Antarctic Meteorite Newsletter

Volume 23, Number 1 February 2000

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

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Inside this Issue

Program News

New Meteorites

Marilyn Lindstrom

This newsletter contains something for everyone! It lists classifications of about 440 meteorites mostly from the 1997 and 1998 ANSMET seasons. It also gives descriptions of about 45 meteorites of special petrologic type. These include 1 iron, 17 chondrites (7 CC, 1 EC, 9 OC) and 27 achondrites (25 HED, UR). Most notable are an acapoloite (GRA98028) and an olivine diogenite (GRA98108).

JSC Renovations

Marilyn Lindstrom

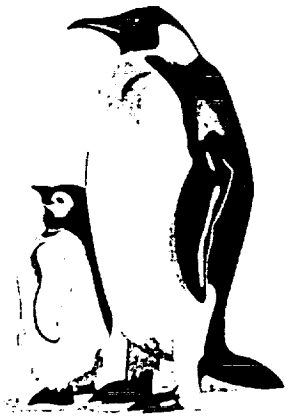
After many complaints of water leaks in offices, a new roof was recently installed on the Planetary Science building at JSC. This six month procedure had a significant impact on activities in the Meteorite Processing Lab which is on the top floor of that building. The potential for contamination by dust, asbestos, or tar fumes caused us to monitor air quality on a daily basis. We refrained from allocations processing during that time and shut down initial processing of small ordinary chondrites whenever particle counts were above our class 10,000 limit. Since completion, we have cleaned the lab and are beginning allocations from the Fall 1999 MWG meeting. We apologize for delays caused by the renovations, but felt it better to be clean and safe than sorry for contamination.

ANSMET Field Season Report

Ralph Harvey

The 1999-2000 ANSMET field season is complete (mostly) as of this writing. The field party (including Henning Haack, Phil Bland, Peter Pesch, Kevin Righter, Rene Martinez, Andreas Weigel, John Schutt and Ralph

continued on page 2



Sample Request Deadline
March 3, 2000

MWG Meets
March 17-18, 2000

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Harvey) was put-in at Beardmore South Camp on Dec. 1 and traversed to the Foggy Bottom region (home of the majority of QUE meteorites) the next day. Searching systematically in the icefields to the north of Foggy Bottom (the Mare Meteoriticus and Tail's End icefields), and in the icefields surrounding nearby Goodwin Nunataks, the main party recovered 915 specimens. A party of two separated from the main group on Dec. 8 to conduct several days worth of reconnaissance in the Miller and Geologists ranges further to the north, around the headwaters of the Nimrod Glacier. Both icefields had been visited for only a few minutes by Bill Cassidy in 1985, and the limits of their potential was not known. The reconnaissance team collected 30 specimens from icefields in Miller Range and the Geologist's Range. Both groups were fortunate to have good weather and relatively snow-free ice through the majority of the season.

As of this writing (late January), one ANSMET field team member remains in the field. John Schutt is the ANSMET representative and field safety officer for a joint expedition with the NOMAD robotics team from Carnegie Mellon University. The joint group is at the Elephant Moraine icefields , exploring the use of a robotic meteorite hunter in areas systematically searched almost two decades ago. By the time you read this, the latest ANSMET meteorite finds may literally be "untouched by human hands."

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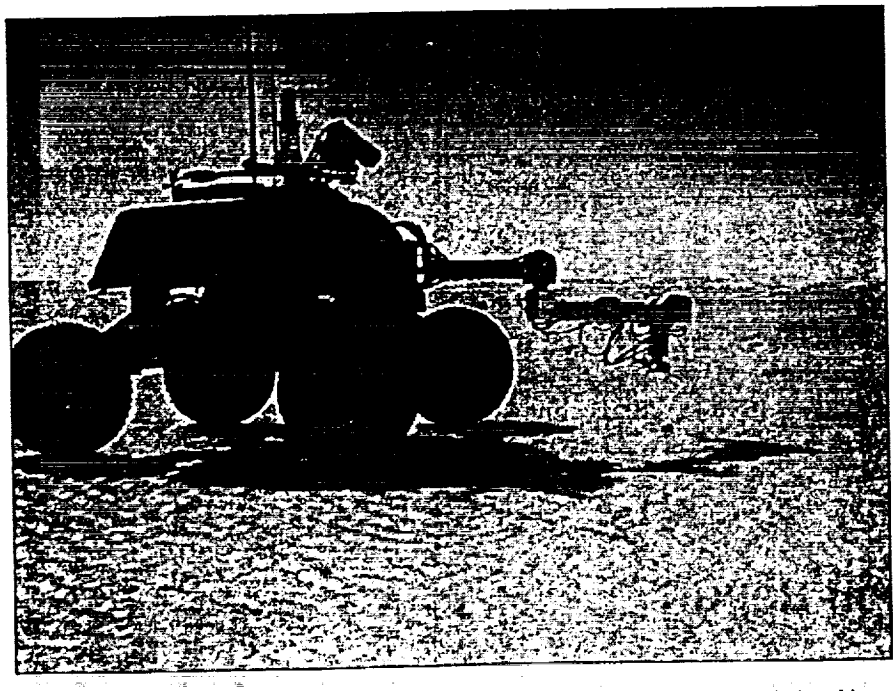

Above: Nomad deploys arm to rock sample, for analysis. ***Top Right:*** Nomad and the field team. ***Bottom Right:*** Picture of meteorite from the arm's camera (spectrometer probe at lower left)

News Flash — As of Jan. 27th, NOMAD has found 3 meteorites on the ice at Elephant Moraine.

New Meteorites

From 1996-1998 Collection

Pages 4-20 contain preliminary descriptions and classifications of meteorites that were completed since publication of issue 22(2), Aug. 1999. 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 inital 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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Roy S. Clark, Jr., Brian Mason,
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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
GEO — Geologists Range
GRA — Graves Nunataks
GRO — Grosvenor Mountains
HOW — Mt. Howe
ILD — Inland Forts
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
STE — Stewart Hills
TIL — Thiel Mountains
TYR — Taylor Glacier
WIS — Wisconsin Range
WSG — Mt. Wisting

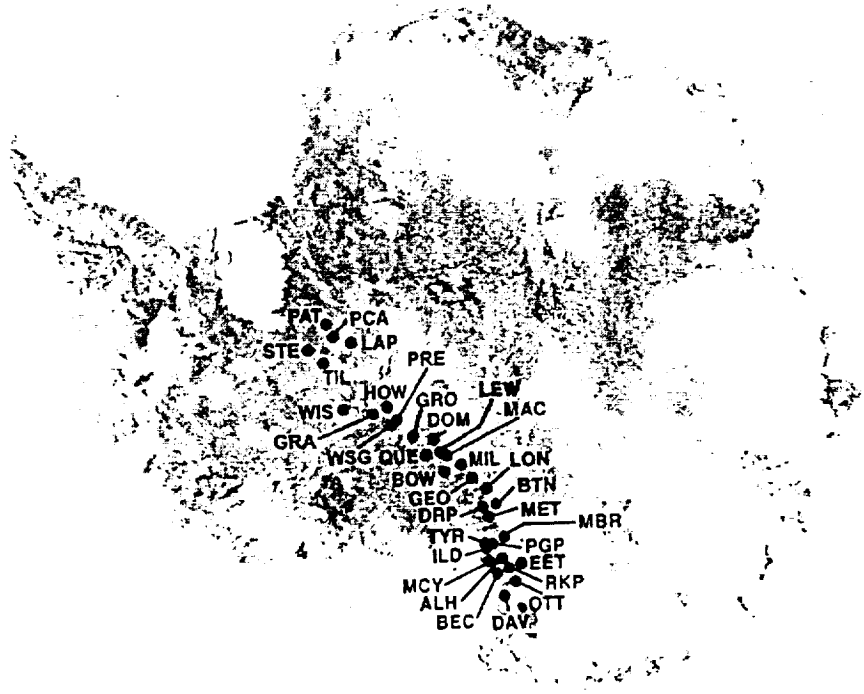


Table 1: List of Newly Classified Antarctic Meteorites**

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 96 009	40.0	IRON-IAB			5	7-10
QUE 97 077	20.0	CM2 CHONDRITE	A/B	A/B	1-35	0-1
QUE 97 416	12.3	CO3 CHONDRITE	B/C	B	1-50	1-15
QUE 97 420	23.2	LL5 CHONDRITE	B	B	28	23
QUE 97 421 ~	29.0	LL5 CHONDRITE	B	B		
QUE 97 422 ~	10.6	LL5 CHONDRITE	A/B	A/B		
QUE 97 423 ~	15.2	LL5 CHONDRITE	A/B	A/B		
QUE 97 424 ~	7.9	LL5 CHONDRITE	B	A/B		
QUE 97 425 ~	37.1	LL5 CHONDRITE	B	A/B		
QUE 97 426 ~	36.3	LL5 CHONDRITE	A/B	A/B		
QUE 97 427 ~	28.9	LL5 CHONDRITE	B	A/B		
QUE 97 428 ~	42.1	LL5 CHONDRITE	B	A/B		
QUE 97 429	39.9	LL5 CHONDRITE	B/C	A/B	28	23
QUE 97 430	69.7	EUCRITE (BRECCIATED)	B	A/B	-	60
QUE 97 431 ~	101.6	LL5 CHONDRITE	A/B	A		
QUE 97 432	128.7	H5 CHONDRITE	B/C	A/B	19	16
QUE 97 433 ~	106.2	LL5 CHONDRITE	A/B	A		
QUE 97 434 ~	37.3	LL5 CHONDRITE	A/B	A		
QUE 97 435 ~	14.7	LL5 CHONDRITE	A/B	A/B		
QUE 97 436 ~	1.9	LL5 CHONDRITE	A/B	A		
QUE 97 437 ~	3.0	LL5 CHONDRITE	A/B	A/B		
QUE 97 438 ~	2.6	LL5 CHONDRITE	A/B	A		
QUE 97 439 ~	5.1	LL5 CHONDRITE	A/B	A/B		
QUE 97 440 ~	87.3	L6 CHONDRITE	B/C	A		
QUE 97 441 ~	60.2	LL5 CHONDRITE	A/B	A/B		
QUE 97 442 ~	42.2	LL5 CHONDRITE	A/B	A/B		
QUE 97 443 ~	32.6	LL5 CHONDRITE	A/B	A/B		
QUE 97 444 ~	76.0	LL5 CHONDRITE	A/B	A/B		
QUE 97 445 ~	35.8	LL5 CHONDRITE	A/B	A/B		
QUE 97 446 ~	20.5	LL5 CHONDRITE	A/B	A/B		
QUE 97 447 ~	22.6	LL5 CHONDRITE	A/B	A		
QUE 97 448 ~	17.4	LL5 CHONDRITE	A/B	A		
QUE 97 449 ~	10.9	LL5 CHONDRITE	A/B	A		
QUE 97 450 ~	11.8	LL5 CHONDRITE	A/B	A		
QUE 97 451 ~	24.7	LL5 CHONDRITE	A/B	A/B		
QUE 97 452 ~	7.3	LL5 CHONDRITE	A/B	A/B		
QUE 97 453 ~	8.2	LL5 CHONDRITE	A/B	A		
QUE 97 454 ~	9.8	LL5 CHONDRITE	B	A		
QUE 97 455 ~	13.5	LL5 CHONDRITE	A/B	A		
QUE 97 456 ~	3.8	H6 CHONDRITE	B/C	A/B		
QUE 97 457 ~	1.6	LL5 CHONDRITE	B	A		
QUE 97 458 ~	1.5	LL5 CHONDRITE	B	A		
QUE 97 459 ~	2.4	LL5 CHONDRITE	A/B	A/B		
QUE 97 460 ~	6.4	LL5 CHONDRITE	B/C	A/B		
QUE 97 461 ~	16.3	LL5 CHONDRITE	A/B	A		
QUE 97 462	12.3	EL6 CHONDRITE	BE	A/B	-	0-1
QUE 97 463 ~	3.0	LL5 CHONDRITE	B/C	A		
QUE 97 464 ~	2.3	LL5 CHONDRITE	C	A		

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 97 465 ~	13.9	LL5 CHONDRITE	A/B	A/B		
QUE 97 466 ~	30.9	LL5 CHONDRITE	A	A		
QUE 97 467 ~	7.2	LL5 CHONDRITE	B/C	A		
QUE 97 468 ~	8.4	LL5 CHONDRITE	B/C	A		
QUE 97 469 ~	23.7	LL5 CHONDRITE	A/B	A/B		
QUE 97 470 ~	52.7	LL5 CHONDRITE	A/B	A/B		
QUE 97 471 ~	27.3	LL5 CHONDRITE	A/B	A/B		
QUE 97 472 ~	17.1	LL5 CHONDRITE	A/B	A/B		
QUE 97 473 ~	4.9	L6 CHONDRITE	B/C	A/B		
QUE 97 474 ~	7.4	LL5 CHONDRITE	A/B	A/B		
QUE 97 475 ~	7.2	LL5 CHONDRITE	A/B	A		
QUE 97 476 ~	33.7	LL5 CHONDRITE	A/B	B		
QUE 97 477 ~	74.4	H6 CHONDRITE	B/C	A		
QUE 97 478 ~	83.5	H6 CHONDRITE	B/C	A		
QUE 97 479 ~	0.5	LL5 CHONDRITE	A/B	A		
QUE 97 480 ~	10.1	LL5 CHONDRITE	A/B	A/B		
QUE 97 481 ~	9.4	LL5 CHONDRITE	A/B	A		
QUE 97 482 ~	27.7	LL5 CHONDRITE	B	A/B		
QUE 97 483 ~	0.5	LL5 CHONDRITE	A/B	A		
QUE 97 484 ~	0.4	LL5 CHONDRITE	A/B	A		
QUE 97 485 ~	1.2	LL5 CHONDRITE	A/B	A		
QUE 97 486 ~	4.2	LL5 CHONDRITE	B	A		
QUE 97 487 ~	22.2	LL5 CHONDRITE	A/B	A/B		
QUE 97 488 ~	2.8	LL5 CHONDRITE	A/B	A		
QUE 97 489 ~	1.3	LL5 CHONDRITE	B	A		
QUE 97 490 ~	101.8	LL5 CHONDRITE	B	B		
QUE 97 491 ~	0.3	LL5 CHONDRITE	B	B		
QUE 97 492 ~	8.9	LL5 CHONDRITE	B	B		
QUE 97 493 ~	8.4	LL5 CHONDRITE	B	B		
QUE 97 494 ~	3.6	LL5 CHONDRITE	B	B		
QUE 97 495 ~	34.5	LL5 CHONDRITE	B	B		
QUE 97 496 ~	2.4	LL5 CHONDRITE	B	B		
QUE 97 497 ~	1.2	LL5 CHONDRITE	A	A		
QUE 97 498 ~	1.1	LL5 CHONDRITE	B	B		
QUE 97 499 ~	0.1	LL5 CHONDRITE	B	B		
QUE 97 500 ~	2.9	LL5 CHONDRITE	A/B	A		
QUE 97 501 ~	48.3	LL5 CHONDRITE	A/B	A/B		
QUE 97 502 ~	1.2	LL5 CHONDRITE	B	A/B		
QUE 97 503 ~	4.8	LL5 CHONDRITE	A/B	A/B		
QUE 97 504 ~	15.5	LL5 CHONDRITE	A/B	A/B		
QUE 97 505 ~	1.6	LL5 CHONDRITE	A/B	A		
QUE 97 506 ~	2.6	LL5 CHONDRITE	A/B	A/B		
QUE 97 507 ~	5.1	LL5 CHONDRITE	A/B	A/B		
QUE 97 508 ~	1.7	LL5 CHONDRITE	A/B	A/B		
QUE 97 509 ~	1.7	LL5 CHONDRITE	A/B	A		
QUE 97 510 ~	2.4	LL5 CHONDRITE	A	A		
QUE 97 511 ~	0.8	LL5 CHONDRITE	A	A		
QUE 97 512 ~	0.5	LL5 CHONDRITE	A/B	A/B		
QUE 97 513 ~	4.1	LL5 CHONDRITE	A/B	A/B		
QUE 97 514 ~	42.5	LL5 CHONDRITE	B	A/B		
QUE 97 515 ~	29.0	LL5 CHONDRITE	A/B	A/B		
QUE 97 516 ~	1.2	LL5 CHONDRITE	A/B	A/B		

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 97 517 ~	0.6	LL5 CHONDRITE	A/B	A/B		
QUE 97 518 ~	3.3	LL5 CHONDRITE	A/B	A/B		
QUE 97 519 ~	6.7	LL5 CHONDRITE	A/B	A/B		
QUE 97 520 ~	2.2	LL5 CHONDRITE	A/B	A/B		
QUE 97 521 ~	41.4	LL5 CHONDRITE	A/B	A/B		
QUE 97 522 ~	38.5	LL5 CHONDRITE	A/B	A/B		
QUE 97 523 ~	26.5	LL5 CHONDRITE	A/B	A		
QUE 97 524 ~	80.5	LL5 CHONDRITE	A/B	A		
QUE 97 525 ~	130.0	LL5 CHONDRITE	A/B	A/B		
QUE 97 526 ~	33.3	LL5 CHONDRITE	A/B	A/B		
QUE 97 527 ~	25.2	LL5 CHONDRITE	A/B	A/B		
QUE 97 528 ~	15.3	LL5 CHONDRITE	A/B	A		
QUE 97 529 ~	22.5	LL5 CHONDRITE	A/B	A		
QUE 97 530 ~	2.9	LL5 CHONDRITE	B	B		
QUE 97 531 ~	2.2	LL5 CHONDRITE	A/B	A		
QUE 97 532 ~	5.2	LL5 CHONDRITE	A/B	A		
QUE 97 533 ~	9.3	H6 CHONDRITE	C	B		
QUE 97 534 ~	2.2	LL5 CHONDRITE	A/B	A		
QUE 97 535 ~	2.1	LL5 CHONDRITE	A/B	A/B		
QUE 97 536 ~	1.5	LL5 CHONDRITE	B	B		
QUE 97 537 ~	16.3	LL5 CHONDRITE	A/B	A/B		
QUE 97 538 ~	4.6	L6 CHONDRITE	C	B		
QUE 97 539 ~	1.1	LL5 CHONDRITE	B	B		
QUE 97 540 ~	2.1	LL5 CHONDRITE	A/B	A		
QUE 97 541 ~	3.6	LL5 CHONDRITE	A/B	A/B		
QUE 97 542 ~	12.3	LL5 CHONDRITE	A/B	A/B		
QUE 97 543 ~	1.2	LL5 CHONDRITE	A/B	A/B		
QUE 97 544 ~	9.1	LL5 CHONDRITE	A/B	A		
QUE 97 545 ~	3.1	H6 CHONDRITE	B	A/B		
QUE 97 546 ~	3.5	LL5 CHONDRITE	A/B	A		
QUE 97 547 ~	0.4	LL5 CHONDRITE	B	A		
QUE 97 548 ~	2.0	LL5 CHONDRITE	A/B	A/B		
QUE 97 549 ~	8.6	LL5 CHONDRITE	B	A/B		
QUE 97 550 ~	50.4	H6 CHONDRITE	B	B		
QUE 97 551 ~	29.2	LL5 CHONDRITE	B	B		
QUE 97 552 ~	28.6	LL5 CHONDRITE	C	B		
QUE 97 553 ~	78.8	LL5 CHONDRITE	B	B		
QUE 97 554 ~	37.6	LL5 CHONDRITE	B	A/B		
QUE 97 555 ~	96.9	L6 CHONDRITE	A/B	B		
QUE 97 556 ~	78.5	LL5 CHONDRITE	A	A/B		
QUE 97 557 ~	26.1	LL5 CHONDRITE	A	A/B		
QUE 97 558 ~	39.0	L6 CHONDRITE	A/B	A/B		
QUE 97 559 ~	92.8	LL5 CHONDRITE	B	B		
QUE 97 560 ~	7.7	LL5 CHONDRITE	A/B	A		
QUE 97 561 ~	21.6	H5 CHONDRITE	B	A		
QUE 97 562 ~	10.1	LL5 CHONDRITE	A/B	A/B		
QUE 97 563 ~	3.5	LL5 CHONDRITE	A/B	A/B		
QUE 97 564 ~	4.4	LL5 CHONDRITE	A/B	A/B		
QUE 97 565 ~	22.8	LL5 CHONDRITE	A/B	A/B		
QUE 97 566 ~	5.7	LL5 CHONDRITE	A/B	A/B		
QUE 97 567 ~	3.4	LL5 CHONDRITE	A/B	A/B		
QUE 97 568 ~	3.3	LL5 CHONDRITE	A/B	A/B		

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 97 569 ~	16.0	H6 CHONDRITE	B	A/B		
QUE 97 570 ~	33.9	H6 CHONDRITE	C	B		
QUE 97 571 ~	0.6	LL5 CHONDRITE	B	B		
QUE 97 572 ~	3.3	LL5 CHONDRITE	B	B		
QUE 97 573 ~	1.0	LL5 CHONDRITE	A/B	B		
QUE 97 574 ~	56.5	LL5 CHONDRITE	A/B	A/B		
QUE 97 575 ~	173.1	LL5 CHONDRITE	B	B		
QUE 97 576 ~	18.3	H6 CHONDRITE	C	B		
QUE 97 577 ~	19.0	LL5 CHONDRITE	B	B		
QUE 97 578 ~	31.9	LL5 CHONDRITE	B	B		
QUE 97 579 ~	8.6	LL5 CHONDRITE	B	B		
QUE 97 580 ~	7.2	LL5 CHONDRITE	A/B	A/B		
QUE 97 581 ~	16.8	LL5 CHONDRITE	A/B	A/B		
QUE 97 582 ~	9.8	LL5 CHONDRITE	A/B	A/B		
QUE 97 583 ~	6.5	LL5 CHONDRITE	A/B	A/B		
QUE 97 584 ~	1.9	LL6 CHONDRITE	A/B	A/B		
QUE 97 585 ~	14.5	H6 CHONDRITE	B	A		
QUE 97 586 ~	0.9	LL5 CHONDRITE	B	A/B		
QUE 97 587 ~	0.2	LL5 CHONDRITE	B	A/B		
QUE 97 588 ~	4.8	LL5 CHONDRITE	A/B	A/B		
QUE 97 589 ~	4.6	LL5 CHONDRITE	A/B	A/B		
QUE 97 590 ~	49.4	LL5 CHONDRITE	A/B	A/B		
QUE 97 591 ~	127.3	LL5 CHONDRITE	A/BE	A/B		
QUE 97 592 ~	26.6	LL5 CHONDRITE	A/B	A/B		
QUE 97 593 ~	48.8	LL5 CHONDRITE	A/B	A/B		
QUE 97 594 ~	29.5	LL5 CHONDRITE	A/BE	A/B		
QUE 97 595 ~	20.1	H5 CHONDRITE	A/B	A/B		
QUE 97 596 ~	17.8	LL5 CHONDRITE	B/C	A/B		
QUE 97 597 ~	18.5	LL5 CHONDRITE	A/B	A		
QUE 97 598 ~	24.0	LL5 CHONDRITE	A/BE	A		
QUE 97 599 ~	41.6	H6 CHONDRITE	B/C	A		
QUE 97 600 ~	7.2	LL5 CHONDRITE	A/B	A		
QUE 97 601 ~	2.9	LL5 CHONDRITE	A/B	A		
QUE 97 602 ~	8.9	LL5 CHONDRITE	A/B	A/B		
QUE 97 603 ~	1.7	LL5 CHONDRITE	A/B	A		
QUE 97 604 ~	9.4	LL5 CHONDRITE	A/B	A		
QUE 97 605	5.2	LL6 CHONDRITE	A/B	A	30	24
QUE 97 606 ~	37.7	LL5 CHONDRITE	A/B	A		
QUE 97 607 ~	30.4	LL5 CHONDRITE	A/B	A/B		
QUE 97 608 ~	27.7	LL5 CHONDRITE	A/B	A/B		
QUE 97 609 ~	9.8	LL5 CHONDRITE	A/B	A/B		
QUE 97 610 ~	31.1	LL5 CHONDRITE	B	B		
QUE 97 611 ~	71.1	LL5 CHONDRITE	B	B		
QUE 97 612 ~	116.8	LL5 CHONDRITE	B	B/C		
QUE 97 613	15.4	L5 CHONDRITE	B	B/C	26	22
QUE 97 614 ~	22.2	L6 CHONDRITE	C	A/B		
QUE 97 615 ~	38.0	LL5 CHONDRITE	B	B		
QUE 97 616 ~	23.8	LL5 CHONDRITE	B	B		
QUE 97 617 ~	2.3	LL5 CHONDRITE	B	B		
QUE 97 618 ~	4.1	LL5 CHONDRITE	B	B		
QUE 97 619 ~	9.2	LL5 CHONDRITE	B	B		
QUE 97 620 ~	21.2	LL5 CHONDRITE	A/B	A/B		

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 97 621	2.8	CM2 CHONDRITE	B	A	1-38	-
QUE 97 622 ~	2.9	LL5 CHONDRITE	A/B	A/B		
QUE 97 623 ~	14.7	LL5 CHONDRITE	A/B	A/B		
QUE 97 624 ~	11.7	LL5 CHONDRITE	A/B	A		
QUE 97 625	5.4	H6 CHONDRITE	B/C	A	19	17
QUE 97 626 ~	1.9	L6 CHONDRITE	A/B	A		
QUE 97 627	2.0	L4 CHONDRITE	B	A	26	22
QUE 97 628 ~	1.0	LL5 CHONDRITE	A/B	A/B		
QUE 97 629 ~	6.1	LL5 CHONDRITE	B/C	A/B		
QUE 97 630	6.9	H5 CHONDRITE	C	B	19	17
QUE 97 631 ~	2.7	LL5 CHONDRITE	B/C	B		
QUE 97 632	0.8	EUCRITE (BRECCIATED)	A/B	A/B	-	61
QUE 97 633 ~	6.1	L6 CHONDRITE	C	C		
QUE 97 634 ~	1.4	LL5 CHONDRITE	CE	C		
QUE 97 635 ~	3.7	LL5 CHONDRITE	B/C	B		
QUE 97 636 ~	7.8	LL5 CHONDRITE	B	A/B		
QUE 97 637 ~	10.7	L6 CHONDRITE	B	B		
QUE 97 638	14.7	H6 CHONDRITE	C	B	19	17
QUE 97 639 ~	1.3	LL5 CHONDRITE	B/C	B		
QUE 97 670	56.5	H4 CHONDRITE	C	B	18	17
QUE 97 671	34.1	LL5 CHONDRITE	A/B	B	27	24
QUE 97 672 ~	3.2	LL5 CHONDRITE	B	B		
QUE 97 673	36.1	H6 CHONDRITE	C	B	19	17
QUE 97 674 ~	0.8	L6 CHONDRITE	B	A/B		
QUE 97 675 ~	1.6	LL5 CHONDRITE	B	A/B		
QUE 97 676	2.4	CM2 CHONDRITE	C	B	1-32	0-2
QUE 97 677 ~	3.8	LL5 CHONDRITE	C	B		
QUE 97 678 ~	20.6	LL5 CHONDRITE	B	B		
QUE 97 679 ~	23.6	LL5 CHONDRITE	A/B	A/B		
GRA 98 002	735.4	H5 CHONDRITE	B/C	B	19	16
GRA 98 003	426.7	L5 CHONDRITE	C	C	23	20
GRA 98 004	721.9	H5 CHONDRITE	C	C	19	17
GRA 98 007	82.1	H5 CHONDRITE	B/C	A/B	19	17
GRA 98 008	120.1	H5 CHONDRITE	C	B	17	16
GRA 98 009	116.9	H5 CHONDRITE	C	C	19	17
GRA 98 010	140.3	H5 CHONDRITE	C	B	19	17
GRA 98 011	104.5	L5 CHONDRITE	A	A	23	20
GRA 98 012	530.0	H5 CHONDRITE	B/C	A/B	19	16
GRA 98 013	697.5	H4 CHONDRITE	C	C	19	1-19
GRA 98 014	1130.7	H5 CHONDRITE	B/C	A/B	18	17
GRA 98 015	1201.9	H5 CHONDRITE	C	C	19	17
GRA 98 016	512.8	H5 CHONDRITE	B/C	B	19	16
GRA 98 017	341.8	H5 CHONDRITE	B/C	B	18	16
GRA 98 018	315.4	H5 CHONDRITE	C	B/C	19	16
GRA 98 019	95.5	EUCRITE (BRECCIATED)	B	A/B	-	64
GRA 98 020	200.9	L5 CHONDRITE	B	B	25	21
GRA 98 021	81.3	H5 CHONDRITE	B/C	B	19	16
GRA 98 022	62.7	H5 CHONDRITE	C	B/C	18	16
GRA 98 023	136.7	H3.8 CHONDRITE	B	C	3-33	4-9
GRA 98 024	59.1	H3.8 CHONDRITE	C	C	4-22	16
GRA 98 025	14.4	CR2 CHONDRITE	C	A/B	1-37	1-3

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
GRA 98 026	68.4	EUCRITE (BRECCIATED)	B	B	-	63
GRA 98 027	14.8	H6 CHONDRITE	C	B/C	20	17
GRA 98 028	22.4	ACAPULCOITE	C	C	8-9	8-10
GRA 98 029	8.9	L5 CHONDRITE	C	C	23	20
GRA 98 030	32.6	HOWARDITE	A/B	A/B	12	21-52
GRA 98 031	2309.8	H4 CHONDRITE	C	C	19	16
GRA 98 032	1699.5	UREILITE	C	A/B	14-26	-
GRA 98 034 ~	416.3	H6 CHONDRITE	C	B		
GRA 98 035 ~	248.4	L5 CHONDRITE	B	A/B		
GRA 98 036 ~	182.2	L6 CHONDRITE	B/C	B/C		
GRA 98 037	107.9	EUCRITE (BRECCIATED)	A	A/B	-	62
GRA 98 038 ~	118.6	H6 CHONDRITE	B/C	A/B		
GRA 98 039	72.8	EUCRITE (BRECCIATED)	C	C	-	64
GRA 98 040	542.6	H5 CHONDRITE	B	B	20	18
GRA 98 041 ~	1081.5	L6 CHONDRITE	B	A/B		
GRA 98 042	92.6	EUCRITE (BRECCIATED)	C	A/B	-	64
GRA 98 043	102.9	EUCRITE (BRECCIATED)	C	B	-	64
GRA 98 044	27.5	EUCRITE (BRECCIATED)	B	A/B	-	65
GRA 98 045	260.4	H4 CHONDRITE	C	B	18	16
GRA 98 046	657.6	L6 CHONDRITE	C	B	24	20
GRA 98 047	594.1	H5 CHONDRITE	B	B	19	16
GRA 98 048 ~	702.1	H6 CHONDRITE	C	B/C		
GRA 98 049	2341.9	L6 CHONDRITE	C	C	24	20
GRA 98 050	337.4	H3.8 CHONDRITE	C	C	4-20	16
GRA 98 051 ~	171.9	H5 CHONDRITE	CE	B		
GRA 98 052	63.6	EUCRITE (BRECCIATED)	C	B/C	-	64
GRA 98 053 ~	145.5	H6 CHONDRITE	C	A/B		
GRA 98 054	103.4	EUCRITE (BRECCIATED)	A/B	A/B	-	62
GRA 98 055	140.8	EUCRITE (BRECCIATED)	B	B	-	62
GRA 98 056 ~	177.9	H6 CHONDRITE	B/C	A/B		
GRA 98 057 ~	65.1	L6 CHONDRITE	B/C	B/C		
GRA 98 058 ~	105.7	L5 CHONDRITE	C	C		
GRA 98 059 ~	67.9	H5 CHONDRITE	C	A/B		
GRA 98 060 ~	54.0	H6 CHONDRITE	CE	B		
GRA 98 061 ~	121.5	L6 CHONDRITE	B	B		
GRA 98 062 ~	51.9	H5 CHONDRITE	C	B/C		
GRA 98 063 ~	41.1	H6 CHONDRITE	B/C	B		
GRA 98 064 ~	42.7	H6 CHONDRITE	C	B		
GRA 98 065 ~	53.6	H6 CHONDRITE	CE	B		
GRA 98 066 ~	18.2	L6 CHONDRITE	B	A		
GRA 98 067	53.2	EUCRITE (BRECCIATED)	A/B	A	-	61
GRA 98 068 ~	51.6	L6 CHONDRITE	C	B		
GRA 98 069 ~	42.5	H6 CHONDRITE	C	B		
GRA 98 070 ~	16.3	H6 CHONDRITE	C	B		
GRA 98 071 ~	64.3	H6 CHONDRITE	C	B		
GRA 98 072 ~	29.9	H6 CHONDRITE	C	B		
GRA 98 073 ~	6.5	H6 CHONDRITE	C	B		
GRA 98 074	51.9	CM2 CHONDRITE	CE	C	1-34	-
GRA 98 075	20.6	H5 CHONDRITE	C	B	5-27	-
GRA 98 076 ~	29.2	H6 CHONDRITE	C	B		
GRA 98 077 ~	24.9	L6 CHONDRITE	C	B		
GRA 98 078 ~	7.5	L6 CHONDRITE	B/C	A/B		

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
GRA 98 079 ~	3.7	H6 CHONDRITE	C	C		
GRA 98 080	91.8	H5 CHONDRITE	C	B	19	16
GRA 98 081 ~	87.5	H6 CHONDRITE	C	B		
GRA 98 082 ~	13.5	H6 CHONDRITE	C	B		
GRA 98 083 ~	23.0	H6 CHONDRITE	C	A/B		
GRA 98 084 ~	42.3	L6 CHONDRITE	C	B		
GRA 98 085 ~	43.7	L6 CHONDRITE	C	A/B		
GRA 98 086 ~	32.3	L6 CHONDRITE	C	A/B		
GRA 98 087	22.3	H3.8 CHONDRITE	C	B	1-19	8-14
GRA 98 088	64.6	EUCRITE (BRECCIATED)	A/B	B	-	62
GRA 98 089	60.8	H4 CHONDRITE	B/C	B/C	19	16
GRA 98 090 ~	42.4	H5 CHONDRITE	C	B		
GRA 98 091 ~	20.8	H5 CHONDRITE	C	B		
GRA 98 092 ~	20.7	H5 CHONDRITE	C	B		
GRA 98 093 ~	40.4	H5 CHONDRITE	C	B		
GRA 98 094 ~	7.2	L6 CHONDRITE	B	A/B		
GRA 98 095 ~	31.9	L6 CHONDRITE	B	A/B		
GRA 98 096 ~	45.9	H6 CHONDRITE	C	C		
GRA 98 097	12.9	EUCRITE (BRECCIATED)	B	A/B	-	61
GRA 98 099 ~	26.7	H5 CHONDRITE	C	C		
GRA 98 100 ~	17.9	H6 CHONDRITE	C	A/B		
GRA 98 101 ~	38.6	L6 CHONDRITE	C	B/C		
GRA 98 102	7.0	CK4 CHONDRITE	B	B	24	23
GRA 98 103	41.1	EUCRITE (BRECCIATED)	C	B	-	65
GRA 98 104 ~	15.2	L6 CHONDRITE	CE	C		
GRA 98 105	13.9	H6 CHONDRITE	CE	B	19	17
GRA 98 106 ~	47.6	L6 CHONDRITE	C	B/C		
GRA 98 107 ~	35.0	L6 CHONDRITE	C	B/C		
GRA 98 108	12.7	DIOGENITE (OLIVINE)	B	B	27	22
GRA 98 109	7.3	L5 CHONDRITE	C	C	25	21
GRA 98 110 ~	70.3	H6 CHONDRITE	C	B		
GRA 98 111 ~	80.0	H6 CHONDRITE	C	A/B		
GRA 98 112 ~	86.0	H6 CHONDRITE	C	A/B		
GRA 98 113	63.7	EUCRITE (BRECCIATED)	B/C	B	-	62
GRA 98 114	58.7	EUCRITE (BRECCIATED)	B	B/C	-	65
GRA 98 115 ~	44.9	L6 CHONDRITE	B	A/B		
GRA 98 116 ~	66.5	L6 CHONDRITE	B/C	A/B		
GRA 98 117 ~	89.5	H5 CHONDRITE	C	B		
GRA 98 118 ~	78.4	L6 CHONDRITE	A	B		
GRA 98 119 ~	45.4	L6 CHONDRITE	C	B/C		
GRA 98 120 ~	42.5	L6 CHONDRITE	C	B		
GRA 98 121 ~	48.0	H5 CHONDRITE	C	A/B		
GRA 98 122	12.9	H6 CHONDRITE	C	A/B	19	16
GRA 98 123 ~	14.8	L6 CHONDRITE	C	B		
GRA 98 124 ~	5.8	H5 CHONDRITE	C	B		
GRA 98 125 ~	17.4	H5 CHONDRITE	C	B		
GRA 98 126 ~	26.2	H5 CHONDRITE	C	B		
GRA 98 127 ~	17.5	H5 CHONDRITE	C	B		
GRA 98 128	19.6	H5 CHONDRITE	C	B	19	17
GRA 98 130	45.1	L4 CHONDRITE	B	A/B	25	6-22
GRA 98 131	26.1	EUCRITE (BRECCIATED)	B/C	B	-	62

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
GRA 98 132 ~	14.6	H6 CHONDRITE	C	B		
GRA 98 133 ~	18.7	H6 CHONDRITE	C	A/B		
GRA 98 134 ~	22.4	H5 CHONDRITE	C	B/C		
GRA 98 135 ~	25.7	H6 CHONDRITE	C	C		
GRA 98 136 ~	2.7	H5 CHONDRITE	C	B		
GRA 98 137 ~	16.4	H6 CHONDRITE	C	B		
GRA 98 138 ~	9.8	H5 CHONDRITE	C	B/C		
GRA 98 139 ~	63.8	H6 CHONDRITE	C	C		
GRA 98 141 ~	41.5	H6 CHONDRITE	C	A/B		
GRA 98 142 ~	9.1	L6 CHONDRITE	A/B	A/B		
GRA 98 143 ~	11.0	L6 CHONDRITE	B	A		
GRA 98 144	13.9	H6 CHONDRITE	C	A/B	19	16
GRA 98 145	16.1	H6 CHONDRITE	C	B	18	16
GRA 98 146 ~	3.6	H5 CHONDRITE	C	B		
GRA 98 147 ~	9.2	L6 CHONDRITE	C	B/C		
GRA 98 148 ~	6.7	H5 CHONDRITE	C	B/C		
GRA 98 149 ~	79.7	H6 CHONDRITE	C	B		
GRA 98 150	36.9	H6 CHONDRITE	C	B	19	16
GRA 98 151 ~	52.8	H6 CHONDRITE	C	B		
GRA 98 152	69.3	H4 CHONDRITE	C	B	18	9-17
GRA 98 153	35.1	H4 CHONDRITE	B/C	B	17	5-16
GRA 98 154 ~	21.2	H5 CHONDRITE	C	B		
GRA 98 155 ~	33.9	H5 CHONDRITE	C	B		
GRA 98 156 ~	29.3	H5 CHONDRITE	C	C		
GRA 98 157	39.2	EUCRITE (BRECCIATED)	C	A/B	-	63
GRA 98 158	66.9	EUCRITE (BRECCIATED)	B	B	-	62
GRA 98 159	33.9	EUCRITE (BRECCIATED)	B	B	-	62
GRA 98 160	7.8	H6 CHONDRITE	B/C	A/B	18	17
GRA 98 161	7.7	H6 CHONDRITE	C	C	19	17
GRA 98 162 ~	0.8	L6 CHONDRITE	B	B		
GRA 98 163 ~	15.5	H6 CHONDRITE	C	A/B		
GRA 98 164	15.1	L6 CHONDRITE	C	B	23	20
GRA 98 165 ~	11.3	H6 CHONDRITE	C	A/B		
GRA 98 166 ~	10.8	H5 CHONDRITE	C	B		
GRA 98 167 ~	4.9	H5 CHONDRITE	C	B/C		
GRA 98 168	7.0	HOWARDITE	A	A	-	26
GRA 98 169	22.1	LL5 CHONDRITE	B	A/B	28	23
GRA 98 170 ~	21.0	H5 CHONDRITE	C	B		
GRA 98 171	8.0	L3.8 CHONDRITE	CE	C	7-25	4-20
GRA 98 172 ~	13.8	H6 CHONDRITE	C	B		
GRA 98 173	30.0	L5 CHONDRITE	B/C	A/B	25	21
GRA 98 174 ~	8.5	L6 CHONDRITE	A	A		
GRA 98 175 ~	27.5	L6 CHONDRITE	B	A		
GRA 98 176	15.1	H6 CHONDRITE	C	C	20	17
GRA 98 177 ~	10.0	H6 CHONDRITE	C	B		
GRA 98 178 ~	7.2	L6 CHONDRITE	B/C	A/B		
GRA 98 179 ~	18.7	H6 CHONDRITE	B/C	B		
GRA 98 180 ~	13.1	H5 CHONDRITE	CE	B		
GRA 98 181	2.9	L4 CHONDRITE	B/C	B	23	19
GRA 98 182 ~	63.5	H6 CHONDRITE	C	B		
GRA 98 183 ~	145.4	L6 CHONDRITE	B/C	C		
GRA 98 184 ~	119.1	L6 CHONDRITE	B/C	A		

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
GRA 98 185 ~	70.0	H6 CHONDRITE	C	C		
GRA 98 186	29000.0	H6 CHONDRITE	B	B/C	19	16

~Classified by using refractive indices.

****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.

Table 2: Newly Classified Specimens Listed By Type **

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
		Achondrites				
GRA 98 028	22.4	ACAPULCOITE	C	C	8-9	8-10
GRA 98 108	12.7	DIOGENITE (OLIVINE)	B	B	27	22
QUE 97 430	69.7	EUCRITE (BRECCIATED)	B	A/B	-	60
QUE 97 632	0.8	EUCRITE (BRECCIATED)	A/B	A/B	-	61
GRA 98 019	95.5	EUCRITE (BRECCIATED)	B	A/B	-	64
GRA 98 026	68.4	EUCRITE (BRECCIATED)	B	B	-	63
GRA 98 037	107.9	EUCRITE (BRECCIATED)	A	A/B	-	62
GRA 98 039	72.8	EUCRITE (BRECCIATED)	C	C	-	64
GRA 98 042	92.6	EUCRITE (BRECCIATED)	C	A/B	-	64
GRA 98 043	102.9	EUCRITE (BRECCIATED)	C	B	-	64
GRA 98 044	27.5	EUCRITE (BRECCIATED)	B	A/B	-	65
GRA 98 052	63.6	EUCRITE (BRECCIATED)	C	B/C	-	64
GRA 98 054	103.4	EUCRITE (BRECCIATED)	A/B	A/B	-	62
GRA 98 055	140.8	EUCRITE (BRECCIATED)	B	B	-	62
GRA 98 067	53.2	EUCRITE (BRECCIATED)	A/B	A	-	61
GRA 98 088	64.6	EUCRITE (BRECCIATED)	A/B	B	-	62
GRA 98 097	12.9	EUCRITE (BRECCIATED)	B	A/B	-	61
GRA 98 103	41.1	EUCRITE (BRECCIATED)	C	B	-	65
GRA 98 113	63.7	EUCRITE (BRECCIATED)	B/C	B	-	62
GRA 98 114	58.7	EUCRITE (BRECCIATED)	B	B/C	-	65
GRA 98 131	26.1	EUCRITE (BRECCIATED)	B/C	B	-	62
GRA 98 157	39.2	EUCRITE (BRECCIATED)	C	A/B	-	63
GRA 98 158	66.9	EUCRITE (BRECCIATED)	B	B	-	62
GRA 98 159	33.9	EUCRITE (BRECCIATED)	B	B	-	62
GRA 98 030	32.6	HOWARDITE	A/B	A/B	12	21-52
GRA 98 168	7.0	HOWARDITE	A	A	-	26
GRA 98 032	1699.5	UREILITE	C	A/B	14-26	-
		Carbonaceous Chondrites				
GRA 98 102	7.0	CK4 CHONDRITE	B	B	24	23
QUE 97 077	20.0	CM2 CHONDRITE	A/B	A/B	1-35	0-1
QUE 97 621	2.8	CM2 CHONDRITE	B	A	1-38	-
QUE 97 676	2.4	CM2 CHONDRITE	C	B	1-32	0-2
GRA 98 074	51.9	CM2 CHONDRITE	CE	C	1-34	-
QUE 97 416	12.3	CO3 CHONDRITE	B/C	B	1-50	1-15
GRA 98 025	14.4	CR2 CHONDRITE	C	A/B	1-37	1-3

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
		Chondrites - Type 3				
GRA 98 023	136.7	H3.8 CHONDRITE	B	C	3-33	4-9
GRA 98 024	59.1	H3.8 CHONDRITE	C	C	4-22	16
GRA 98 050	337.4	H3.8 CHONDRITE	C	C	4-20	16
GRA 98 087	22.3	H3.8 CHONDRITE	C	B	1-19	8-14
GRA 98 171	8.0	L3.8 CHONDRITE	CE	C	7-25	4-20
		E Chondrites				
QUE 97 462	12.3	EL6 CHONDRITE	BE	A/B	-	0-1
		Irons				
EET 96 009	40.0	IRON-IAB			5	7-10

~Classified by using refractive indices.

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 Bulletin No. 76 (Meteoritics 29, 100-143) and Meteoritical Bulletin No. 79 (Meteoritics and Planetary Science 31, A161-174).

IRON
EET96009 with EET87504

H3 CHONDRITES
GRA 98024, GRA98050, GRA98087 with GRA 98023

L6 CHONDRITES
GRA98049 with GRA98046

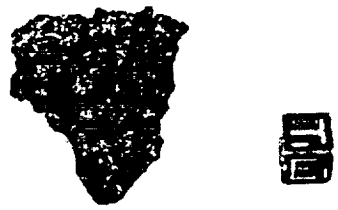
CM2 CHONDRITES
QUE97621 with QUE97077

EUCRITES
GRA98026, GRA98033, GRA98044, GRA98054, GRA98067, GRA98088, GRA98103, GRA98131 with GRA98006

GRA98037, GRA98039, GRA98042, GRA98043, GRA98052, GRA98055, GRA98097, GRA98113, GRA98114, GRA98157, GRA98158, GRA98159 with GRA98019

The above two groups of brecciated eucrites were distinguished based on thin section descriptions. These pairings are not fully consistent with characteristics visible in hand specimen. This may be due to heterogeneous clast distribution or differences in degree of weathering. Some samples may be incorrectly paired, or in the extreme, the two groups may be paired with each other. Further study is needed.

Petrographic Descriptions



EET 96009

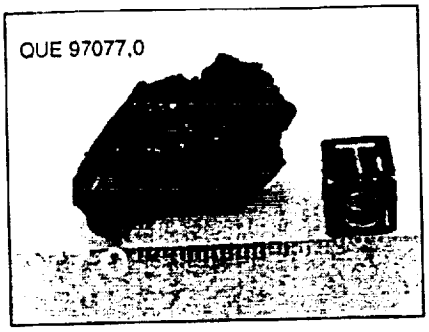
Sample No.: **EET 96009**
Location: Elephant Moraine
Dimensions (cm): 3.5x3.0x2.0
Weight (g): 40.0
Meteorite Type: IAB Iron

Macroscopic Description: Kathleen McBride, Roy S. Clarke, Jr., and Tim McCoy

The specimen is a roughly triangular fragment measuring 3 cm across the base and 3.5 cm high. It is deeply weathered to a reddish brown color and highly fractured, with open fractures extending into the specimen. One surface is relatively smooth, probably the original surface of the meteorite, while the others are highly irregular and suggest spalling of this specimen from a larger mass.

Thin Section (, 2) Description: Tim McCoy

The section is composed largely of iron-nickel metal with interspersed silicate grains of up to 0.5 mm as isolated grains and clusters. The metallic host is composed of kamacite with large amounts of plessite, which includes clear taenite borders and comparatively large areas of martensite. The silicates include olivine (Fa_5), orthopyroxene ($Fs_{7-10}Wo_{1-2}$), clinopyroxene (Fs_3Wo_{46}) and feldspar (Ab_{90-97}) and these are intergrown with abundant troilite and graphite and are rimmed by large schreibersite grains. Weathering is pervasive and the section is cross cut by large weathering veins. The meteorite is an iron with silicate inclusions and is probably a silicate-bearing, low-Ni IAB iron similar in composition to, e.g., Landes. Pairing with EET 87504/505/506 is possible.



QUE 97077,0

Sample No.: **QUE 97077; 621**
Location: Queen Alexandra Range
Dimensions (cm): 2.5x2.5x3.0; 1.9x1.7x0.5
Weight (g): 19.955; 2.839
Meteorite Type: CM2 Chondrite

Macroscopic Description: Kathleen McBride, Cecilia Satterwhite

Exterior has dull black fusion crust with polygonal fractures. The interior consists of a black matrix that is slightly shiny and hard/brittle. Small less than 1 mm sized light colored chondrules are visible.

Thin Section (, 4; 5) Description: Tim McCoy

The sections consist of a few small chondrules (up to 0.5 mm), mineral grains and CAIs set in a black matrix; rare metal and sulfides are present. Olivine compositions are Fa_{1-35}, with most Fa_{1-2}, orthopyroxene is Fs_{0-1}. The matrix consists dominantly of an Fe-rich serpentine. The meteorite is a CM2 chondrite.

Sample No.: **QUE 97416**
Location: Queen Alexandra Range
Dimensions (cm): 2.0x2.0x1.5
Weight (g): 12.272
Meteorite Type: CO3 Chondrite (<3.2)

Macroscopic Description: Kathleen McBride

The exterior of this meteorite is brown with some weathered fusion crust. The interior is the color of mud with some tiny light colored inclusions.

Thin Section (, 2) Description: Tim McCoy

The section consists 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_{1-50}, with a continuous range of intermediate compositions and a slight peak at Fa_{1-5}. Two pyroxene analyses range from Fs_{1-15}. The matrix appears to consist largely of Fe-rich olivine. Terrestrial weathering effects are extensive. The meteorite is a CO3 chondrite. Comparison to the criteria of Scott and Jones (1990, GCA, Vol. 54, pp. 2485-2502) suggests a very low petrologic subtype (<3.2).

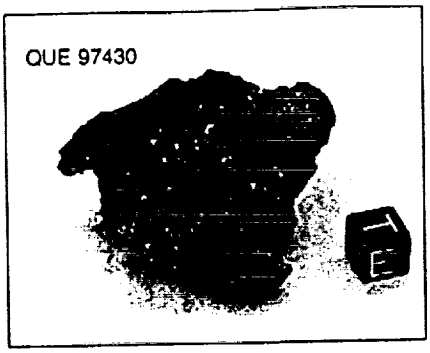
Sample No.: **QUE 97429**
Location: Queen Alexandra Range
Dimensions (cm): 3.5x2.8x2.0
Weight (g): 39.91
Meteorite Type: LL5 Chondrite

Macroscopic Description: Cecilia Satterwhite

Eighty percent of this ordinary chondrite's exterior is covered with dull brown fusion crust. The interior is gray to black in color with small white inclusions.

Thin Section (, 2) Description: Tim McCoy

This is an LL5 chondrite (Fa_{28}, Fs_{23}) with areas of shock-melt, which include rounded metal-sulfide blebs. The large shower of LL5 chondrites from QUE 97 exhibits a range of shock features and this may be an extreme in that range.



Sample No.: **QUE 97430**
Location: Queen Alexandra Range
Dimensions (cm): 4.6x4.5x3.3
Weight (g): 69.711
Meteorite Type: Eucrite (Brecciated)

Macroscopic Description: Cecilia Satterwhite
The exterior of this achondrite has about 20% of black fusion crust, frothy on some surfaces, and some fractures are visible. The rest of the exterior is dark gray with abundant white inclusions. The interior is a lighter gray with abundant white clasts. Some darker minerals are visible and minor weathering. Some clasts are as large as 1.5 cm across.

Thin Section (, 6) Description: Tim McCoy
The section consists of coarse (up to 2.2 mm) pyroxene and plagioclase grains and coarse-grained basalt clasts, which reach 2.5 mm in diameter. Orthopyroxene ($Fs_{60}Wo_{2-5}$) contains lamellae of augite ($Fs_{28}Wo_{44}$) and plagioclase is $An_{88}Or_{0.6}$. Shock effects include mosaicism and planar fractures in pyroxene. The Fe/Mn ratio of the pyroxene is ~30. The meteorite is a brecciated eucrite.

Sample No.: **QUE 97462**
Location: Queen Alexandra Range
Dimensions (cm): 2.8x2.1x0.9
Weight (g): 12.282
Meteorite Type: EL6 Chondrite

Macroscopic Description: Cecilia Satterwhite
85% of this meteorite's exterior is covered by pitted black fusion crust that is frothy on one surface. The interior is a dark gray matrix with oxidation heavy on one end. The matrix is fine grained with small white/gray inclusions and abundant metal.

Thin Section (, 2) Description: Tim McCoy
The meteorite consist primarily of prismatic to granular enstatite (Fs_{0-1}), with rare relict chondrules, abundant Si-bearing metal (~0.7 wt.% Si) and troilite. It is quite fresh, although brown, limonitic staining is found along cracks. The meteorite is an EL6 chondrite.

Sample No.: **QUE 97613**
Location: Queen Alexandra Range
Dimensions (cm): 2.5x2.0x1.5
Weight (g): 15.372
Meteorite Type: L5 Chondrite

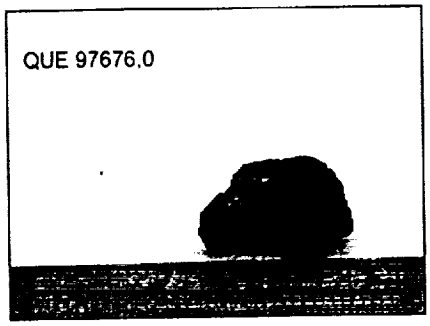
Macroscopic Description: Kathleen McBride
40% of the exterior of this ordinary chondrite has brown/black fusion crust with oxidation halos and polygonal fractures. The interior is a dark gray matrix around large inclusions/chondrules. The inclusions are white to tan in color and range in size from 3-4 mm.

Thin Section (, 2) Description: Tim McCoy
This L5 chondrite (Fa_{26}, Fs_{22}) is cross cut by an extensive network of shock melt veins which reach several mm in width.

Sample No.: **QUE 97632**
Location: Queen Alexandra Range
Dimensions (cm): 1.0x1.0x0.5
Weight (g): 0.798
Meteorite Type: Eucrite (Brecciated)

Macroscopic Description: Kathleen McBride
100% of the exterior of this achondrite is covered by brown/black fusion crust with oxidation halos. The interior is a dark gray matrix with minor rust. Light gray clasts are visible and range in size from 1-2 mm in diameter.

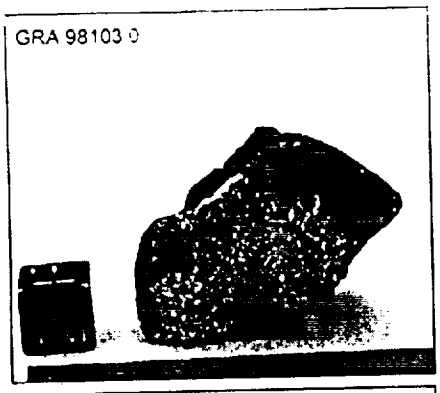
Thin Section (, 2) Description: Tim McCoy
The section contains a fine-grained (~50 micron average grain size) brecciated matrix with ophitic clasts up to 1 mm in diameter with grain sizes ~300 microns. Mineral compositions are homogeneous with orthopyroxene ($Fs_{61}Wo_2$), with lamellae of augite ($Fs_{27}Wo_{44}$), and plagioclase ($An_{81}Or_1$). The Fe/Mn ratio of the pyroxene is ~30. The meteorite exhibits significant shock effects, including shock veins. The meteorite is a brecciated eucrite.

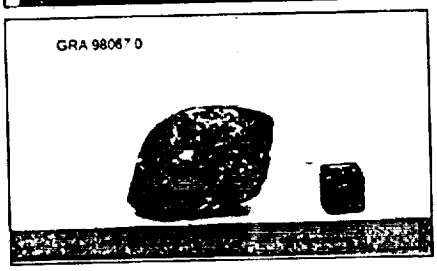


Sample No.: **QUE 97676**
Location: Queen Alexandra Range
Dimensions (cm): 2.0x0.75x0.5
Weight (g): 2.43
Meteorite Type: CM2 Chondrite

Macroscopic Description: Kathleen McBride
The exterior of this carbonaceous chondrite has brown/black fusion crust with evaporites and polygonal fractures. The interior is dull, black and soft. Inclusions are tiny light colored specks.

Thin Section (, 3) Description: Tim McCoy
The section consists dominantly of an Fe-rich serpentine with rare small (up to 0.5 mm) chondrules and scattered mineral grains. Olivine composition are Fa_{1-32}, with most Fa_{1-2}, and orthopyroxene is Fs_{0-2}. The meteorite is a CM2 chondrite. It is much more heavily aqueously altered than QUE 97077 or QUE 97621.





Sample No.: **GRA 98006; 026; 033; 044; 054; 067; 088; 103; 131**

Location: Graves Nunataks

Dimensions (cm): 6.5x6.0x2.5; 3.5x3.5x3.0; 6.0x4.0x3.0; 3.5x3.0x1.0; 6.0x4.5x3.5; 3.5x3.0x2.5; 4.0x4.0x2.5; 5.0x3.0x2.5; 3.5x2.0x2.0

Weight (g): 163.695; 68.39; 123.198; 27.476; 103.409; 53.182; 64.619; 41.084; 26.12

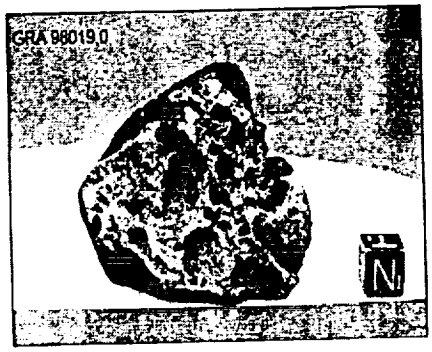
Meteorite Type: Eucrite (Brecciated)

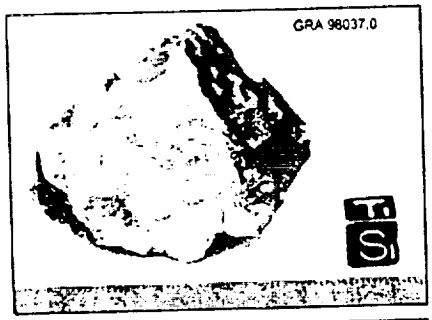
Macroscopic Description: Kathleen McBride

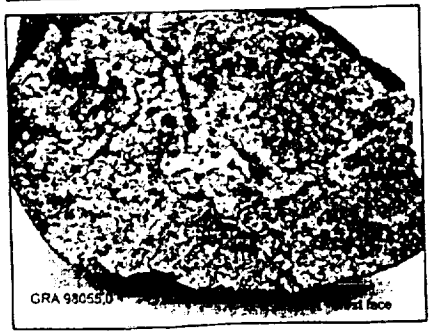
These meteorites have shiny black fusion crusts with some small, dull patches where thinning has occurred due to weathering. Some of the meteorites have shallow "vugs" that reveal coarse-grained tan to gray crystalline material as well as finer grained material. Several rusty patches on the rocks' exterior surface are visible. A few of the meteorites have greenish-gray elongated or radiating crystals with some areas of rusty discoloration. The matrix on most is gray in color with clast colors ranging from white to tan to black. Several of the clasts are rimmed with dark gray to black crystalline material. GRA 98044 (27 g) has a fusion crust that is mostly dull covering about 40% of the surface area. The matrix is gray in color with numerous charcoal gray inclusions and small rust halos. These eucrites are very soft and friable.

Thin Section Description: Tim McCoy

These meteorites consist of coarse-grained (mm-sized grains) basaltic clasts, which contain orthopyroxene ($Fs_{64}Wo_2$), with lamellae of augite ($Fs_{28}Wo_{44}$), and plagioclase ($An_{88}Or_{0.5}$). Augite lamellae in GRA 98044 are 1-5 microns in width and a range of intermediate compositions was measured. Shock effects include undulatory extinction in pyroxene and plagioclase. The Fe/Mn ratio of the pyroxene is ~30. The meteorites are brecciated eucrites. They are paired with GRA 98006. They are all coarse-grained, shocked, brecciated eucrites of similar composition.







Sample No.: **GRA98 019; 037; 039; 042; 043; 052; 055; 097; 113; 114; 157; 158; 159**

Location: Graves Nunataks

Dimensions (cm): 5.0x6.0x3.0; 6.0x4.5x4.0; 5.5x4.0x3.5; 5.5x4.0x3.5; 4.5x4.0x3.5; 5.0x3.0x2.5; 6.0x3.5x4.0; 2.5x2.0x1.5; 4.5x5.0x2.5; 5.5x3.5x2.5; 4.5x2.5x2.0; 4.5x4.5x2.5; 5.0x2.5x2.5

Weight (g): 95.52; 107.859; 72.81; 92.637; 102.931; 63.578; 140.75; 12.941; 63.713; 58.748; 39.194; 66.878; 33.875

Meteorite Type: Eucrite (Brecciated)

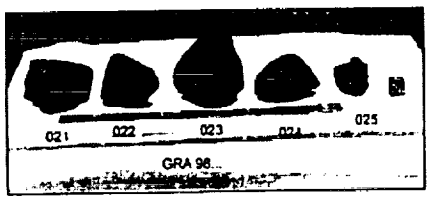
Macroscopic Description: Kathleen McBride

These fine-grained achondrites vary in color from gray to tan to greenish and also contain various colored clasts. All possess varying amounts of fusion crust that is brown-black in color and usually contains small shiny patches. Most of them are "vuggy" and show varying degrees of weathering. Thin, black glassy veins are visible in the matrix. Some (usually the greenish ones) have areas of rusty-red minerals that have stained the adjacent minerals red.

Thin Section Description: Tim McCoy

These meteorites are dominated by fine-grained (~200 micron average grain size) basaltic material which occurs as both the host and clasts within these meteorites. Occasional coarser-grained clasts, with grain sizes up to 0.5 mm, are observed in some members of the group, including GRA 98042, GRA 98052 and GRA 98055. Mineral compositions are similar and homogeneous with orthopyroxene ($Fs_{64}Wo_2$), with lamellae of augite ($Fs_{28}Wo_{44}$), and plagioclase

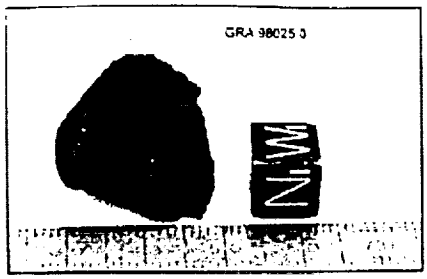
($An_{89}Or_{0.5}$). The Fe/Mn ratio of the pyroxene is ~28. The meteorites are brecciated eucrites.



Sample No.: **GRA 98023; 024; 050; 087**
Location: Graves Nunataks
Dimensions (cm): 5.5x3.5x4.0; 4.0x3.0x2.0; 7.5x6.5x3.5; 3.5x2.0x1.5
Weight (g): 136.717; 59.072; 337.4; 22.250
Meteorite Type: H3 Chondrite (estimated subtype 3.8)

Macroscopic Description: Kathleen McBride
These meteorites have small patches of black fusion crust on a rough, rusty brown exterior. Areas without fusion crust are rusty brown with penetrating fractures. The interiors are fine-grained and rusty with large fractures and a high metal content. Some gray and weathered chondrules are visible.

Thin Section Description: Tim McCoy
A single description suffices for these meteorites. The sections exhibit numerous small, well-defined chondrules (up to 1.5 mm) in a black matrix of fine-grained silicates, metal and troilite. Weak shock effects are present. Polysynthetically twinned pyroxene is extremely abundant. The meteorites are highly weathered. Silicates are unequilibrated; olivines range from Fa_{3-33}, with most grains Fa_{18}, and pyroxenes from Fs_{4-16}. The meteorites are H3 chondrites (estimated subtype 3.8).



Sample No.: **GRA 98025**
Location: Graves Nunataks
Dimensions (cm): 3.0x2.0x1.5
Weight (g): 14.362
Meteorite Type: CR2 Chondrite

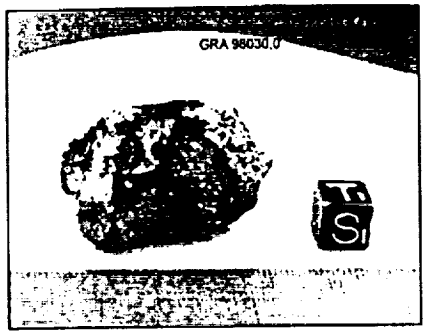
Macroscopic Description: Kathleen McBride
The exterior surface has one small patch of fusion crust that is less than 0.5 cm in diameter. The interior is black-brown in color with tiny (<1mm) inclusions that are yellow to rust in color. This meteorite is very brittle.

Thin Section (, 2) Description: Tim McCoy
The section exhibits small (100-300 microns), well-defined, metal-rich chondrules and CAI's in a dark matrix of FeO-rich phyllosilicate. Polysynthetically twinned pyroxene is abundant. Silicates are unequilibrated; olivines range from Fa_{1-37}, with most Fa_{0-2}, and pyroxenes from $Fs_{1-3}Wo_{1-3}$. The meteorite is probably a CR2 chondrite.

Sample No.: **GRA 98028**
Location: Graves Nunataks
Dimensions (cm): 4.0x2.0x1.0
Weight (g): 22.440
Meteorite Type: Acapulcoite

Macroscopic Description: Kathleen McBride
A shiny, black fusion crust covers 90% of the exterior surface of this meteorite. The interior matrix is fine-grained and rusty and has a high metal content. It is very coherent.

Thin Section (, 2) Description: Tim McCoy
The section consists of an aggregate of fine-grained (0.25 mm grain size) olivine (Fa_{8-9}), orthopyroxene ($Fs_{8-10}Wo_{1-2}$), augite (Fs_5Wo_{26}), plagioclase, metal and troilite. Relict chondrules are present. Shock effects are minimal. The meteorite is an acapulcoite. The abundance of relict chondrules and paucity of micron-sized metal-sulfide veins are unusual for this group. The meteorite is not paired with GRA 95209.



Sample No.: **GRA 98030**
Location: Graves Nunataks
Dimensions (cm): 3.5x2.5x2.0
Weight (g): 32.622
Meteorite Type: Howardite

Macroscopic Description: Kathleen McBride
Dark brown/black fusion crust covers approximately 40% of the surface of the meteorite. The interior reveals a tan weathering rind. The matrix is gray with black, white, and yellowish colored inclusions, angular to sub-angular in shape. The rock is soft and powdery.

Thin Section (, 2) Description: Tim McCoy
The section shows a groundmass of comminuted pyroxene and plagioclase (up to 0.5 mm) with fine- to coarse-grained basaltic clasts ranging up to 5 mm. Most of the pyroxene is orthopyroxene with compositions ranging from $Fs_{21-52}Wo_{1-4}$ (most Fs_{20-30}), a single augite of $Fs_{19}Wo_{41}$ and an olivine of Fa_{12}. The meteorite is a howardite.

Sample No.: **GRA 98032**
Location: Graves Nunataks
Dimensions (cm): 12.0x9.0x10
Weight (g): 1699.500
Meteorite Type: Ureilite

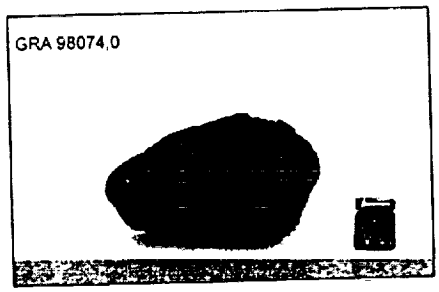
Macroscopic Description: Kathleen McBride
Brown/black, patchy fusion crust covers approximately 50% of the surface area. The interior of the meteorite is rusty-gray in color with numerous inclusions and metal-like grains and veins.

Thin Section (, 2) Description: Tim McCoy
The section consists of an aggregate of large olivine and pyroxene grains up to 2 mm across. Individual olivine grains are rimmed by carbon-rich material containing traces of metal. The olivines have been mosaicized by shock. Olivines have cores of Fa_{25}, with rims reduced to Fa_{14}. Pigeonite (Fs_{16-20}, Wo_{4-9}) exhibits a blotchy appearance. A single subcalcic augite grain had a composition of $Fs_{15}Wo_{26}$. The meteorite is a ureilite.

Sample No.: **GRA 98046; 98049**
Location: Graves Nunataks
Dimensions (cm): 8.0x7.0x5.5; 13.0x10.0x8.5 (largest piece)
Weight (g): 657.600; 2341.900
Meteorite Type: L6 Chondrite

Macroscopic Description: Kathleen McBride
These meteorites have very small patches of thinly distributed brown/black fusion crust. The interiors are rusty with some yellow and gray patches of matrix visible. Fractured.

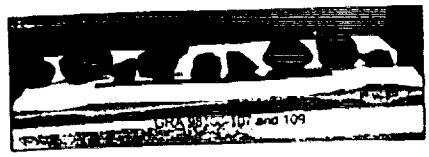
Thin Section (, 2) Description: Tim McCoy
These meteorites are L6 chondrites (Fa_{24}, Fs_{20}) with areas of shock-melt, including rounded metal-sulfide blebs.



Sample No.: **GRA 98074**
Location: Graves Nunataks
Dimensions (cm): 5.0x3.0x2.5
Weight (g): 53.324
Meteorite Type: CM2 Chondrite

Macroscopic Description: Kathleen McBride
A rough, purplish fusion crust with polygonal fractures covers 35% of the exterior. This meteorite is very fractured. The interior is very weathered. It has a gray-white appearance due to evaporites. Black matrix, containing white, tan and rusty chondrules. The meteorite is very friable.

Thin Section (, 2) Description: Tim McCoy
The section consists of a few small chondrules (up to 0.5 mm), mineral grains and CAIs set in a black matrix; rare metal and sulfide grains are present. The chondrules are flattened as a result of shock. Olivine compositions are Fa_{1-34}, with most Fa_{1-2}; no orthopyroxene grains are measured. The matrix consists dominantly of an Fe-rich serpentine. The meteorite is a CM2 chondrite and may be paired with GRA98005.



Sample No.: **GRA 98102**
Location: Graves Nunataks
Dimensions (cm): 2.0x2.0x1.5
Weight (g): 6.973
Meteorite Type: CK4 Chondrite

Macroscopic Description: Kathleen McBride
The exterior is covered by rough black fusion crust over 100% of the surface. The interior is a dark charcoal gray that is soft. Millimeter sized gray inclusions are visible.

Thin Section (, 3) Description: Tim McCoy
The section consists of large (up to 2 mm), well-defined chondrules in a matrix of finer-grained silicates, sulfides and very abundant magnetite. The meteorite is little weathered, but extensively shock blackened. Silicates are homogeneous. Olivine is Fa_{24} and orthopyroxene is Fs_{23}. The meteorite appears to be a CK4 chondrite, although the silicates are poorer in FeO than typical for CK4 chondrites (Fa_{29-33}).

Sample No.: **GRA 98108**
Location: Graves Nunataks
Dimensions (cm): 2.0x2.0x2.0
Weight (g): 12.678
Meteorite Type: Diogenite (Olivine)

Macroscopic Description: Kathleen McBride
The exterior surface of this meteorite has small patches of rough, black fusion crust (5% of surface area). The exposed interior is yellowish-green, coarse-grained olivine crystals. There are some areas that appear to be rust stained or

have rootbeer (pyroxene?) colored minerals. The olivine crystals are opaque to transparent. Freshly broken faces show transparent, white crystalline (plagioclase?) material with coarser-grained olivine. Single grains are several mm in length. Individual crystal faces are visible as well as cleavage planes. There are several rusty areas where minerals are stained. Maroon colored minerals and small black specks are distributed throughout the rock.

Thin Section (, 5) Description: Tim McCoy

The section contains both finer-grained (0.2-0.5 mm grain size) equigranular areas of olivine, orthopyroxene and rare plagioclase with 120° triple junctions, and coarser (up to 5 mm) grains of orthopyroxene and olivine intergrown with ragged boundaries. Orthopyroxene is the more abundant phase. Olivine is Fa_{27}, orthopyroxene is $Fs_{22}Wo_2$ and plagioclase is An_{89}. The Fe/Mn ratio is ~27. Opaque phases comprise only a few percent of the rock and include troilite, chromite and rare metal. It is moderately shocked. It is an unusual achondrite, and is most likely an olivine diogenite.

Sample No.: **GRA 98109**
Location: Graves Nunataks
Dimensions (cm): 2.0x1.5x1.0
Weight (g): 7.344
Meteorite Type: L5 Chondrite

Macroscopic Description: Kathleen McBride

This meteorite has black patches of fusion crust over 40% of its exterior surface. It is mostly rusty and friable with evaporites. The interior shows mm sized gray and rusty chondrules.

Thin Section (, 2) Description: Tim McCoy

This L5 chondrite (Fa_{25}, Fs_{21}) is brecciated with light clasts up to 0.5 cm in diameter in a shock-blackened matrix.

Sample No.: **GRA 98168**
Location: Graves Nunataks
Dimensions (cm): 2.5x1.0x1.5
Weight (g): 7.010
Meteorite Type: Howardite

Macroscopic Description: Kathleen McBride

The exterior has dull brown/black fusion crust over 50% of its surface. The interior is a light gray matrix with some minor rust and millimeter sized tan inclusions.

Thin Section (, 2) Description: Tim McCoy

The section shows a groundmass of comminuted pyroxene and plagioclase (up to 0.5 mm) with coarse-grained clasts up to a few mm. The section is dominated by orthopyroxene of relatively constant composition ($Fs_{24-31}Wo_{2-7}$). A few grains of feldspar were analyzed ($An_{89-94}Wo_{0.3}$). Some of the pyroxene grains seem to exhibit submicron exsolution and this may explain the range in pyroxene compositions. The meteorite is probably a howardite, but contains relatively little eucritic material. It is probably not paired with GRA98030.

Sample No.: **GRA 98171**
Location: Graves Nunataks
Dimensions (cm): 2.0x2.0x1.0
Weight (g): 8.000
Meteorite Type: L3 Chondrite (estimated 3.8)

Macroscopic Description: Kathleen McBride

Less then 5 % of the exterior of this ordinary chondrite has some rough black fusion crust. The interior is rusty with evaporites visible. It has a high metal content.

Thin Section (, 2) Description: Tim McCoy

The section exhibits numerous large, well-defined chondrules (up to 2 mm) in a black matrix of fine-grained silicates, metal and troilite. Weak shock effects are present. Polysynthetically twinned pyroxene is common. The meteorite is highly weathered. Silicates are unequilibrated; olivines range from Fa_{7-25}, with most grains Fs_{22-24} and pyroxenes are Fs_{4-20}. The meteorite if an L3 chondrite (estimated subtype 3.8).

Table 4: Natural Thermoluminescence (NTL) Data for Antarctic Meteorites

Paul H. Benoit and Derek W. G. Sears
Cosmochemistry Group
University of Arkansas, Fayetteville, AR 72701 USA

The measurement and data reduction methods were described by Hasan *et al.* (1987, Proc. 17th LPSC E703-E709); 1989, LPSC XX, 383-384). For meteorites whose TL lies between 5 and 100 krad, the natural TL is related primarily to terrestrial history. Samples with NTL <5 krad have TL levels below that which can reasonably be ascribed to long terrestrial ages. Such meteorites have had their TL lowered by heating within the last million years of so by close solar passage, shock heating, or atmospheric entry, exacerbated in the case of some achondrites by anomalous fading.

Sample	Class	Natural TL [krad at 250°C]
QUE 97289	AUB	13 ± 3
GRA 98033	EUC	2.2 ± 0.4
GRA 98098	EUC	<1
GRA 98001	H5	91.9 ± 0.1
QUE 97292	H5	58.2 ± 0.5
QUE 97342	H5	68.8 ± 0.4
MET 96508	L6	12.3 ± 0.1
QUE 97288	L6	34.4 ± 0.6
QUE 97290	L6	9 ± 4
QUE 97347	L6	10.9 ± 0.2
QUE 97360	L6	0.3 ± 0.1
QUE 97090	LL5	15.0 ± 0.1
QUE 97180	LL5	16.8 ± 0.1
QUE 97275	LL5	1.5 ± 0.4
QUE 97321	LL5	1.9 ± 0.2
QUE 97329	LL5	8 ± 2
QUE 97363	LL5	14 ± 0.1
QUE 97395	LL5	1.0 ± 0.2
QUE 97397	LL5	7.9 ± 0.1
QUE 97403	LL5	10.4 ± 0.1

The quoted uncertainties are the standard deviations shown by replicate measurements on a single aliquot.

COMMENTS: The following comments are based on natural TL data, TL sensitivity, the shape of the induced TL glow curve, classifications, and JSC and Arkansas sample descriptions.

GRA 98098 has a TL sensitivity similar to Y-75011, a petrologic type 1 and the least equilibrated eucrite in the classification system of Takeda *et al.* (1983, *Proc. 8th Symp. Antarctic Meteor.*, 181-205) and Batchelor and Sears (1991, *GCA*, 55, 3831-3844). GRA 98033 has a TL sensitivity similar to eucrites of petrologic type 5.

Pairings suggested by TL data:

H5: GRA 98001 with GRA 95214 (AMN 21:1).
H5: QUE 97342 with QUE 97292.
L6: QUE 97290 with QUE 94202 group (AMN 19:2).
LL5: QUE 97090, QUE 97180, QUE 97275, QUE 97321, QUE 97329, QUE 97363, QUE 97365, QUE 97397, and QUE 97403 with QUE 97016 group (AMN 22:2).

Sample Request Guidelines

All sample requests should be made in writing to:

Meteorite Curator/SN2
NASA Johnson Space Center
Houston, TX 77058 USA

Requests that are received by the Curator before **Mar. 3, 2000**, will be reviewed at the MWG meeting on **Mar. 17-18, 2000**, to be held in Washington D.C. Requests that are received after the **Mar. 3** deadline may possibly be delayed for review until the MWG meets again in the Fall of 2000. **PLEASE SUBMIT YOUR REQUESTS ON TIME.** Questions pertaining to sample requests can be directed in writing to the above address or can be directed to the curator by phone, FAX, or e-mail.

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 initialed or countersigned by a supervising scientist to confirm access to facilities for analysis. All sample requests will be reviewed in a timely manner. Those requests that do not meet the JSC Curatorial Guidelines will be reviewed by the Meteorite Working Group (MWG), 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. 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 the appropriate funding agencies. 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. Specific requirements for sample types within individual specimens, or special handling or shipping procedures should be explained in each request. Each request should include a brief justification, which should contain: 1) what scientific problem will be addressed; 2) what analytical approach will be used; 3) what sample masses are required; 4) evidence that the proposed analyses can be performed by the requester or collaborators; and 5) why Antarctic meteorites are best suitable for the investigation. For new or innovative investigations, proposers are encouraged to supply additional detailed information in order to assist the MWG. Requests for thin sections which will be used in destructive procedures such as ion probing, etching, or even repolishing, must be stated explicitly. Consortium requests must be initialed or countersigned by a member of each group in the consortium. All necessary information, in most cases, should be condensable into a one-or two-page letter.

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 Contr. Earth Sci.*: Nos. 23, 24, 26, 28, and 30. A table containing all classifications as of December 1993 is published in *Meteoritics* 29, p. 100-142 and updated as of April 1996 in *Meteoritics and Planetary Science* 31, p. A161-A174.

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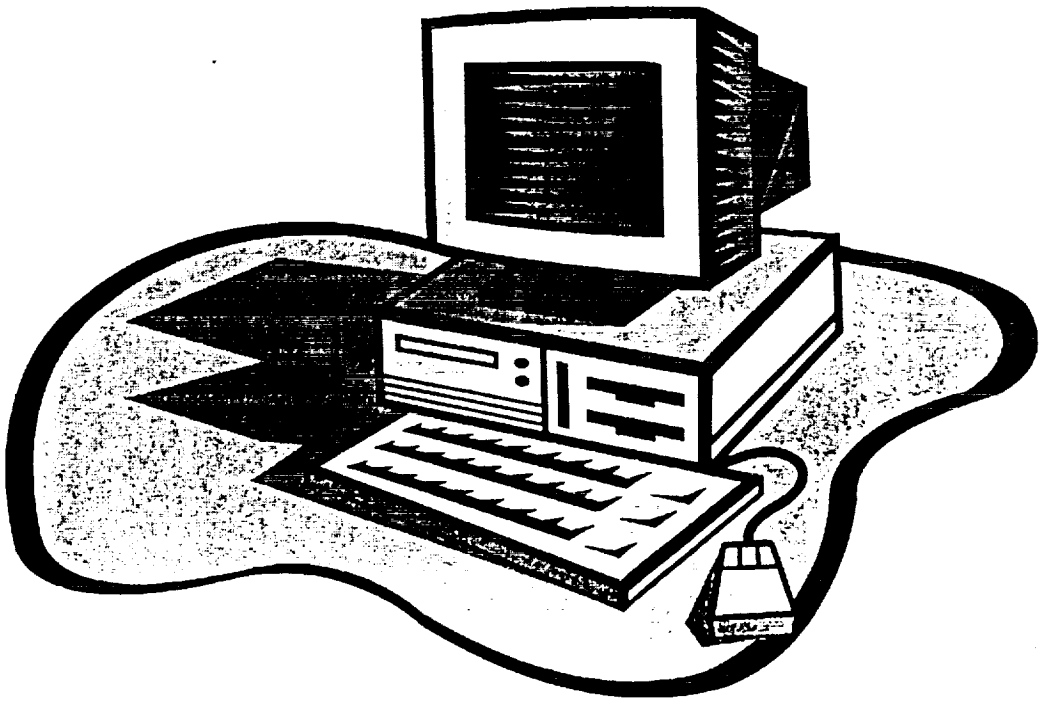
Meteorites On-Line

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://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



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