	EUCRITE (BRECCIATED)	B	B		26-62
DOM 08011	3.4	EUCRITE (BRECCIATED)	A/B	A		28-63
DOM 08014	19.6	EUCRITE (BRECCIATED)	A/B	A		27-63
SC0 06030	11.4	LODRANITE	C	C	8	11
DOM 08012	18.6	UREILITE	B	A		3-22
Carbonaceous Chondrites						
LAR 06636	6.3	CK6 CHONDRITE	Ce	C	34	10
MIL 07677	1.2	CM1/2 CHONDRITE	Be	C	1	
LAR 06686	21.9	CM2 CHONDRITE	B/C	A/B	0-45	0-1
MIL 07668	3.0	CM2 CHONDRITE	B	A/B	1-40	
DOM 08010	8.3	CM2 CHONDRITE	B/C	B/C	1-17	2
DOM 08015	8.4	CM2 CHONDRITE	B	B	1-52	
DOM 08013	28.8	CM2 CHONDRITE	B/C	B	1-55	1-6
MIL 07531	2.7	CO3 CHONDRITE	B	A/B	1-51	1-11
MIL 07552	0.4	CO3 CHONDRITE	C	A/B	1-48	1-4
MIL 07555	2.7	CO3 CHONDRITE	B	A/B	1-32	5-9
MIL 07560	16.4	CO3 CHONDRITE	B	A/B	0-37	1-2
DOM 08004	294.5	CO3 CHONDRITE	B	B	0-51	1-15
DOM 08006	667.3	CO3 CHONDRITE	A/B	A	1-33	0-3
Chondrites - Type 3						
GRA 06178	37.0	L3.5 CHONDRITE	B	A	7-35	2-5
LAR 06301	803.6	LL3.8 CHONDRITE	B	A	11-33	6-34
LAR 06674	31.2	LL3.8 CHONDRITE	B	B	14-33	14-28
E Chondrites						
LAR 06252	2660.1	EH3 CHONDRITE	Be	A/B	1	1-4
LAR 06626	22.4	EL4 CHONDRITE	C	A/B		0-2
LAR 06659	20.2	EL4 CHONDRITE	Ce	B		0-2

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
		Stony Irons				
LAR 06512	29.0	MESOSIDERITE	A/B	A/B	31	22-58
LAR 06691	17.7	MESOSIDERITE	B/C	A		28-35

**Notes to Tables 1 and 2:

"Weathering" Categories:

A: Minor rustiness; rust haloes on metal particles and rust stains along fractures are minor.
B: Moderate rustiness; large rust haloes occur on metal particles and rust stains on internal fractures are extensive.
C: Severe rustiness; metal particles have been mostly stained by rust throughout.
E: Evaporite minerals visible to the naked eye.

"Fracturing" Categories:

A: Minor cracks; few or no cracks are conspicuous to the naked eye and no cracks penetrate the entire specimen.
B: Moderate cracks; several cracks extend across exterior surfaces and the specimen can be readily broken along the cracks.
C: Severe cracks; specimen readily crumbles along cracks that are both extensive and abundant.

The ~ indicates classification by optical methods. This can include macroscopic assignment to one of several well-characterized, large pairing groups (e.g., the QUE LL5 chondrites), as well as classification based on oil immersion of several olivine grains to determine the approximate index of refraction for grouping into H, L or LL chondrites. Petrologic types in this method are determined by the distinctiveness of chondrules boundaries on broken surfaces of a 1-3 g chip. While this technique is suitable for general characterization and delineation of equilibrated ordinary chondrites, those undertaking detailed study of any meteorite classified by optical methods alone should use caution. It is recommended that a polished thin section be requested to accompany any chip and appropriate steps for a more detailed characterization should be undertaken by the user. (Tim McCoy, Smithsonian Institution)

Table 3

Tentative Pairings for New Meteorites

Table 3 summarizes possible pairings of the new specimens with each other and with previously classified specimens based on descriptive data in this newsletter issue. Readers who desire a more comprehensive review of the meteorite pairings in the U.S. Antarctic collection should refer to the compilation provided by Dr. E.R. D. Scott, as published in issue 9(2) (June 1986). Possible pairings were updated in Meteoritical Bulletins No. 76 (Meteoritics 29, 100-143), No. 79 (Meteoritics and Planetary Science 31, A161-174), No. 82 (Meteoritics and Planetary Science 33, A221-A239), No. 83 (Meteoritics and Planetary Science 34, A169-A186), No. 84 (Meteoritics and Planetary Science 35, A199-A225), No. 85 (Meteoritics and Planetary Science 36, A293-A322), No. 86 (Meteoritics and Planetary Science 37, A157-A184), No. 87 (Meteoritics and Planetary Science 38, A189-A248), No. 88 (Meteoritics and Planetary Science 39, A215-272), No. 89 (Meteoritics and Planetary Science 40, A201-A263), No. 90 (Meteoritics and Planetary Science 41, 1383-1418), No. 91 (Meteoritics and Planetary Science, 42, 413-466), No. 92 (Meteoritics and Planetary Science 42, 1647-1692), No. 93 (Meteoritics and Planetary Science 43, 571-632) and No. 94 (Meteoritics and Planetary Science 43, 1551–1588) and No. 95 (Meteoritics and Planetary Science 44, No. 3, 429–462) and No. 96 (Meteoritics and Planetary Science 44, in press).

CM2 CHONDRITE

DOM 08013, DOM 08015 with DOM 08010

CO3 CHONDRITE

MIL 07552, MIL 07555, and MIL 07560 with MIL 07531
DOM 08006 with DOM 08004

EL4 CHONDRITE

LAR 06659 with LAR 06626

LL3 Chondrite

LAR 06674 with LAR 06301

Petrographic Descriptions

Sample No.:	GRA 06178
Location:	Graves Nunataks
Field No.:	17765
Dimensions (cm):	3.4 x 3.0 x 2.0
Weight:	36.985
Classification:	L3.5 Chondrite

Macroscopic Description: Cecilia Satterwhite

85% of this ordinary chondrite's exterior is covered with brown/black fusion crust with some oxidation. The interior is a dark gray to black matrix with abundant chondrules and inclusions of various sizes and colors.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach

The section exhibits numerous large (up to 2 mm), well-defined chondrules in a dark matrix of fine-grained silicates, metal and troilite. Weak shock effects are present. Staining from weathering is pervasive. Silicates are unequilibrated; olivines range from Fa_{7-35} and pyroxenes from Fs_{2-5}. The meteorite is an L3 chondrite (estimated subtype 3.5).

Sample No.:	LAR 06252
Location:	Larkman Nunatak
Field No.:	19010
Dimensions (cm):	13.0 x 11.5 x 8.0
Weight (g):	2660.1
Classification:	EH3 Chondrite

Macroscopic Description: Cecilia Satterwhite

The exterior has a brown/black fusion crust with fractures penetrating the surface. Evaporites, chondrules/inclusions and rust are visible on the surface. The interior is a dark gray to black with abundant white inclusions. Some weathered areas are a brownish gray in color.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach

The section shows an aggregate of chondrules (up to 2 mm), chondrule fragments, and pyroxene grains in a matrix of about 30% metal and sulfide. Chondrules contain moderate to small abundances of olivine. Weathering is modest, with staining of some enstatite grains and minor alteration of metal and sulfides. Microprobe analyses show the olivine is Fa_1 and pyroxene is Fs_{1-4}. Metal contains ~2.5 wt% Si. The meteorite is an EH3 chondrite.

Sample No.:	LAR 06301; LAR 06674
Location:	Larkman Nunatak
Field No.:	19572; 19567
Dimensions (cm):	11.5 x 6.5 x 6.0; 4.0 x 2.5 x 2.0
Weight (g):	803.6; 31.244
Classification:	LL3.8 Chondrite

Macroscopic Description: Kathleen McBride and Cecilia Satterwhite

The exteriors have brown/black fusion crust with oxidation haloes and chondrules/inclusions visible. Areas without fusion crust are a rusty orange brown. The interiors are rusty black with abundant white/gray/weathered inclusions/chondrules and metal.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach

The sections exhibit numerous large, well-defined chondrules (up to 1.5 mm) and occasional melt clasts in a matrix of fine-grained silicates, metal and troilite. Weak shock effects are present. Polysynthetically twinned pyroxene is abundant. Silicates are unequilibrated; olivines range from Fa_{11-33} and pyroxenes from Fs_{6-34}. The meteorites are LL3 chondrites (estimated subtype 3.8).

Sample No.:	LAR 06512	
Location:	Larkman Nunatak	
Field No.:	19283	
Dimensions (cm):	2.5 x 3.0 x 2.25	
Weight (g):	29.014	
Classification:	Mesosiderite	

Macroscopic Description: Kathleen McBride

Some brown/black fusion crust is on the exterior. The interior is a light gray matrix with a little metal and minor rust. Inclusions are dark gray to white in color.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach

This section consists of angular and basaltic fragments and individual grains of pyroxene, plagioclase, rare olivine, metal and sulfide set in a clastic matrix. Individual grains range up to 6 mm in size. Particularly prominent are sulfide-rich clasts that appear to have impact-melted textures. Pyroxene is exsolved, with compositions of Fs_{22-58} Wo_{1-43} and has Fe/Mn ratios of ~30. Olivine is Fa_{31}. Plagioclase is $An_{92}Or_{1}$. The somewhat higher than normal abundance of metal and sulfide suggest that this could be a separated silicate clast from a mesosiderite.

Sample No.:	LAR 06605	
Location:	Larkman Nunatak	
Field No.:	19815	
Dimensions (cm):	3.5 x 3.5 x 1.5	
Weight (g):	34.610	
Classification:	Acapulcoite-Lodranite	

Macroscopic Description: Kathleen McBride

The exterior has some rusty brown patches of fusion crust. The interior has a crystalline, granular texture with yellow and green to olive green grains interspersed within a mass of root beer colored matrix.

Thin Section (,4) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach

The section consists of an equigranular aggregate of olivine, pyroxene, plagioclase, and metal with minor sulfide and chromite, with an average grain size of 0.5 mm. Plagioclase occurs interstitially to mafic silicates. Olivine (Fa_{12}) and pyroxene (Fs_{12}) are homogeneous. The meteorite is a transitional member of the acapulcoite-lodranite clan, similar to EET 84302 and GRA 95209.

Sample No.:	LAR 06626; LAR 06659	
Location:	Larkman Nunatak	
Field No.:	19308; 19513	
Dimensions (cm):	2.5 x 2.5 x 2.0; 2.5 x 2.0 x 1.75	
Weight (g):	22.419; 20.175	
Classification:	EL4 Chondrite	

Macroscopic Description: Kathleen McBride

The exterior of 626 has thin black patches of fusion crust; 659 has no fusion crust. The interiors are a dense chocolate brown to black matrix with high metal and some weathered inclusions.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach

The sections show an aggregate of chondrules (up to 1.5 mm), chondrule fragments, and pyroxene grains in a matrix of about 30% metal and sulfide. Chondrules contain moderate to small abundances of olivine. Weathering is modest, with staining of some enstatite grains and minor alteration of metal and sulfides. Pyroxene is Fs_{0-2}; no olivine grains were analyzed. Metal contains 0.5-0.6 wt% Si. The meteorites are type 4 enstatite chondrites. The Si concentration in metal would suggest classification as EL4. Pairing is tentative.

Sample No.:	LAR 06636
Location:	Larkman Nunatak
Field No.:	19354
Dimensions (cm):	2.5 x 1.75 x 1.0
Weight (g):	6.253
Classification:	CK6 Chondrite

Macroscopic Description: Kathleen McBride

The exterior is a weathered dull black with chocolate brown patches of fusion crust. The interior is a gray matrix with rust and evaporites. It has a soft texture with low or no metal.

Thin Section (,4) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach

The section consists of a coarse-grained mixture of olivine, pyroxene, plagioclase, magnetite and sulfides. Rare relict chondrules are observed and the section is cross-cut by veins and networks of shock-melt that includes micron-sized silicates, magnetite and sulfides. Mafic silicates are homogeneous. Olivine is Fa_{34} and augite is $Fs_{10}Wo_{48}$. Plagioclase is variable (An_{62-89}). The meteorite is a shock-veined CK6 chondrite.

Oxygen isotopic composition: Doug Rumble

The oxygen isotopic composition of a magnetic, whole-rock fraction is $\delta^{17}O$ = -5.684, -5.789, $\delta^{18}O$ = -2.171, -2.348, $\Delta^{17}O$ = -4.54, -4.55, within the range of CK chondrites.

Sample No.:	LAR 06654
Location:	Larkman Nunatak
Field No.:	19592
Dimensions (cm):	2.0 x 2.25 x 1.25
Weight (g):	10.152
Classification:	L5 Chondrite (Impact Melt)

Macroscopic Description: Kathleen McBride

Black patches of fusion crust covers 40% of the exterior. The interior is fine grained and rusty especially along the fractures with high metal.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach

The meteorite is an L5 chondrite (Fa_{25}, Fs_{21}); about half the thin section consists of a fine-grained impact melt clast.

Sample No.:	LAR 06686
Location:	Larkman Nunatak
Field No.:	19538
Dimensions (cm):	3.0 x 3.0 x 1.5
Weight (g):	21.888
Classification:	CM2 Chondrite

Macroscopic Description: Kathleen McBride

The exterior has thick black patches with polygonal fractures. The interior is a charcoal black with a brown oxidation rind. Some mm sized chondrules are visible.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach

The section consists of minimally-altered, abundant, small chondrules (up to 0.5 mm), mineral grains and CAIs set in a hydrated matrix; minor metal and sulfide grains are present. Olivine compositions are $Fa_{0-45,}$ with a peak at Fa_{0-1}, orthopyroxene is Fs_{0-3}. The meteorite is a CM2 chondrite.

Sample No.:	LAR 06691	<u>Macroscopic Description: Kathleen McBride</u> 85% of the exterior has brown/black fusion crust with oxidation haloes and pits. The fine grained matrix is a gray color with a few very large grains. Sample is extremely rusty. <u>Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach</u> This section consists of fragmented pyroxene and plagioclase grains set in a clastic, metal-rich matrix. Grains reach up to several mm in size. Pyroxene is relatively homogeneous ($Fs_{28-35}Wo_{2-6}$; Fe/Mn~30) and plagioclase is $An_{90-95}Or_1$. The meteorite is probably a silicate clast from a mesosiderite.
Location:	Larkman Nunatak	
Field No.:	19569	
Dimensions (cm):	2.5 x 1.5 x 2.0	
Weight (g):	17.663	
Classification:	Mesosiderite	

Sample No.:	SCO 06030	<u>Macroscopic Description: Kathleen McBride</u> 50% of the exterior has rusty brown/black fusion crust. The interior is very rusty with very high metal content. <u>Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach</u> The meteorite is an equigranular aggregate (0.5 mm grain size) of olivine and pyroxene in a metal-rich matrix, with lesser plagioclase, metal, sulfide, chromite and schreibersite. Plagioclase occurs interstitially to mafic silicates. Olivine (Fa_8), low-Ca pyroxene (Fs_{11}), high-Ca pyroxene (Fs_4Wo_{44}) and plagioclase ($An_{14}Or_3$) are homogeneous. The meteorite is a lodranite.
Location:	Scott Glacier	
Field No.:	17706	
Dimensions (cm):	3.0 x 2.0 x 1.0	
Weight (g):	11.367	
Classification:	Lodranite	

Sample No.:	MIL 07531; MIL 07552; MIL 07555; MIL 07560	<u>Macroscopic Description: Kathleen McBride</u> Brown/black fusion crust on these meteorites range from 50-100%. Oxidation and fractures are present. The interiors are fine grained black matrix with white/weathered inclusions/ chondrules. <u>Thin Section (,2 ,2 ,2 ,4) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach</u> These meteorites are so similar that a single description suffices. The sections consist of abundant small (up to 1 mm) chondrules, chondrule fragments and mineral grains in a dark matrix. Metal and sulfide occur within and rimming the chondrules. Olivine ranges in composition from Fa_{0-51}. Two pyroxene analyses range from Fs_{1-11}. The meteorites are CO3 chondrites.
Location:	Miller Range	
Field No.:	19699;17957; 17973; 17988	
Dimensions (cm):	1.5 x 1.5 x 0.75; 0.75 x 0.75 x 0.5; 1.25 x 1.5 x 1.0; 3.0 x 1.75 x 0.75	
Weight (g):	2.730; 0.430; 2.700; 16.390	
Classification:	CO3 Chondrite	

Sample No.:	MIL 07582
Location:	Miller Range
Field No.:	17581
Dimensions (cm):	2.1 x 1.9 x 1.5
Weight (g):	12.421
Classification:	Acapulcoite

Macroscopic Description: Cecilia Satterwhite

The exterior is covered with brown/black fusion crust with some oxidation. The interior has a crystalline texture and is brown in color with rusty areas and metal.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach

The section consists of an equigranular aggregate of olivine, pyroxene, plagioclase, and metal with minor sulfide and chromite, with an average grain size of 0.5 mm, with some grains up to 1 mm. Olivine (Fa_{10}) and pyroxene (Fs_{11}) are homogeneous. One calcic pyroxene grain was analyzed (Fs_4). This section is moderately weathered. The meteorite is an acapulcoite.

Sample No.:	MIL 07668
Location:	Miller Range
Field No.:	18356
Dimensions (cm):	1.25 x 1.5 x 1.5
Weight (g):	2.990
Classification:	CM2 Chondrite

Macroscopic Description: Kathleen McBride

Purplish fusion crust with polygonal fractures covers 40% of the exterior surface. The interior is a black matrix with a 2 mm thick brown oxidation rind. Light colored chondrules are visible.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach

The section consists of a few small chondrules (up to 0.5 mm), mineral grains and CAIs set in a black matrix; rare metal, sulfide and carbonate grains are present. Olivine compositions are Fa_{1-40}. Aqueous alteration of the matrix is substantial, but the chondrules are only modestly altered. The meteorite is a CM2 chondrite.

Sample No.:	MIL 07677
Location:	Miller Range
Field No.:	18371
Dimensions (cm):	1.0 x 0.5 x 0.5 (largest piece)
Weight (g):	1.20
Classification:	CM1/2 Chondrite

Macroscopic Description: Kathleen McBride

This meteorite was in many pieces. 50% black fusion crust with polygonal fractures covers the exterior. The interior is a black matrix with evaporites.

Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach

The meteorite consists of a highly-altered chondrules and matrix with carbonates and rare unaltered mafic silicates. Chondrule outlines are distinct, despite the extensive alteration. A single olivine analyses is Fa_1. The meteorite is a CM1/2 meteorite.

Sample No.: Location: Field No.: Dimensions (cm): Weight (g): Classification:	DOM 08004; DOM 08006 Dominion Range 18503; 18996 7.5 x 5.5 x 4.0; 10.5 x 11.0 x 4.5 294.5; 667.3 CO3 Chondrite	<u>Macroscopic Description: Roger Harrington and Kathleen McBride</u> Dull black fusion crust, 1-2mm in thickness, covers 85% of the exteriors. The fusion crust is cracked on all the faces but the interior is not. The remaining 15% is a dark brown, fine grained matrix (006 has a 1 mm blue crystal in a vug on the Top-North end). The overall exterior of 006 has a pronounced aerodynamic shape with flow lines on the Bottom side. The interiors are a dark brown to black fine grained matrix with some mm sized white chondrules. <u>Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach</u> The sections consist of abundant small (up to 1 mm) chondrules, chondrule fragments and mineral grains in a dark matrix. Metal and sulfide occur within and rimming the chondrules. Olivine ranges in composition from Fa_{0-51} and pyroxenes range from Fs_{1-15}. The meteorites are CO3 chondrites.
Sample No.: Location: Field No.: Dimensions (cm): Weight (g): Classification:	DOM 08005 Dominion Range 17896 7.0 x 5.0 x 3.0 88.76 Eucrite (Brecciated)	<u>Macroscopic Description: Kathleen McBride</u> Brown/black patches of fusion crust are visible on the exterior. A light gray matrix is exposed with vugs. The light gray matrix has large white clasts (cm sized) and some small (1-2 mm) dark gray inclusions. The meteorite is friable with no metal. <u>Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach</u> This meteorite is dominated by fine-grained (~200 micron average grain size) basaltic material which occurs as both the host and clasts within the meteorite. Occasional coarser-grained clasts, with grain sizes up to 1 mm, are observed. Mineral compositions are homogeneous with orthopyroxene ($Fs_{62}Wo_2$), with lamellae of augite ($Fs_{26}Wo_{43}$), and plagioclase ($An_{89}Or_{0.5}$). The Fe/Mn ratio of the pyroxene is ~29. The meteorite is a brecciated eucrite.
Sample No.: Location: Field No: Dimensions (cm): Weight (g): Classification:	DOM 08010; DOM 08013; DOM 08015 Dominion Range 18219; 18206; 18278 3.0 x 2.0 x 1.5; 4.0 x 2.0 x 2.0; 2.75 x 1.25 x 2.0 8.31; 28.75;8.43 CM2 Chondrite	<u>Macroscopic Description: Roger Harrington and Kathleen McBride</u> Fractured, dull black fusion crust covers the exterior surface. Areas without fusion crust are a chocolate brown. The interior is a dark gray to black fine grained matrix with some white, tan and gray chondrules/inclusions. <u>Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach</u> The meteorites are so similar that a single description suffices. The sections consist of a few small chondrules (up to 0.5 mm), mineral grains and CAIs set in a black matrix; rare metal, sulfide and carbonate grains are present. Olivine compositions are Fa_{1-55}; pyroxene is Fs_{1-6}. Aqueous alteration of the matrix is substantial, but the chondrules are only modestly altered. The meteorites are CM2 chondrites.

Sample No.:	DOM 08011	<u>Macroscopic Description: Roger Harrington</u>
Location:	Dominion Range	Shiny black fusion crust covers 60% of the exterior surface. The remaining 40% is a light to medium gray, fine grained matrix. The interior is a fine grained, light gray matrix.
Field No.:	18494	
Dimensions (cm):	1.5 x 1.5 x 1.0	
Weight (g):	3.366	
Classification:	Eucrite (Brecciated)	<u>Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach</u>
		This meteorite is dominated by fine-grained (~200 micron average grain size) basaltic material which occurs as both the host and clasts. Mineral compositions are homogeneous with orthopyroxene ($Fs_{63}Wo_2$), with lamellae of augite ($Fs_{28}Wo_{43}$), and plagioclase ($An_{85}Or_1$). The Fe/Mn ratio of the pyroxene is ~30. The meteorite is a monomict, brecciated eucrite.

Sample No.:	DOM 08012	<u>Macroscopic Description: Roger Harrington</u>
Location:	Dominion Range	Dull black mottled brown fusion crust covers 40% of the exterior surface. The remaining 60% is a black to brown, coarse to fine grained matrix. The interior is a dark gray, medium to fine grained matrix.
Field No.:	18223	
Dimensions (cm):	2.5 x 2.5 x 1.5	
Weight (g):	18.55	
Classification:	Ureilite	
		<u>Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach</u>
		The section consists of an aggregate of large (up to 2.5 mm) olivine grains. Individual olivine grains are rimmed by carbon-rich material containing traces of metal. Metal forms veins between olivines. Olivine has cores of Fa_{22}, with rims reduced to Fa_3. The meteorite is a ureilite.

Sample No.:	DOM 08014	<u>Macroscopic Description: Roger Harrington</u>
Location:	Dominion Range	Shiny black fusion crust with several oriented holes covers 90% of the exterior surface. The remaining 10% is a light to medium gray, medium grained matrix. The interior is a light to medium gray, medium-grained matrix with a trace of orange staining.
Field No.:	18247	
Dimensions (cm):	3.5 x 2.5 x 2.0	
Weight (g):	19.613	
Classification:	Eucrite (Brecciated)	<u>Thin Section (,2) Description: Cari Corrigan, Tim McCoy and Linda Welzenbach</u>
		This meteorite is dominated by fine-grained basaltic material which occurs as both the host and clasts within this meteorite. Occasional coarser-grained clasts, with grain sizes up to 1 mm, are observed. Mineral compositions are homogeneous with orthopyroxene ($Fs_{63}Wo_2$), with lamellae of augite ($Fs_{27}Wo_{42}$), and plagioclase ($An_{89}Or_1$). The Fe/Mn ratio of the pyroxene is ~29. The meteorite is a brecciated eucrite.

Sample Request Guidelines

The Meteorite Working Group (MWG), is a peer-review committee which meets twice a year to guide the collection, curation, allocation, and distribution of the U.S. collection of Antarctic meteorites. The deadline for submitting a request is 2 weeks prior to the scheduled meeting.

Requests that are received by the MWG secretary by **Sept. 9, 2009 deadline** will be reviewed at the MWG meeting **Sept. 24-25, 2009 in Arlington, Va**. Requests that are received after the deadline may be delayed for review until MWG meets again in the Spring of 2010. Please submit your requests on time. Questions pertaining to sample requests can be directed to the MWG secretary by e-mail, fax or phone.

Requests for samples are welcomed from research scientists of all countries, regardless of their current state of funding for meteorite studies. Graduate student requests should have a supervising scientist listed to confirm access to facilities for analysis. All sample requests will be reviewed in a timely manner. Sample requests that do not meet the curatorial allocation guidelines will be reviewed by the Meteorite Working Group (MWG). Issuance of samples does not imply a commitment by any agency to fund the proposed research. Requests for financial support must be submitted separately to an appropriate funding agency. As a matter of policy, U.S. Antarctic meteorites are the property of the National Science Foundation, and all allocations are subject to recall.

Samples can be requested from any meteorite that has been made available through announcement in any issue of the ***Antarctic Meteorite Newsletter*** (beginning with 1(1) in June, 1978). Many of the meteorites have also been described in five *Smithsonian Contributions to the Earth Sciences*: Nos. 23, 24, 26, 28, and 30. Tables containing all classified meteorites as of August 2006 have been published in the Meteoritical Bulletins and *Meteoritics* and *Meteoritics and Planetary Science* (these are listed in Table 3 of this newsletter. They are also available online at:

http://www.meteoriticalsociety.org/simple_template.cfm?code=pub_bulletin

The most current listing is found online at:

http://curator.jsc.nasa.gov/curator/antmet/us_clctn.htm

All sample requests should be made electronically using the form at:

http://curator.jsc.nasa.gov/curator/antmet/samreq.htm

The purpose of the sample request form is to obtain all information MWG needs prior to their deliberations to make an informed decision on the request. Please use this form if possible.

The preferred method of request transmittal is via e-mail. Please send requests and attachments to:

JSC-ARES-MeteoriteRequest@nasa.gov

Type **MWG Request** in the e-mail subject line. Please note that the form has signature blocks. The signature blocks should only be used if the form is sent via Fax or mail.

Each request should accurately refer to meteorite samples by their respective identification numbers and should provide detailed scientific justification for proposed research. Specific requirements for samples, such as sizes or weights, particular locations (if applicable) within individual specimens, or special handling or shipping procedures should be explained in each request. Some meteorites are small, of rare type, or are considered special because of unusual properties. Therefore, it is very important that all requests specify both the optimum amount of material needed for the study and the minimum amount of material that can be used. Requests for thin sections that will be used in destructive procedures such as ion probe, laser ablation, etch, or repolishing must be stated explicitly.

Consortium requests should list the members in the consortium. All necessary information should be typed on the electronic form, although informative attachments (reprints of publication that explain rationale, flow diagrams for analyses, etc.) are welcome.

Antarctic Meteorite Laboratory Contact Numbers

Please submit request to**: JSC-ARES-MeteoriteRequest@nasa.gov**

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Meteorites On-Line

Several meteorite web site are available to provide information on meteorites from Antarctica and elsewhere in the world. Some specialize in information on martian meteorites and on possible life on Mars. Here is a general listing of ones we have found. We have not included sites focused on selling meteorites even though some of them have general information. Please contribute information on other sites so we can update the list.

JSC Curator, Antarctic meteorites	http://curator.jsc.nasa.gov/antmet/index.cfm
JSC Curator, Lunar Meteorite Compendium	http://www-curator.jsc.nasa.gov/antmet/lmc/index.cfm
JSC Curator, martian meteorites	http://www-curator.jsc.nasa.gov/antmet/marsmets/index.cfm
JSC Curator, Mars Meteorite Compendium	http://www-curator.jsc.nasa.gov/antmet/mmc/index.cfm
Antarctic collection	http://geology.cwru.edu/~ansmet/
Smithsonian Institution	http://www.minerals.si.edu/
LPI martian meteorites	http://www.lpi.usra.edu
NIPR Antarctic meteorites	http://www.nipr.ac.jp/
Meteoritical Bulletin online Database	http://tin.er.usgs.gov/meteor/metbull.php
Museo Nazionale dell'Antartide	http://www.mna.it/english/Collections/collezioni_set.htm
BMNH general meteorites	http://www.nhm.ac.uk/research-curation/departments/mineralogy/research-groups/meteoritics/index.html
Chinese Antarctic meteorite collection	http://birds.chinare.org.cn/en/yunshiku/
UHI planetary science discoveries	http://www.psrd.hawaii.edu/index.html
Meteoritical Society	http://www.meteoriticalsociety.org/
Meteoritics and Planetary Science	http://meteoritics.org/
Meteorite! Magazine	http://meteoritemag.uark.edu
Geochemical Society	http://www.geochemsoc.org
Washington Univ. Lunar Meteorite	http://epsc.wustl.edu/admin/resources/moon_meteorites.html
Washington Univ. "meteor-wrong"	http://epsc.wustl.edu/admin/resources/meteorites/meteorwrongs/meteorwrongs.htm

Other Websites of Interest

Mars Exploration	http://mars.jpl.nasa.gov
Rovers	http://marsrovers.jpl.nasa.gov/home/index.html
Near Earth Asteroid Rendezvous	http://near.jhuapl.edu/
Stardust Mission	http://stardust.jpl.nasa.gov
Genesis Mission	http://genesismission.jpl.nasa.gov
ARES	http://ares.jsc.nasa.gov/
Astromaterials Curation	http://www-curator.jsc.nasa.gov/