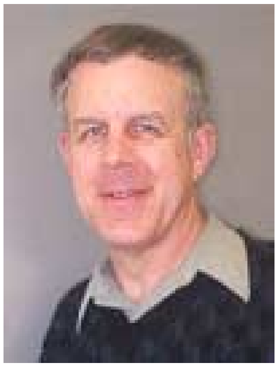
Antarctic Meteorite Newsletter

Volume 25, Number 1 February 2002

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 Carlton Allen, NASA Johnson Space Center.



Program News

Carlton Allen

David "Duck" Mittlefehldt served ably and well as Acting Curator of Antarctic Meteorites over the past year. At his request, Duck turned over the Curator's job shortly before joining this year's ANSMET team. Back in Houston after a successful field season (336 new meteorites), he is devoting full time to research. All of us in the Antarctic Meteorite Program thank Duck for his service. We look forward to the chance to hire a Permanent Curator at JSC in the near future. In the interim, I have taken on the job of Acting Curator.

New Meteorites

This newsletter contains classifications for 281 new meteorites. All were collected from the Queen Alexandra Range during the 1999–2000 field season. Most are ordinary chondrites, as is typical of the QUE samples. The collection does include one enstatite achondrite (ungrouped), two eucrites, five CK4 and three CM2 carbonaceous chondrites, one Type 3 chondrite, and one E chondrite. The five CK4 chondrites and two of the CM2 carbonaceous chondrites are tentatively paired. The enstatite chondrite (ungrouped) is paired with a specimen from the 1994 collection. As noted in the previous newsletter, these samples represent an unusual class that deserves detailed study.

More Program News on page 2.

Smithsonian Mail Delays

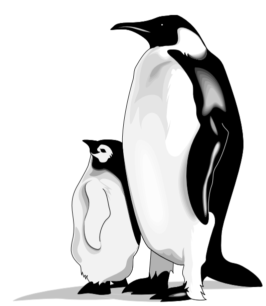
Tim McCoy and Linda Welzenbach

In October 2001, the Brentwood Postal Facility, which services the core of government offices in central Washington, DC, was closed indefinitely after two workers died from anthrax inhalation. This closure has affected Smithsonian mail in several important ways that the community should be aware of:

1. All mail in the Brentwood facility at the time of the anthrax contamination is being sent to irradiation facilities in Lima, Ohio. The volume of mail has overwhelmed that facility, and outgoing packages from October may not be delivered until well into the spring. In addition, the effects of high-energy electron irradiation of meteoritic materials are uncertain, but we have reason to believe that the integrity of polished thin sections may be substantially compromised. **If you requested material from us and have not received it, or if it arrived damaged, please contact us as soon as possible.**

More Smithsonian Mail Delays on page 2.

Inside this Issue



Sample Request Deadline March 1, 2002

MWG Meets March 15-16, 2002

Program News continued from page 1.

Laboratory Upgrade Complete

During the past year, members of a dedicated team from NASA, Lockheed Martin, BRSP, and Honeywell worked together to replace the air handler, modify and clean the ductwork, and upgrade the environmental control system in JSC's Antarctic Meteorite and Cosmic Dust Laboratories. Planning for this project began in 2000 and involved a complex set of tradeoffs among cost, laboratory operational schedules, and the quality concerns of our science oversight committees. Construction began in June 2001 and was completed early in the new year. The labs are up and running again, and air quality is significantly higher than before the upgrade. The project goal was to meet Class 10,000 clean room requirements within these labs, and they are now ten times cleaner. The labs have also met the design goal of 0.1 inches of water positive pressure.

Security

The September 11 attacks and subsequent anthrax exposures have led to changes in the JSC Astromaterials Laboratories. Following an internal review, physical security in the laboratories has been increased. Procedures for shipping samples have been changed, particularly for non-U.S. investigators. The requirements and processing time for a visitor to JSC have increased—greatly so in the case of non-U.S. citizens. Finally, we no longer accept delivery of possible meteorites for identification.

We at JSC do continue our core missions—providing samples of extraterrestrial material to the international science and education communities and curating samples for future research. We welcome your comments and sample requests and look forward to the results of your research.

Smithsonian Mail Delays continued from page 1.

2. Outgoing loans of requests received after approximately October 15 have been substantially delayed. It was unclear for some time whether outgoing mail would be irradiated and, if so, what effect that would have on samples. Thus, the Museum asked us to temporarily suspend outgoing loans. **We are now attempting to fill this backlog of requests.** Please be advised that outgoing mail from the Smithsonian is NOT being irradiated.
3. Mail service is substantially delayed and unpredictable. We are still receiving letters postmarked as early as late October. If you sent a request for material through regular mail any time after October 1, it has likely not been received by us. Please be aware that this situation is not likely to improve, as the volume of incoming mail to the central Washington government core far outpaces the ability to irradiate incoming mail. Thus, the backlog continues to grow. **We strongly urge users to communicate with us via e-mail (mccoy.tim@nmnh.si.edu or welzenbach@nmnh.si.edu) or fax.**
4. Samples returned to us WILL be irradiated if they are sent through regular mail in envelopes or flats, potentially causing significant and irreparable damage. **The Smithsonian requires that all materials (no matter how small) be packed in sturdy cardboard boxes at least 6 in. on a side (boxes are not currently being irradiated) and sent to us at:**

Linda Welzenbach
Collection Manager, Div. of Meteorites
Smithsonian Institution
PO Box 37012
National Museum of Natural History
Room E432
MRC Code 119
Washington, DC 20013-7012

If possible, Federal Express (which is not irradiating material) is a better solution for returning samples to us:

Linda Welzenbach
Div. of Meteorites
National Museum of Natural History
10th and Constitution Aves., NW
Smithsonian Institution
Washington, DC 20560-0119
Phone (202) 357-1478

We apologize in advance for any difficulties these changes may create, but they are unavoidable at this time.

Report From Ralph Harvey

Many insist that hindsight is 20/20, but in truth, hindsight is as selective and distorting as beer goggles. So rather than wax eloquently on the scientific importance of the 2001–2002 ANSMET field season to Meteorite Hills, let me simply list some interesting facts, and allow the reader to "goggle" over them...

Meteorite specimens recovered during 2001–2002 season: 336 (total, all sites). Of these...

- 308 were ordinary chondrites.
- 10 were achondrites.
- 11 were carbonaceous chondrites.
- 2 were irons.
- 5 were unclassified (terrestrial? ordinary chondrites?).

Total from various sites:

- Meteorite Hills: 326 (299 ordinary chondrites, 9 achondrites, 11 carbonaceous chondrites, 2 irons, 5 ???).
- Mt. Crean: 1 achondrite (recovered by the Isbell/Askin science group).
- Odell Glacier: 3 ordinary chondrites (recovered by a technical event group).
- Finger Ridge: 6 ordinary chondrites.

Area of ice searched at Meteorite Hills: roughly equal to last year.

Ratio of workdays/days lost to weather or travel: 25/45 (55%).

Estimated number of e-mails sent from field: roughly 400.

Rate of recovery from Finger Ridge ice fields:

- 2000–2001 season: 1 specimen per hour per person, on foot.
- 2001–2002 season: 0.05 specimens per hour per person, on snowmobile.

Percentage of snowmobiles disabled during last day of fieldwork: 50% (4 of the 8).

Number of Scott tents shredded by the wind: 1.

Stated maximum wind speed rating for Scott tent: 200 kph (it was an old tent).

John Schutt's subjective ranking, in terms of maximum wind speed experienced: worst ever.

Number of field party members shredded by the wind or otherwise disabled: none.

Number of meteorites inadvertently run over with snowmobile by field party members: 2.

Amount of field-powdered ordinary chondrite now available: ~50 g.

Best,
Ralph

ANSMET 2001-2002 Field Team
Back row: Matt Genge, John Schutt, Ralph Harvey, Jamie Pierce
Middle row: Linda Martel, Maggie Taylor, Cari Corrigan
Front row: Juanita Ryan, Nancy Chabot
Supine: Duck Mittlefehldt

New Meteorites

From the 1999 Collection

Pages 12–14 contain preliminary descriptions and classifications that were completed after the publication of issue 24(2), September 2001. Specimens of special petrologic type (e.g., carbonaceous chondrite, unequilibrated ordinary chondrite, and achondrite) are described separately unless they are paired with previously described meteorites. However, some specimens that are not of special petrologic type are listed only as single-line entries in Table 1. For convenience, new specimens of special petrologic type are recast in Table 2.

Macroscopic descriptions of stony meteorites were written at the NASA Lyndon B. Johnson Space Center. These descriptions summarize hand-specimen features observed during the initial examination. Classification is based on microscopic petrography and reconnaissance-level electron microprobe analyses of polished sections prepared from a small chip of each meteorite. For each stony meteorite, the sample number assigned to the section studied in the preliminary examination is included. In some cases, however, a single microscopic description is 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:

Kathleen McBride, Cecilia Satterwhite
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NASA Johnson Space Center
Houston, Texas

Tim McCoy, Linda Welzenbach, Gretchen Benedix
Department of Mineral Sciences
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
DAV — David Glacier
DEW — Mt. DeWitt
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
LEW — Lewis Cliff
LON — Lonewolf Nunataks
MAC — MacAlpine Hills
MBR — Mount Baldr
MCY — MacKay Glacier
MET — Meteorite Hills
MIL — Miller Range
OTT — Outpost Nunatak
PAT — Patuxent Range
PCA — Pecora Escarpment
PGP — Purgatory Peak
PRE — Mt. Prestrud
QUE — Queen Alexandra Range
RKP — Reckling Peak
SCO — Scott Glacier
STE — Stewart Hills
TEN — Tentacle Ridge
TIL — Thiel Mountains
TYR — Taylor Glacier
WIS — Wisconsin Range
WSG — Mt. Wisting

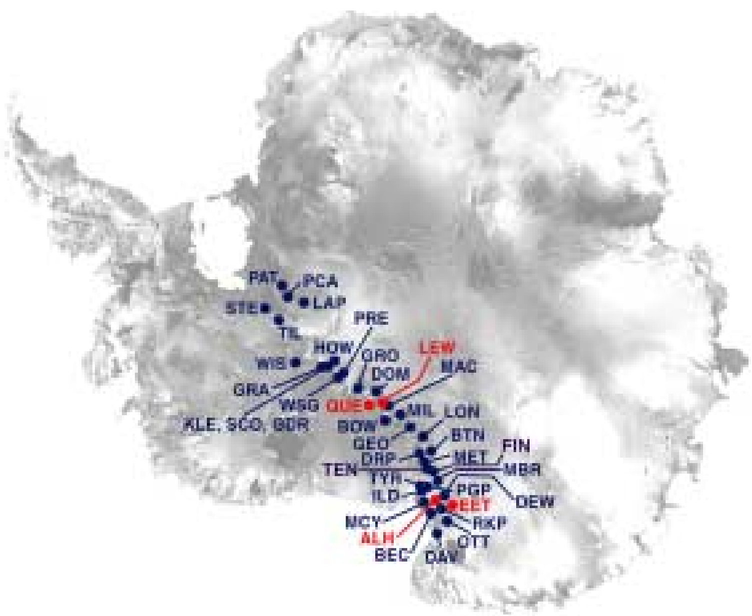


Table 1

List of Newly Classified Antarctic Meteorites**

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 99 340 ~	2.1	LL5 CHONDRITE	B/C	B/C		
QUE 99 341 ~	3.6	LL5 CHONDRITE	B/C	B/C		
QUE 99 342	1.7	CM2 CHONDRITE	BE	B	2-37	
QUE 99 343 ~	2.7	LL5 CHONDRITE	B/C	B/C		
QUE 99 344 ~	1.4	LL5 CHONDRITE	B/C	B/C		
QUE 99 345 ~	9.5	LL5 CHONDRITE	B/C	B/C		
QUE 99 347 ~	5.9	LL5 CHONDRITE	B/C	B/C		
QUE 99 348 ~	3.1	LL5 CHONDRITE	B/C	B/C		
QUE 99 349 ~	4.4	LL5 CHONDRITE	B/C	B/C		
QUE 99 350 ~	37.7	L5 CHONDRITE	B	B		
QUE 99 351 ~	24.5	LL5 CHONDRITE	A/B	A		
QUE 99 352	92.6	H4 CHONDRITE	C	A	19	17
QUE 99 353 ~	22.0	LL5 CHONDRITE	B	B		
QUE 99 354 ~	28.1	LL5 CHONDRITE	B	B		
QUE 99 355	32.4	CM2 CHONDRITE	B	B	1-42	
QUE 99 356 ~	14.5	LL5 CHONDRITE	A/B	A/B		
QUE 99 357 ~	23.7	LL5 CHONDRITE	B	B		
QUE 99 358 ~	36.4	LL5 CHONDRITE	B	B		
QUE 99 359	34.3	H6 CHONDRITE	C	B	19	16
QUE 99 360 ~	6.9	LL5 CHONDRITE	B	A		
QUE 99 361 ~	1.0	LL5 CHONDRITE	B	A		
QUE 99 362 ~	11.7	LL5 CHONDRITE	B	A		
QUE 99 363 ~	2.4	LL5 CHONDRITE	B	A		
QUE 99 364 ~	3.7	LL5 CHONDRITE	B	A		
QUE 99 365 ~	12.4	LL5 CHONDRITE	B	A		
QUE 99 366 ~	0.9	LL5 CHONDRITE	B	A		
QUE 99 367 ~	0.1	LL5 CHONDRITE	B	A		
QUE 99 368 ~	2.4	LL5 CHONDRITE	B	A		
QUE 99 369 ~	0.5	LL5 CHONDRITE	B	A		
QUE 99 370 ~	4.7	LL5 CHONDRITE	B	B		
QUE 99 371 ~	3.6	H5 CHONDRITE	C	B		
QUE 99 372 ~	3.2	LL5 CHONDRITE	B/C	B		
QUE 99 373 ~	4.6	LL5 CHONDRITE	B	B		
QUE 99 374 ~	0.6	LL5 CHONDRITE	B	B		
QUE 99 375 ~	0.3	H5 CHONDRITE	C	B		
QUE 99 376 ~	1.1	LL5 CHONDRITE	C	B		
QUE 99 377 ~	0.5	LL5 CHONDRITE	B	B		
QUE 99 378 ~	1.5	LL5 CHONDRITE	B	B		
QUE 99 379 ~	3.5	LL5 CHONDRITE	B	B		
QUE 99 380 ~	8.5	LL5 CHONDRITE	A/B	A/B		
QUE 99 381 ~	22.2	LL5 CHONDRITE	B	A/B		
QUE 99 382 ~	0.9	LL5 CHONDRITE	A/B	A		
QUE 99 383 ~	1.0	LL5 CHONDRITE	A/B	A		
QUE 99 384 ~	4.4	LL5 CHONDRITE	A/B	A		
QUE 99 385 ~	1.4	LL5 CHONDRITE	B	A		
QUE 99 386	15.8	LL6 CHONDRITE	A/B	A/B	30	24
QUE 99 387	10.6	ENSTATITE METEORITE UNGR	B/C	A		0-1
QUE 99 388 ~	19.4	LL5 CHONDRITE	B	B		

~ Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 99 389 ~	3.3	LL5 CHONDRITE	B	A/B		
QUE 99 390 ~	0.1	LL5 CHONDRITE	B	A		
QUE 99 391 ~	0.7	LL5 CHONDRITE	B	A		
QUE 99 392 ~	1.3	LL5 CHONDRITE	B	A		
QUE 99 393 ~	4.5	LL5 CHONDRITE	B	A		
QUE 99 394 ~	1.1	LL5 CHONDRITE	B	A		
QUE 99 395 ~	3.2	LL5 CHONDRITE	B	B		
QUE 99 396	1.7	H CHONDRITE (IMPACT MELT)	C	C	18	16
QUE 99 397 ~	4.5	LL5 CHONDRITE	B	B		
QUE 99 398 ~	9.2	LL5 CHONDRITE	B	B		
QUE 99 399 ~	3.7	LL5 CHONDRITE	A/B	B		
QUE 99 400 ~	2.4	LL6 CHONDRITE	A/B	A/B		
QUE 99 401 ~	1.4	LL5 CHONDRITE	A/B	A		
QUE 99 402 ~	0.7	LL5 CHONDRITE	B	A		
QUE 99 403 ~	0.8	LL5 CHONDRITE	B	A		
QUE 99 404 ~	1.0	LL5 CHONDRITE	A/B	A		
QUE 99 405 ~	0.3	LL5 CHONDRITE	B/C	A		
QUE 99 406 ~	2.2	LL5 CHONDRITE	A/B	A		
QUE 99 407 ~	2.3	LL5 CHONDRITE	A/B	A		
QUE 99 408 ~	3.1	LL5 CHONDRITE	A/B	A/B		
QUE 99 410 ~	0.3	LL5 CHONDRITE	B	B		
QUE 99 411 ~	3.1	LL5 CHONDRITE	B	A/B		
QUE 99 412 ~	2.3	LL5 CHONDRITE	B/C	A/B		
QUE 99 413 ~	2.5	L5 CHONDRITE	B/C	A/B		
QUE 99 414 ~	0.4	L5 CHONDRITE	B/C	B		
QUE 99 415 ~	2.2	LL5 CHONDRITE	B	B		
QUE 99 416 ~	7.9	LL5 CHONDRITE	B	B		
QUE 99 417 ~	8.8	LL5 CHONDRITE	B	B		
QUE 99 418 ~	1.8	LL5 CHONDRITE	B	B		
QUE 99 419 ~	6.7	L6 CHONDRITE	B/C	B/C		
QUE 99 430 ~	7.3	H5 CHONDRITE	B/C	A		
QUE 99 431 ~	3.3	H5 CHONDRITE	B/C	A/B		
QUE 99 432 ~	10.1	LL5 CHONDRITE	A/B	A		
QUE 99 433 ~	3.0	H5 CHONDRITE	B/C	A		
QUE 99 434 ~	1.3	H5 CHONDRITE	B/C	A		
QUE 99 435 ~	0.4	H5 CHONDRITE	B/C	A		
QUE 99 436 ~	3.0	H5 CHONDRITE	B/C	A		
QUE 99 437 ~	9.4	L6 CHONDRITE	A/B	A/B		
QUE 99 438	5.1	EH3 CHONDRITE	B/C	A	0-1	0-1
QUE 99 439 ~	4.7	LL5 CHONDRITE	A/B	A/B		
QUE 99 440 ~	30.5	LL6 CHONDRITE	A/B	A/Be		
QUE 99 443	8.7	CM2 CHONDRITE	A/B	A/B	1-34	
QUE 99 444 ~	33.6	H6 CHONDRITE	B/C	A		
QUE 99 445 ~	86.1	L6 CHONDRITE	B/C	A		
QUE 99 446 ~	55.5	H6 CHONDRITE	B/C	A/B		
QUE 99 447 ~	48.5	LL5 CHONDRITE	A/B	A/B		
QUE 99 448 ~	91.3	H6 CHONDRITE	B/C	A/B		
QUE 99 449 ~	13.6	LL5 CHONDRITE	B/C	A/B		
QUE 99 450 ~	112.8	H5 CHONDRITE	C	A/B		
QUE 99 451 ~	195.5	L6 CHONDRITE	B/C	C		
QUE 99 452 ~	284.0	L5 CHONDRITE	B/C	B		
QUE 99 453 ~	282.1	L5 CHONDRITE	B/C	B		
QUE 99 454 ~	372.4	L5 CHONDRITE	B/C	B		

~ Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 99 455 ~	336.6	L5 CHONDRITE	B/C	B		
QUE 99 456 ~	256.3	L5 CHONDRITE	C	A/B		
QUE 99 457 ~	211.7	L6 CHONDRITE	C	B		
QUE 99 458 ~	87.2	LL6 CHONDRITE	B	B		
QUE 99 459 ~	65.2	H5 CHONDRITE	C	B		
QUE 99 460 ~	29.1	L6 CHONDRITE	B/C	A		
QUE 99 461 ~	26.2	H5 CHONDRITE	B/C	A		
QUE 99 462 ~	62.6	LL6 CHONDRITE	A/B	A		
QUE 99 463 ~	31.4	LL5 CHONDRITE	A/B	A/B		
QUE 99 464 ~	92.8	L5 CHONDRITE	A/B	A/B		
QUE 99 465	18.4	L4 CHONDRITE	B	A/B	25	21
QUE 99 466 ~	81.9	H5 CHONDRITE	B/C	A		
QUE 99 467 ~	14.6	LL5 CHONDRITE	A/B	A		
QUE 99 468 ~	10.8	LL5 CHONDRITE	A/B	A		
QUE 99 469 ~	64.3	H5 CHONDRITE	A/B	A		
QUE 99 470 ~	2.0	LL5 CHONDRITE	A/B	A		
QUE 99 471 ~	3.8	LL5 CHONDRITE	A/B	A		
QUE 99 472 ~	0.6	LL5 CHONDRITE	B	A		
QUE 99 474 ~	0.8	LL5 CHONDRITE	B/C	A		
QUE 99 475 ~	3.4	LL5 CHONDRITE	A/B	A/B		
QUE 99 476 ~	3.6	L5 CHONDRITE	A/B	A/B		
QUE 99 477 ~	0.9	LL5 CHONDRITE	A/B	A		
QUE 99 478 ~	0.5	LL5 CHONDRITE	A/B	A		
QUE 99 479 ~	1.9	LL5 CHONDRITE	A/B	A/B		
QUE 99 480 ~	2.2	LL5 CHONDRITE	B/C	B		
QUE 99 481 ~	1.7	L5 CHONDRITE	C	B		
QUE 99 482 ~	0.8	LL5 CHONDRITE	C	B		
QUE 99 483 ~	2.6	H6 CHONDRITE	B	B		
QUE 99 484 ~	0.7	L5 CHONDRITE	C	B		
QUE 99 485 ~	0.4	LL5 CHONDRITE	B	B		
QUE 99 486 ~	4.8	LL5 CHONDRITE	B	B		
QUE 99 487 ~	1.3	LL5 CHONDRITE	B	B		
QUE 99 488 ~	3.3	LL5 CHONDRITE	B/C	B		
QUE 99 489 ~	1.3	LL5 CHONDRITE	B/C	B		
QUE 99 490 ~	1.5	LL5 CHONDRITE	B	A/B		
QUE 99 491 ~	0.9	LL5 CHONDRITE	B	A/B		
QUE 99 492 ~	1.3	LL5 CHONDRITE	B	A/B		
QUE 99 493 ~	1.0	LL5 CHONDRITE	B/C	B		
QUE 99 494 ~	1.1	LL6 CHONDRITE	B/C	B		
QUE 99 495 ~	3.9	LL5 CHONDRITE	B/C	B		
QUE 99 496 ~	2.0	L6 CHONDRITE	B/C	A/B		
QUE 99 497 ~	3.2	LL5 CHONDRITE	B	A/B		
QUE 99 498 ~	4.1	LL5 CHONDRITE	B/C	B		
QUE 99 499 ~	2.7	LL5 CHONDRITE	C	B		
QUE 99 500 ~	6.3	LL6 CHONDRITE	B	B		
QUE 99 501 ~	3.0	LL5 CHONDRITE	B/C	B		
QUE 99 502 ~	21.8	LL5 CHONDRITE	A/B	A/B		
QUE 99 503 ~	1.3	L5 CHONDRITE	C	A/B		
QUE 99 504 ~	9.5	LL5 CHONDRITE	B	B		
QUE 99 505 ~	0.9	H6 CHONDRITE	C	B		
QUE 99 506 ~	1.8	LL5 CHONDRITE	B/C	B		
QUE 99 507 ~	1.4	LL5 CHONDRITE	B	B		
QUE 99 508 ~	6.1	LL5 CHONDRITE	B	B		

~ Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 99 509 ~	3.5	LL5 CHONDRITE	B/C	B		
QUE 99 510 ~	27.1	LL5 CHONDRITE	A/B	A		
QUE 99 511 ~	15.8	H6 CHONDRITE	B/C	A/B		
QUE 99 512 ~	5.8	H5 CHONDRITE	B/C	A/B		
QUE 99 513 ~	2.0	LL5 CHONDRITE	A/B	A		
QUE 99 514 ~	13.1	H5 CHONDRITE	B/C	A/B		
QUE 99 515 ~	2.6	LL5 CHONDRITE	A/B	A		
QUE 99 516 ~	8.9	LL5 CHONDRITE	A/B	A		
QUE 99 517	1.4	L3.4 CHONDRITE	B	A/B	9-28	4-21
QUE 99 518	17.7	L6 CHONDRITE	B/C	A	24	20
QUE 99 519 ~	2.1	LL5 CHONDRITE	A/B	A/B		
QUE 99 520 ~	2.8	L5 CHONDRITE	C	B		
QUE 99 521	3.0	L6 CHONDRITE	CE	B	24	20
QUE 99 522 ~	2.5	LL5 CHONDRITE	A/B	A/B		
QUE 99 523 ~	1.8	L5 CHONDRITE	C	B		
QUE 99 524 ~	1.0	H5 CHONDRITE	C	B		
QUE 99 525 ~	2.1	LL5 CHONDRITE	B	A/B		
QUE 99 526 ~	6.8	LL5 CHONDRITE	B	B		
QUE 99 527 ~	7.9	LL5 CHONDRITE	B/C	B		
QUE 99 528 ~	2.2	LL5 CHONDRITE	B/C	B		
QUE 99 529	4.4	H4 CHONDRITE	C	B	19	
QUE 99 530 ~	6.2	LL5 CHONDRITE	B	B		
QUE 99 531 ~	1.6	LL5 CHONDRITE	B	B		
QUE 99 532 ~	0.7	LL5 CHONDRITE	B	B		
QUE 99 533 ~	6.2	LL5 CHONDRITE	B	B		
QUE 99 534 ~	0.9	LL5 CHONDRITE	B	B		
QUE 99 535 ~	0.2	LL5 CHONDRITE	B	B		
QUE 99 536 ~	0.6	L5 CHONDRITE	B/C	B		
QUE 99 537 ~	1.2	LL5 CHONDRITE	B	B		
QUE 99 538 ~	2.3	H5 CHONDRITE	C	B		
QUE 99 539 ~	3.1	LL5 CHONDRITE	B	B		
QUE 99 540 ~	5.8	LL5 CHONDRITE	B	B		
QUE 99 541 ~	3.4	LL5 CHONDRITE	B	B		
QUE 99 542 ~	0.8	H6 CHONDRITE	C	A/B		
QUE 99 543 ~	1.1	LL6 CHONDRITE	B	B		
QUE 99 544 ~	2.1	LL5 CHONDRITE	B	B		
QUE 99 545 ~	2.4	LL5 CHONDRITE	B/C	B		
QUE 99 546 ~	4.7	LL6 CHONDRITE	B	A/B		
QUE 99 547 ~	0.3	LL5 CHONDRITE	B	B		
QUE 99 548 ~	3.2	H5 CHONDRITE	C	B/C		
QUE 99 549 ~	6.4	LL5 CHONDRITE	B	B		
QUE 99 550 ~	0.8	LL5 CHONDRITE	B	A/B		
QUE 99 551 ~	0.9	LL5 CHONDRITE	A/B	A		
QUE 99 552 ~	8.9	LL5 CHONDRITE	B	A/B		
QUE 99 553 ~	2.5	H5 CHONDRITE	C	A		
QUE 99 554 ~	5.2	LL5 CHONDRITE	A/B	A/B		
QUE 99 555 ~	13.4	LL5 CHONDRITE	B	B		
QUE 99 556 ~	11.2	H5 CHONDRITE	C	A/B		
QUE 99 557 ~	0.8	LL5 CHONDRITE	A/B	A/B		
QUE 99 558 ~	2.5	LL5 CHONDRITE	B	B		
QUE 99 559 ~	0.4	LL5 CHONDRITE	A/B	A/B		
QUE 99 560 ~	3.1	LL5 CHONDRITE	B	A/B		
QUE 99 561 ~	4.2	LL5 CHONDRITE	B	A/B		

~ Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 99 562 ~	0.7	LL5 CHONDRITE	A/B	A/B		
QUE 99 563 ~	1.1	LL5 CHONDRITE	B/C	A		
QUE 99 564 ~	0.5	LL5 CHONDRITE	B/C	A		
QUE 99 565 ~	0.5	LL5 CHONDRITE	B/C	A/B		
QUE 99 566 ~	0.8	LL5 CHONDRITE	A/B	A		
QUE 99 567 ~	2.1	LL5 CHONDRITE	A/B	A		
QUE 99 568 ~	3.8	LL5 CHONDRITE	A/B	A		
QUE 99 569 ~	0.5	LL5 CHONDRITE	A/B	A		
QUE 99 570 ~	13.1	H5 CHONDRITE	B/C	A/B		
QUE 99 571 ~	33.5	LL6 CHONDRITE	A/B	A/B		
QUE 99 572 ~	25.1	LL5 CHONDRITE	A/B	A/B		
QUE 99 573 ~	26.8	LL5 CHONDRITE	A/B	A/B		
QUE 99 574 ~	10.4	LL5 CHONDRITE	A/B	A/B		
QUE 99 575 ~	13.3	LL5 CHONDRITE	A/B	A/B		
QUE 99 576 ~	55.0	LL5 CHONDRITE	A/B	A/B		
QUE 99 577 ~	37.8	L5 CHONDRITE	A/B	B		
QUE 99 578 ~	31.9	LL5 CHONDRITE	A/B	A/B		
QUE 99 579 ~	27.0	LL5 CHONDRITE	A/B	A/B		
QUE 99 580 ~	23.0	LL5 CHONDRITE	B/C	A/B		
QUE 99 581 ~	13.0	LL5 CHONDRITE	B/C	B		
QUE 99 582 ~	9.4	LL5 CHONDRITE	B/C	B		
QUE 99 583 ~	28.9	LL5 CHONDRITE	B/C	B		
QUE 99 584 ~	16.1	LL5 CHONDRITE	B	A/B		
QUE 99 585 ~	11.7	LL5 CHONDRITE	B/C	B		
QUE 99 586 ~	11.6	LL5 CHONDRITE	A/B	A/B		
QUE 99 587 ~	6.4	LL5 CHONDRITE	B/C	B		
QUE 99 588 ~	26.1	LL5 CHONDRITE	A/B	A/B		
QUE 99 589 ~	38.8	H6 CHONDRITE	B/C	A/B		
QUE 99 590 ~	1.3	LL5 CHONDRITE	C	A/B		
QUE 99 591 ~	1.1	LL5 CHONDRITE	A/B	A/B		
QUE 99 592 ~	2.8	LL5 CHONDRITE	C	A/B		
QUE 99 593 ~	1.8	LL5 CHONDRITE	B	B		
QUE 99 594 ~	5.9	L6 CHONDRITE	B	B		
QUE 99 595 ~	0.4	LL5 CHONDRITE	A/B	A/B		
QUE 99 596	7.4	H6 CHONDRITE	C	B/C	19	17
QUE 99 597 ~	1.0	LL5 CHONDRITE	B	B		
QUE 99 598 ~	3.7	H5 CHONDRITE	C	B/C		
QUE 99 599 ~	4.4	LL5 CHONDRITE	B	B		
QUE 99 600	119.6	H5 CHONDRITE	C	B/C	18	16
QUE 99 601 ~	166.4	H5 CHONDRITE	B/C	A/B		
QUE 99 602 ~	250.1	L5 CHONDRITE	B	A/B		
QUE 99 603 ~	156.8	H5 CHONDRITE	B/C	B		
QUE 99 604 ~	136.4	H5 CHONDRITE	C	B		
QUE 99 605 ~	315.5	L5 CHONDRITE	B/C	A/B		
QUE 99 606 ~	132.1	L6 CHONDRITE	C	B/C		
QUE 99 607	164.9	H5 CHONDRITE	C	B	18	15
QUE 99 608 ~	189.6	L5 CHONDRITE	C	B		
QUE 99 609	24.5	EUCRITE (BRECCIATED)	B	C		59
QUE 99 630 ~	2.5	LL5 CHONDRITE	B	A/B		
QUE 99 631 ~	1.1	L5 CHONDRITE	C	B		
QUE 99 632 ~	0.5	LL5 CHONDRITE	B	A/B		
QUE 99 633 ~	1.4	LL5 CHONDRITE	B	A/B		
QUE 99 634 ~	1.3	H5 CHONDRITE	B	B		

~ Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 99 635 ~	0.9	LL5 CHONDRITE	B	A/B		
QUE 99 636 ~	1.2	LL5 CHONDRITE	B/C	B		
QUE 99 637 ~	3.9	LL5 CHONDRITE	B/C	B		
QUE 99 638 ~	5.1	L5 CHONDRITE	C	C		
QUE 99 639 ~	3.8	LL5 CHONDRITE	B	A/B		
QUE 99 640 ~	3.0	L5 CHONDRITE	C	C		
QUE 99 641 ~	4.6	LL5 CHONDRITE	B	A/B		
QUE 99 642 ~	20.6	LL5 CHONDRITE	A/B	A/B		
QUE 99 643 ~	4.6	LL5 CHONDRITE	A/B	A/B		
QUE 99 644 ~	2.3	LL5 CHONDRITE	A/B	A/B		
QUE 99 645 ~	2.8	L6 CHONDRITE	B	A/B		
QUE 99 646 ~	6.2	LL5 CHONDRITE	B	B		
QUE 99 647 ~	18.3	L5 CHONDRITE	B	A/B		
QUE 99 648 ~	0.6	LL5 CHONDRITE	B	B		
QUE 99 649 ~	1.6	LL5 CHONDRITE	A/B	A/B		
QUE 99 658	8.8	EUCRITE (UNBRECCIATED)	A	B		59
QUE 99 675	1.7	CK4 CHONDRITE	CE	C	28	
QUE 99 676	0.9	CK4 CHONDRITE	CE	C	28	
QUE 99 677	1.3	CK4 CHONDRITE	CE	C	28	24
QUE 99 678	1.6	CK4 CHONDRITE	CE	C	28	
QUE 99 679	3.7	CK4 CHONDRITE	CE	C	28	25

**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 are 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.

~ Classified by using refractive indices.

Table 2**

Newly Classified Specimens Listed by Type

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	%Fs
		Achondrites				
QUE 99 387	10.6	ENSTATITE METEORITE UNGR	B/C	A		0-1
QUE 99 609	24.5	EUCRITE (BRECCIATED)	B	C		59
QUE 99 658	8.8	EUCRITE (UNBRECCIATED)	A	B		59
		Carbonaceous Chondrites				
QUE 99 675	1.7	CK4 CHONDRITE	CE	C	28	
QUE 99 676	0.9	CK4 CHONDRITE	CE	C	28	
QUE 99 677	1.3	CK4 CHONDRITE	CE	C	28	24
QUE 99 678	1.6	CK4 CHONDRITE	CE	C	28	
QUE 99 679	3.7	CK4 CHONDRITE	CE	C	28	25
QUE 99 342	1.7	CM2 CHONDRITE	BE	B	2-37	
QUE 99 355	32.4	CM2 CHONDRITE	B	B	1-42	
QUE 99 443	8.7	CM2 CHONDRITE	A/B	A/B	1-34	
		Chondrites Type - 3				
QUE 99 517	1.4	L3.4 CHONDRITE	B	A/B	9-28	4-21
		E Chondrites				
QUE 99 438	5.1	EH3 CHONDRITE	B/C	A	0-1	0-1

Table 3

Tentative Pairings for New Specimens

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), and No. 84 (*Meteoritics and Planetary Science* 35, A199-A225).

CK4 CHONDRITES

QUE 99676, QUE 99677, QUE 99678, QUE 99679 with QUE 99675

CM2 CHONDRITES

QUE 99355 with QUE 99342

ENSTATITE METEORITE UNGROUPED

QUE 99387 with QUE 94204

Petrographic Descriptions

Sample No.: **QUE 99342**
Location: Queen Alexandra Range
Field No.: 12728
Dimensions (cm): 1.25 x 1.0 x 1.0
Weight (g): 1.702
Meteorite Type: CM2 Chondrite

Macroscopic Description: Kathleen McBride
75% of this carbonaceous chondrite's exterior is covered with dull purple black fusion crust. The interior is composed of black matrix with evaporites and <1 mm light gray clasts.

Thin Section (, 2) Description: Gretchen Benedix, Linda Welzenbach, and Tim McCoy
The section consists of a few small chondrules (up to 1 mm), mineral grains, and CAIs set in a black matrix; rare metal and sulfide grains are present. Olivine compositions are Fa_{0-37}, with a prominent peak at Fa_{0-2}. The matrix consists dominantly of Fe-rich serpentine. The meteorite is a CM2 chondrite.

Sample No.: **QUE 99355**
Location: Queen Alexandra Range
Field No.: 11884
Dimensions (cm): 4.0 x 2.5 x 1.5
Weight (g): 32.366
Meteorite Type: CM2 Chondrite

Macroscopic Description: Kathleen McBride
The exterior of this carbonaceous chondrite is covered with 75% black foamy fusion crust with polygonal fractures, and it has a slight purplish sheen. The interior is composed of dull black matrix, with powdery texture that is not very friable. Light colored chondrules <1 mm in size are visible.

Thin Section (, 2) Description: Gretchen Benedix, Linda Welzenbach, and Tim McCoy
The section consists of a few small chondrules (up to 1 mm), mineral grains and CAIs set in a black matrix; rare metal and sulfide grains are present. Olivine compositions are $Fa_{0-41,}$ with a prominent peak at Fa_{0-2}. The matrix consists dominantly of Fe-rich serpentine. The meteorite is a CM2 chondrite. Pairing with QUE 99342 is possible.

Sample No.: **QUE 99387**
Location: Queen Alexandra Range
Field No.: 11640
Dimensions (cm): 2.9 x 2.1 x 1.0
Weight (g): 10.598
Meteorite Type: Enstatite Meteorite Ungrouped

Macroscopic Description: Cecilia Satterwhite
50% of the exterior of this meteorite is covered with pitted brown weathered fusion crust. The interior reveals rusty crystalline material that has a crumbly texture. Some rusty dark chondrules are visible.

Thin Section (, 2) Description: Tim McCoy, Linda Welzenbach, and Gretchen Benedix
This meteorite is paired with a number of earlier-described QUE samples, including 94204/97348/97289/99059/99122/99157/99158. The section consists of mm-sized enstatite grains (Fs_{0-1}), SiO_2, zoned plagioclase (An_{28-34}), metal, troilite, daubreelite, alabandite, and schreibersite. The latter phases often occur as rounded enclaves in the enstatite. These meteorites are unusual aubrites or enstatite chondrite impact melt rocks.

Sample No.: **QUE 99396**
Location: Queen Alexandra Range
Field No.: 12492
Dimensions (cm): 1.25 x 0.75 x 1.00
Weight (g): 1.661
Meteorite Type: H Chondrite (Impact Melt)

Macroscopic Description:
Kathleen McBride
The exterior is completely covered with dull, black fusion crust that is rusty in areas. The interior is a dull, rusty color that is very fractured.

Thin Section (, 2) Description:
Tim McCoy, Gretchen Benedix, and Linda Welzenbach
The meteorite is dominated by a fine-grained texture with olivine and pyroxene grains and chondrule fragments ranging up to 200 microns in diameter. The matrix contains abundant fine-grained (dominantly less than 25 microns in diameter) metal-troilite intergrowths with concave boundaries between the two phases, suggestive of rapid cooling. Silicates are homogeneous with olivine of Fa_{18} and orthopyroxene of Fs_{16}. The meteorite appears to be a shock or impact melt from an H chondrite.

Sample No.: **QUE 99438**
Location: Queen Alexandra Range
Field No.: 12505
Dimensions (cm): 2.2 x 1.1 x 1.1
Weight (g): 5.13
Meteorite Type: EH3 Chondrite

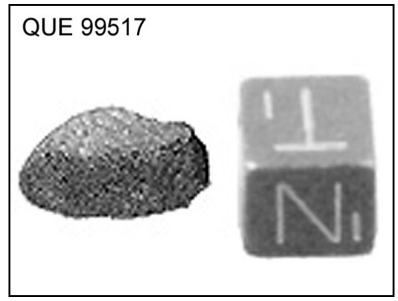
Macroscopic Description:
Cecilia Satterwhite
The exterior has brown/black patchy fusion crust, shiny in areas, with some oxidation present. The interior is a brown/black, fine-grained matrix with some rusty areas and metal visible.

Thin Section (, 2) Description:
Tim McCoy, Linda Welzenbach, and Gretchen Benedix
The section shows an aggregate of chondrules (up to 2 mm), chondrule fragments, and pyroxene grains in a matrix that has experienced extensive terrestrial weathering. Olivine is present in several chondrules, occasionally comprising a significant fraction of the chondrule. Olivine is Fa_{0-1} and pyroxene is Fs_{0-2}. The meteorite is a type 3 enstatite chondrite, probably an EH3.

Sample No.: **QUE 99443**
Location: Queen Alexandra Range
Field No.: 12511
Dimensions (cm): 2.9 x 1.8 x 1.1
Weight (g): 8.725
Meteorite Type: CM2 Chondrite

Macroscopic Description:
Cecilia Satterwhite
The exterior has one shiny, pitted patch of black fusion crust. The interior is a fine-grained black matrix with small white and gray inclusions. Some inclusions are weathered.

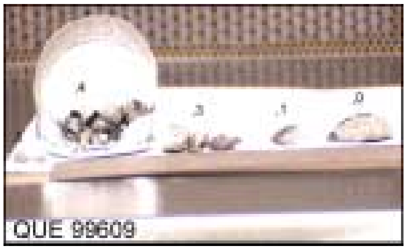
Thin Section (, 2) Description:
Gretchen Benedix,
Linda Welzenbach, and Tim McCoy
The section consists of abundant small chondrules (up to 0.5 mm), mineral grains, and CAIs set in a black matrix; rare metal and sulfide grains are present. Olivine compositions are Fa_{1-34}. The matrix consists dominantly of Fe-rich serpentine. The meteorite is a CM2 chondrite.



Sample No.: **QUE 99517**
Location: Queen Alexandra Range
Field No.: 12525
Dimensions (cm): 1.4 x 0.8 x 0.5
Weight (g): 1.351
Meteorite Type: L3 Chondrite (Estimated 3.4)

Macroscopic Description:
Cecilia Satterwhite
90% of the exterior surface is covered with brown/black fractured fusion crust. Some oxidation haloes are visible. The interior is dark gray to black with minor metal and some rusty areas. Larger white/gray inclusions are abundant. Some inclusions are weathered.

Thin Section (, 2; , 4) Description:
Linda Welzenbach, Gretchen Benedix, and Tim McCoy
The sections exhibit numerous large (up to 2.5 mm), well-defined chondrules in a black matrix of fine-grained silicates, metal, and troilite. Polysynthetically twinned pyroxene is extremely abundant. The meteorites are highly weathered. Silicates are unequilibrated; olivines range from Fa_{3-35}, with several grains ~Fa_{25}, and pyroxenes from Fs_{4-24}. The meteorite is an L3 chondrite and may be of reasonably low subtype (estimated subtype 3.4).



Sample No.: **QUE 99609**
Location: Queen Alexandra Range
Field No.: 11405
Dimensions (cm): *See note below
Weight (g): 24.507
Meteorite Type: Eucrite (Brecciated)

Macroscopic Description: Kathleen McBride

The exterior has a shiny black fusion crust with yellow rust-colored circular splotches. The interior is powdery, light gray matrix and very friable. Submillimeter clasts of gray and white are mixed throughout.

* Meteorite was returned broken into numerous chips and fines. The largest piece shows that the rock was circular in shape or perhaps a disk. Measurement from fusion crust to fusion crust is ~1.5 cm.

Thin Section (, 2) Description: Tim McCoy, Linda Welzenbach, and Gretchen Benedix

This meteorite consists of a finely comminuted matrix containing individual mineral grains of plagioclase and pyroxene and basaltic to gabbroic clasts up to 2 mm in diameter, which themselves exhibit a wide range of grain sizes. Pyroxenes are finely exsolved with end member compositions for orthopyroxene of $Fs_{59}Wo_3$ and augite of $Fs_{29}Wo_{40}$. Plagioclase is An_{90}. The Fe/Mn ratio of the pyroxene is ~27. The meteorite is a brecciated eucrite.

Sample No.: **QUE 99658**
Location: Queen Alexandra Range
Field No.: 11459
Dimensions (cm): 2.0 x 2.5 x 1.5
Weight (g): 8.770
Meteorite Type: Eucrite (Unbrecciated)

Macroscopic Description: Kathleen McBride

The exterior is completely covered with shiny black fusion crust. The interior consists of linear white and gray crystalline material.

Thin Section (, 2) Description: Tim McCoy, Linda Welzenbach, and Gretchen Benedix

This meteorite is an unbrecciated, coarse eucrite that has been extensively shocked and is cross cut by shock melt veins. Orthopyroxene is homogeneous at $Fs_{59}Wo_2$. Plagioclase is $An_{89}Or_{0.5}$. The Fe/Mn ratio of the pyroxene is ~29. The meteorite is an unbrecciated eucrite.

Sample No.: **QUE 99675; 99676; 99677; 99678; 99679**
Location: Queen Alexandra Range
Field No.: 11457; 12550; 12533; 12547; 12587
Dimensions (cm): 2.0 x 0.75 x 0.75; 1.5 x 0.75 x 0.75; broken pieces; 2.0 x 1.0 x 0.5; 2.5 x 2.5 x 0.5
Weight (g): 1.689; 0.924; 1.285; 1.600; 3.728
Meteorite Type: CK4 Chondrites

Macroscopic Description: Kathleen McBride

The exteriors of these carbonaceous chondrites have patches of rough, black fusion crust with polygonal fractures. The interior is a dark gray matrix.

Thin Section (, 3) Description: Gretchen Benedix, Linda Welzenbach, and Tim McCoy

These sections are so similar that a single description suffices. The section consists of large (up to 1 mm) chondrules in a matrix of finer-grained silicates, sulfides, and very abundant magnetite. The meteorites are little weathered, but extensively shock blackened. Silicates are homogeneous. Olivine is Fa_{28} and orthopyroxene is Fs_{24-25}. The meteorites are CK4 chondrites.

Sample Request Guidelines

All sample requests should be made electronically using the form at <http://curator.jsc.nasa.gov/curator/antmet/samreq.htm> (**preferably via e-mail—hard copies are not necessary**).

Please type "MWG request" in the subject line.

If necessary, hard copies can be sent to

Secretary, Meteorite Working Group
NASA Johnson Space Center
ST
Houston, TX 77058 USA
FAX: (281) 483-5347

Requests that are received by the MWG Secretary before **March 1, 2002** will be reviewed at the MWG meeting **March 15–16, 2002** in Houston, Texas. Requests that are received after the **March 1** deadline may be delayed for review until the MWG meets again in the fall of 2002. **Please submit your requests on time**. Questions about sample requests may be directed in writing to the MWG Secretary at the above address or to the curator via phone, fax, or e-mail.

The MWG meets twice a year—each spring in Houston, Texas and each fall in Washington, D.C. The deadline for submitting a request is generally 3 weeks before the scheduled meeting.

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 be accompanied by an e-mail (or an initialed or countersigned hard copy) from a supervising scientist to confirm access to facilities for analysis. All sample requests will be reviewed in a timely manner. Requests that do not meet the guidelines for JSC curatorial allocation will be reviewed by the MWG, a peer review committee that meets twice a year to guide the collection, curation, allocation, and distribution of the U.S. collection of Antarctic meteorites. Issuance of samples does not imply a commitment by any agency to fund the proposed research. As a matter of policy, U.S. Antarctic meteorites are the property of the National Science Foundation, and all allocations are subject to recall.

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, etch, or repolishing must be stated explicitly. Consortium requests should be accompanied by confirming e-mail from the lead member of each group in the consortium or initialed or countersigned hard copies. In most cases, all necessary information should be condensed to a 500–1000 word message, although informative attachments (publications that explain rationale, flow diagrams for analyses, etc.) are welcome. **It is very helpful to include a table summarizing the request and listing each meteorite requested, the type of samples (e.g., interior chip or thin section) and the optimum and minimum masses needed.**

Samples from any meteorite that has been made available through announcement in any issue of the Antarctic Meteorite Newsletter can be requested. 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 February 2000) have been published in several issues of the Meteoritical Bulletin in *Meteoritics* 29, 100-143, and *Meteoritics and Planetary Science* 31, A161-A174; 33, A221-A239; 34, A169-A186; and 35, A199-A225. The most current listing is found online at <http://www-curator.jsc.nasa.gov/curator/antmet/us_clctn.htm>.

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FAX: 281-483-5347

Meteorites Online

Several meteorite Web sites provide information on meteorites from Antarctica and elsewhere. Some specialize in Martian meteorites and the possibility of life on Mars. Here is a general listing of Web sites we have found. We have not included sites focused on selling meteorites, though some of them contain general information. Please contribute information about other sites so that we can update the list.

JSC Curator, Antarctic meteorites	http://www-curator.jsc.nasa.gov/curator/antmet/antmet.htm
JSC Curator, Martian meteorites	http://www-curator.jsc.nasa.gov/curator/antmet/marsmets/contents.htm
JSC Curator, Mars Meteorite Compendium	http://www-curator.jsc.nasa.gov/curator/antmet/mmc/mmc.htm
Antarctic collection	http://www.cwru.edu/affil/ansmet
LPI Martian meteorites	http://cass.jsc.nasa.gov/lpi/meteorites/mars_meteorite.html
NIPR Antarctic meteorites	http://www.nipr.ac.jp/
BMNH general meteorites	http://www.nhm.ac.uk/mineralogy/collections/meteor.htm
UHI planetary science discoveries	http://www.soest.hawaii.edu/PSRdiscoveries
Meteoritical Society	http://www.uark.edu/studorg/metsoc
Meteorite! Magazine	http://www.meteor.co.nz
Geochemical Society	http://www.geochemsoc.org