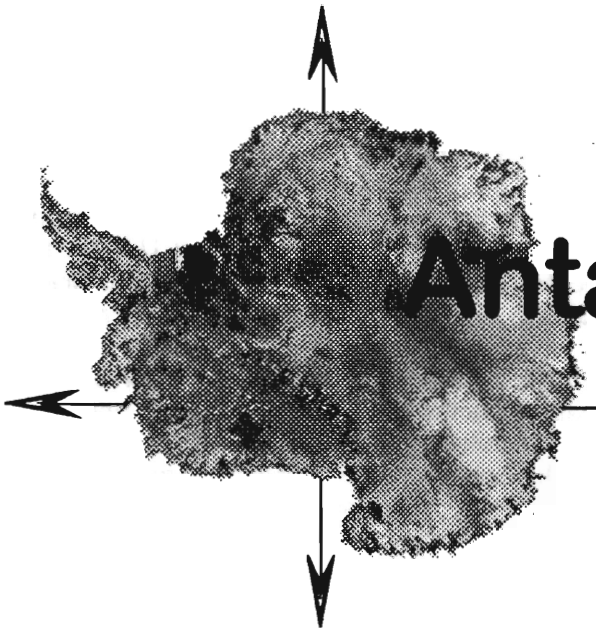

Antarctic Meteorite Newsletter

Volume 19
Number 1

February 1996

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

Edited by Roberta Score and Marilyn Lindstrom
Code SN2, NASA
Johnson Space Center,
Houston, Texas
77058

INSIDE THIS ISSUE:

SAMPLE REQUEST DEADLINE:
February 27, 1996

MWG MEETS March 16-17, 1996

SAMPLE REQUEST GUIDELINES

All sample requests should be made in writing to:

Secretary, MWG
SN2/Office of the Curator
NASA/Johnson Space Center
Houston, TX 77058 USA.

Requests that are received by the MWG Secretary before Feb. 27, 1996, will be reviewed at the MWG meeting on Mar. 16-17, 1996, to be held in Houston, TX. Requests that are received after the Feb. 27 deadline may possibly be delayed for review until the MWG meets again in the Fall of 1996. **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 (published in this issue), 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 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. Requests for thin sections which will be used in destructive procedures such as ion probe, etch or even repolishing, must be stated explicitly. Consortium requests should be initialed or countersigned by a member of each group in the consortium. All necessary information should probably be condensable into a one- or two-page letter, although informative attachments (reprints of publication that explain rationale, flow diagrams for analyses, etc.) are welcome.

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 classification as of December 1993 is published in Meteoritics 29(1) p. 100-142.

Antarctic Meteorite Laboratory Contact Numbers

Marilyn Lindstrom
Mail code SN2
NASA/Johnson Space Center
Houston, Texas 77058

(713) 483-5135

Lindstrom@curate.jsc.nasa.gov

Roberta (Robbie) Score
Mail code SN2
NASA/Johnson Space Center
Houston, Texas 77058

(713) 483-5125

Score@curate.jsc.nasa.gov

FAX: (713) 483-5347

New Meteorites

This newsletter is a chondrite-lovers' dream. You achondrite buffs got your dream last issue. This newsletter presents classifications for 400 meteorites from the 1994 ANSMET collection and 6 meteorites that have been reclassified. The new meteorites include 381 equilibrated ordinary chondrites, 4 unequilibrated ordinary chondrites, 1 anomalous chondrite, 4 enstatite chondrites, 7 carbonaceous chondrites, 1 achondrite, 1 stony iron and 1 iron. It also includes chondrite reclassifications by Sasha Krot and Alan Rubin.

ANSMET

The field team reports that this year's haul is 250 (medium to large sized) meteorites despite the fact that the weather made it impossible to work for 50% of the field season and that the goal of the season was to reconnoiter potential new areas. The icefields around the Mt. Prestrud, Mt. Wisting, and Graves Nunataks were visited in addition to known productive icefields around Grosvenor Mountains using Twin Otter aircraft. These are along the southern end of the Transantarctics. The New Mexico Tech geology group were again working in the Allan Hills area and retrieved several more meteorites from the main icefield. At this writing the meteorites are still in McMurdo but will be in Houston around the first of April.

Government Furlough

Civil servants at JSC and the Smithsonian Institution were sent home during both year-end government furloughs. Thanks to the dedicated effort of the JSC Lockheed Martin contractor staff who kept meteorite work moving. We appreciate the positive comments from some of our investigators - and hope you wrote your congressmen as we all did. At least NSF didn't furlough Antarctic research during the only months available for field work and only the weather got in the way of ANSMET.

Information on the U.S. Collection of Antarctic Meteorites

Number of meteorites:	7645
Number of meteorites classified:	7297

NEW METEORITES

From 1994 Collection

Pages 5-19 contain preliminary descriptions and classifications of meteorites that were completed since publication of issue 18(2) (August 1995). 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 petrologic type are also recast in Table 2.

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

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

Kathleen McBride, Cecilia Satterwhite,
and Roberta Score
Antarctic Meteorite Laboratory
NASA/Johnson Space Center
Houston, Texas

Brian H. Mason
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
DOM — Dominion Range
DRP — Derrick Peak
EET — Elephant Moraine
GEO — Geologists Range
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
QUE — Queen Alexandra Range
RKP — Reckling Peak
STE — Stewart Hills
TIL — Thiel Mountains
TYR — Taylor Glacier
WIS — Wisconsin Range

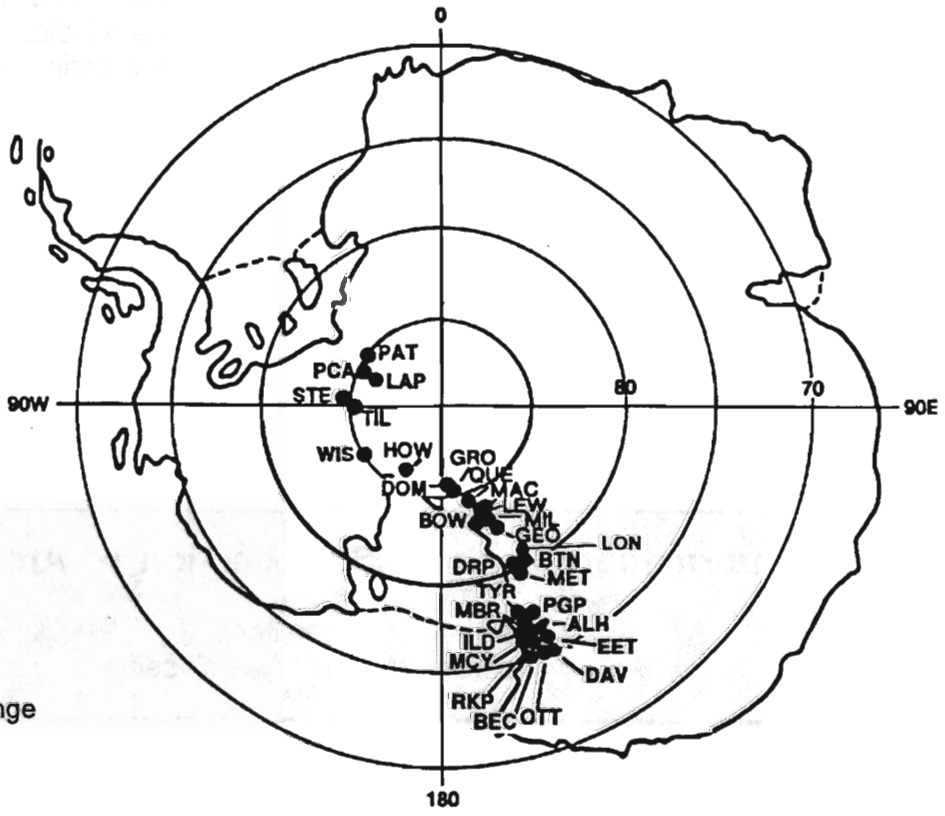

TABLE 1

List of Newly Classified Antarctic Meteorites **

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
LEW 86102 #	21.8	L3.4 CHONDRITE	C	A	1-48	1-41
LEW 86105 #	6.4	L3.4 CHONDRITE	C	A	1-50	1-32
EET 92063 @	74.6	EL6 CHONDRITE	C	A		.2-0.4
EET 92093 @	0.4	EL6 CHONDRITE	C	A		.2-0.4
QUE 93351 @	4.7	EL3 CHONDRITE	B/C	A		0-10
QUE 93372 @	7.4	EH5 CHONDRITE	B	B		0-1
LON 94103	9000.0	L6 CHONDRITE	B	B/C	24	20
LON 94104	10172.0	H6 CHONDRITE	B/Ce	B/C	18	16
LON 94105	5086.1	L6 CHONDRITE	A/B	B/C	24	20
LON 94106 ~	1554.0	L6 CHONDRITE	C	C		
LON 94107 ~	546.9	L6 CHONDRITE	A/Be	A		
LON 94108	229.4	L6 CHONDRITE	B/C	B/C	24	20
LON 94109 ~	141.9	L6 CHONDRITE	A/B	A		
QUE 94202 ~	6501.1	L6 CHONDRITE	A/B	A/B		
QUE 94203 ~	2394.3	L6 CHONDRITE	A/B	A/B		
QUE 94204	2427.9	E7 CHONDRITE	C	C		0-5
QUE 94205 ~	2484.3	L6 CHONDRITE	A/B	A/B		
QUE 94206 ~	979.3	L6 CHONDRITE	A/B	B		
QUE 94207 ~	1537.4	L6 CHONDRITE	A/B	A		
QUE 94208 ~	1587.5	L6 CHONDRITE	B	A		
QUE 94209 ~	1585.0	L6 CHONDRITE	B/C	A		
QUE 94210 ~	805.0	L6 CHONDRITE	B	A		
QUE 94211 ~	968.8	L6 CHONDRITE	A/B	A		
QUE 94212 ~	777.3	L6 CHONDRITE	B/C	A		
QUE 94213 ~	1227.0	L6 CHONDRITE	A/B	A		
QUE 94214 ~	772.8	L6 CHONDRITE	B/C	A		
QUE 94215 ~	569.8	L6 CHONDRITE	A/B	A		
QUE 94216 ~	444.2	L6 CHONDRITE	B/C	A		
QUE 94217	445.7	H5 CHONDRITE	C	B	19	16
QUE 94218 ~	0.7	H5 CHONDRITE	B/C	A		
QUE 94220	2.6	C2 CHONDRITE	Be	A/B	1-33	
QUE 94221	1.5	H5 CHONDRITE	B/C	A	19	17
QUE 94222	4.8	C2 CHONDRITE	Be	A	1-29	
QUE 94223	9.8	H5 CHONDRITE	Be	A	19	17
QUE 94227 ~	340.9	L6 CHONDRITE	A/B	A		
QUE 94228 ~	374.0	L6 CHONDRITE	B	A/B		
QUE 94229	382.3	L5 CHONDRITE	A	A	26	22
QUE 94230 ~	392.3	L6 CHONDRITE	B/C	A		
QUE 94231 ~	342.8	L6 CHONDRITE	B/C	A		
QUE 94232 ~	381.6	L6 CHONDRITE	C	B		
QUE 94233 ~	450.0	L6 CHONDRITE	A/B	A		
QUE 94234 ~	346.7	L6 CHONDRITE	A/B	A		
QUE 94235 ~	447.1	L6 CHONDRITE	B	A/B		
QUE 94236 ~	255.9	L6 CHONDRITE	A/B	B		
QUE 94237	358.0	H5 CHONDRITE	B/C	B	18	16
QUE 94238 ~	243.0	L6 CHONDRITE	A/B	A		

~Classified by using refractive indices. #Reclassed by A. Krot. @ Reclassed by A. Rubin.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 94239 ~	446.9	L6 CHONDRITE	A/B	A		
QUE 94240	247.1	L5 CHONDRITE	A	A	26	22
QUE 94241 ~	489.1	L6 CHONDRITE	A/B	A		
QUE 94242	255.5	H5 CHONDRITE	C	B	19	17
QUE 94243 ~	196.4	H6 CHONDRITE	C	B		
QUE 94244 ~	71.8	L6 CHONDRITE	B/C	A/B		
QUE 94245 ~	57.2	LL6 CHONDRITE	A/B	A		
QUE 94246 ~	61.9	L5 CHONDRITE	A/B	A/B		
QUE 94247 ~	86.1	LL6 CHONDRITE	A/B	A/B		
QUE 94248 ~	24.1	L5 CHONDRITE	B	A		
QUE 94249 ~	25.4	L6 CHONDRITE	A/B	A		
QUE 94250 ~	4.1	L5 CHONDRITE	B	A		
QUE 94251 ~	99.2	L6 CHONDRITE	B	A		
QUE 94252	76.5	H5 CHONDRITE	A/B	B	19	17
QUE 94253 ~	36.0	L6 CHONDRITE	B/C	A		
QUE 94254 ~	3.0	H6 CHONDRITE	Ce	B		
QUE 94255 ~	66.1	L6 CHONDRITE	B	B		
QUE 94257 ~	2.8	L5 CHONDRITE	B	A		
QUE 94258 ~	1.7	H5 CHONDRITE	B/C	A		
QUE 94259 ~	2.9	H5 CHONDRITE	B/C	A		
QUE 94260 ~	0.7	L6 CHONDRITE	B/C	A		
QUE 94261 ~	0.6	L6 CHONDRITE	B/C	A		
QUE 94262 ~	1.5	L6 CHONDRITE	B/C	A		
QUE 94263	27.7	H5 CHONDRITE	B/C	A	18	16
QUE 94264 ~	3.6	L6 CHONDRITE	B/C	A		
QUE 94265 ~	1.3	L6 CHONDRITE	B/C	A		
QUE 94266 ~	4.8	LL6 CHONDRITE	B/C	A		
QUE 94267 ~	16.2	L6 CHONDRITE	B/C	B		
QUE 94268 ~	13.6	L6 CHONDRITE	C	C		
QUE 94270 ~	29.9	L5 CHONDRITE	A/B	A/B		
QUE 94271 ~	2.5	H6 CHONDRITE	B/C	A		
QUE 94272 ~	1.3	H6 CHONDRITE	B/C	A		
QUE 94273 ~	0.7	H6 CHONDRITE	B/C	A		
QUE 94275 ~	20.5	H6 CHONDRITE	B/C	A		
QUE 94276 ~	4.0	L5 CHONDRITE	B/C	A		
QUE 94277 ~	10.9	L6 CHONDRITE	B/C	A/B		
QUE 94278 ~	6.9	L6 CHONDRITE	B/C	A		
QUE 94279 ~	48.2	L5 CHONDRITE	A/B	A		
QUE 94280 ~	11.3	L5 CHONDRITE	B	B		
QUE 94282 ~	18.8	L5 CHONDRITE	A/B	B		
QUE 94283 ~	3.2	L5 CHONDRITE	B/C	B		
QUE 94284 ~	1.4	H5 CHONDRITE	B/C	A		
QUE 94285 ~	1.3	L5 CHONDRITE	B/C	A		
QUE 94286 ~	2.3	L5 CHONDRITE	B/C	B		
QUE 94287 ~	1.7	L5 CHONDRITE	B/C	B		
QUE 94288 ~	0.1	L6 CHONDRITE	B/C	A		
QUE 94289	18.5	H5 CHONDRITE	B/C	A	19	17
QUE 94290 ~	43.2	L6 CHONDRITE	A/B	A		
QUE 94291 ~	60.4	L5 CHONDRITE	B	A/B		
QUE 94292 ~	82.6	L5 CHONDRITE	B	A		
QUE 94293	22.9	L5 CHONDRITE	A/B	A/B	26	21
QUE 94294	39.0	L5 CHONDRITE	B/C	A	26	21
QUE 94296 ~	0.2	L6 CHONDRITE	B/C	A		
QUE 94297 ~	116.0	L6 CHONDRITE	B	A		
QUE 94298 ~	32.2	H5 CHONDRITE	B/C	A		
QUE 94299	13.4	MESOSIDERITE	B/C	A/B		32
QUE 94300	26.3	H5 CHONDRITE	B/C	A	18	16

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 94301	37.5	L5 CHONDRITE	A/B	A	26	22
QUE 94302	11.1	LL5 CHONDRITE	B	B	29	24
QUE 94303 ~	60.5	L5 CHONDRITE	A/B	B		
QUE 94304 ~	43.1	L5 CHONDRITE	A/B	A		
QUE 94305 ~	83.1	L5 CHONDRITE	B	B		
QUE 94306 ~	52.2	L6 CHONDRITE	B	A		
QUE 94307 ~	12.8	L6 CHONDRITE	B	B		
QUE 94308 ~	9.5	L5 CHONDRITE	B	B		
QUE 94309	8.8	H5 CHONDRITE	B	A	18	16
QUE 94310 ~	39.5	L5 CHONDRITE	A/B	A/B		
QUE 94311 ~	2.6	L5 CHONDRITE	A/B	A		
QUE 94312 ~	2.4	H6 CHONDRITE	B/C	A		
QUE 94313	4.4	L5 CHONDRITE	B/C	A	24	20
QUE 94314 ~	1.2	H6 CHONDRITE	B/C	A		
QUE 94315 ~	1.0	H6 CHONDRITE	B/C	A		
QUE 94316 ~	5.6	H6 CHONDRITE	B/C	A		
QUE 94317 ~	1.2	H6 CHONDRITE	B/C	A		
QUE 94318 ~	0.5	H6 CHONDRITE	B/C	A		
QUE 94319 ~	16.0	L5 CHONDRITE	A/B	A/B		
QUE 94320 ~	7.6	H6 CHONDRITE	B/Ce	B		
QUE 94321	1.3	EL3 CHONDRITE	B/C	A	0-1	0-2
QUE 94322 ~	1.9	H6 CHONDRITE	B	A		
QUE 94324 ~	1.1	L6 CHONDRITE	B	A		
QUE 94325	4.6	L6 CHONDRITE	Be	B	25	21
QUE 94326 ~	6.0	L6 CHONDRITE	B	A		
QUE 94327 ~	14.5	L6 CHONDRITE	B	A		
QUE 94328 ~	7.8	L5 CHONDRITE	B/C	B		
QUE 94329 ~	0.2	L6 CHONDRITE	B	A		
QUE 94330 ~	1.2	H6 CHONDRITE	B/C	A		
QUE 94331	20.2	L5 CHONDRITE	A/B	A/B	26	22
QUE 94332 ~	4.0	H6 CHONDRITE	B/C	A		
QUE 94333 ~	0.8	H6 CHONDRITE	B/C	A		
QUE 94334 ~	2.8	L6 CHONDRITE	B/Ce	A		
QUE 94335 ~	4.0	H6 CHONDRITE	B/Ce	A/B		
QUE 94336 ~	10.5	LL6 CHONDRITE	A/B	A/B		
QUE 94337 ~	4.7	H6 CHONDRITE	B/C	A		
QUE 94338 ~	4.3	H6 CHONDRITE	B/C	A		
QUE 94339 ~	1.6	H5 CHONDRITE	B/C	A		
QUE 94340 ~	4.7	L6 CHONDRITE	A	B		
QUE 94341	1.4	L5 CHONDRITE	A	A	24	20
QUE 94342	22.8	L5 CHONDRITE	A	B	24	20
QUE 94343 ~	3.0	H6 CHONDRITE	B	A		
QUE 94344 ~	0.6	H6 CHONDRITE	B	A		
QUE 94345 ~	30.8	L6 CHONDRITE	B	B		
QUE 94346 ~	0.3	H6 CHONDRITE	B	A		
QUE 94347 ~	55.8	L5 CHONDRITE	B	B		
QUE 94348 ~	10.3	L6 CHONDRITE	B	B		
QUE 94349	22.7	LL5 CHONDRITE	B	B	29	24
QUE 94350 ~	0.8	H5 CHONDRITE	B/C	A		
QUE 94351 ~	5.2	H5 CHONDRITE	B/C	A		
QUE 94352	9.5	L4 CHONDRITE	B/C	A	24	4-28
QUE 94353 ~	5.2	H6 CHONDRITE	B/Ce	A/B		
QUE 94354 ~	27.1	L5 CHONDRITE	A/B	A/B		
QUE 94355 ~	26.8	H6 CHONDRITE	B/C	A		
QUE 94356 ~	9.6	L5 CHONDRITE	A/B	A		
QUE 94357 ~	11.8	L5 CHONDRITE	A/B	A		
QUE 94359 ~	6.5	L5 CHONDRITE	A/B	A		

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 94360	87.3	L5 CHONDRITE	B	A	25	21
QUE 94361 ~	0.6	L5 CHONDRITE	B	A		
QUE 94362	1.8	L5 CHONDRITE	B	A	25	21
QUE 94363 ~	0.1	H6 CHONDRITE	B	A		
QUE 94364 ~	2.6	L5 CHONDRITE	B	B		
QUE 94365 ~	72.6	L6 CHONDRITE	B	B		
QUE 94366	0.8	CV3 CHONDRITE	A/B	A	1-25	1-8
QUE 94367 ~	6.6	L6 CHONDRITE	B	B		
QUE 94368	1.2	E5 CHONDRITE	C	B		0-2
QUE 94369 ~	4.6	L6 CHONDRITE	B	A		
QUE 94370 ~	15.4	L5 CHONDRITE	B/C	A		
QUE 94371 ~	8.8	L5 CHONDRITE	B	A/B		
QUE 94372 ~	1.5	H6 CHONDRITE	B/C	A		
QUE 94373 ~	1.4	H6 CHONDRITE	B/C	A		
QUE 94374 ~	0.1	H6 CHONDRITE	B/C	A		
QUE 94375 ~	19.1	L5 CHONDRITE	A/B	A/B		
QUE 94376 ~	33.0	L5 CHONDRITE	A/B	A		
QUE 94377 ~	2.1	L5 CHONDRITE	A/B	A		
QUE 94378 ~	1.2	L5 CHONDRITE	B/C	A		
QUE 94379	58.2	LL5 CHONDRITE	A/B	A/B	30	25
QUE 94380 ~	73.8	L5 CHONDRITE	B	A		
QUE 94381 ~	27.3	L5 CHONDRITE	B	A		
QUE 94382	12.3	H5 CHONDRITE	B/C	B	19	17
QUE 94383	8.8	LL5 CHONDRITE	B	B	30	25
QUE 94384 ~	18.2	L5 CHONDRITE	A/B	A		
QUE 94385 ~	39.6	L5 CHONDRITE	B	B		
QUE 94386	183.8	H5 CHONDRITE	B/C	B	19	17
QUE 94387 ~	16.0	L5 CHONDRITE	B	B		
QUE 94388 ~	2.9	L5 CHONDRITE	A/B	B		
QUE 94389 ~	8.3	L5 CHONDRITE	A/B	B		
QUE 94390	10.6	LL6 CHONDRITE	A/B	A	30	25
QUE 94391 ~	16.0	L5 CHONDRITE	A/B	A/B		
QUE 94392 ~	2.8	L5 CHONDRITE	B/C	A		
QUE 94393 ~	42.7	L5 CHONDRITE	A/B	A		
QUE 94394 ~	67.5	L5 CHONDRITE	A/B	A		
QUE 94395 ~	6.8	L6 CHONDRITE	B/C	A		
QUE 94396	2.8	L3.4 CHONDRITE	B/C	A	1-27	5-10
QUE 94397	20.7	LL6 CHONDRITE	A/B	A	30	25
QUE 94398 ~	3.1	L5 CHONDRITE	A/B	A		
QUE 94399 ~	0.7	H5 CHONDRITE	B/C	A		
QUE 94400	13.4	H5 CHONDRITE	B	B	19	17
QUE 94401 ~	0.9	H6 CHONDRITE	B	A		
QUE 94402 ~	0.7	H5 CHONDRITE	B	B		
QUE 94403 ~	1.8	H5 CHONDRITE	B	A		
QUE 94404 ~	2.3	H6 CHONDRITE	B	A		
QUE 94405 ~	2.6	H6 CHONDRITE	B	A		
QUE 94406 ~	3.3	H5 CHONDRITE	B	B		
QUE 94407 ~	0.7	H6 CHONDRITE	B	A		
QUE 94408 ~	3.1	L6 CHONDRITE	B	B		
QUE 94409	50.6	H5 CHONDRITE	B	B	18	16
QUE 94411	39.7	IRON	B	A	2-4	1-4
QUE 94412 ~	2.6	H5 CHONDRITE	B/Ce	A		
QUE 94413	70.8	H5 CHONDRITE	B/C	A	18	16
QUE 94414 ~	28.0	L6 CHONDRITE	B/C	A		
QUE 94415 ~	80.5	L5 CHONDRITE	A/B	A		
QUE 94416	91.1	L5 CHONDRITE	A/B	A	26	21
QUE 94417 ~	18.5	L5 CHONDRITE	A/B	A/B		

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 94418 ~	68.1	L5 CHONDRITE	A/B	A		
QUE 94419 ~	12.2	L6 CHONDRITE	B/C	A		
QUE 94420	2.1	L3.4 CHONDRITE	B/C	A	6-29	3-15
QUE 94421 ~	6.9	L5 CHONDRITE	A	A		
QUE 94422 ~	2.0	H5 CHONDRITE	B	A		
QUE 94423 ~	6.7	L5 CHONDRITE	A	B		
QUE 94424 ~	20.3	L5 CHONDRITE	B	B		
QUE 94426 ~	18.8	L5 CHONDRITE	B	B		
QUE 94427	14.1	LL6 CHONDRITE	B/C	B	27	22
QUE 94428 ~	90.5	L5 CHONDRITE	A	B		
QUE 94429	9.4	H5 CHONDRITE	B/C	A	18	16
QUE 94430 ~	27.7	L5 CHONDRITE	A/B	A/B		
QUE 94431	41.5	LL6 CHONDRITE	A/B	A/B	30	24
QUE 94432 ~	1.6	H5 CHONDRITE	B/C	A		
QUE 94433 ~	4.5	L5 CHONDRITE	B	A		
QUE 94434 ~	0.4	L6 CHONDRITE	B/C	A		
QUE 94436 ~	1.5	H5 CHONDRITE	B/C	A		
QUE 94437 ~	4.2	L5 CHONDRITE	A/B	A		
QUE 94438 ~	2.7	L6 CHONDRITE	B/C	A		
QUE 94439	36.9	LL6 CHONDRITE	A/B	A/B	30	24
QUE 94440 ~	4.5	L5 CHONDRITE	B	A		
QUE 94441	51.8	H6 CHONDRITE	B	A	19	17
QUE 94442	24.8	LL6 CHONDRITE	A/B	B	29	23
QUE 94443 ~	18.5	LL5 CHONDRITE	A/B	B		
QUE 94444 ~	40.0	L5 CHONDRITE	A/B	B		
QUE 94445 ~	9.4	H5 CHONDRITE	B	A		
QUE 94446 ~	3.2	H6 CHONDRITE	B	A		
QUE 94447 ~	6.2	L5 CHONDRITE	A/B	A		
QUE 94448 ~	2.1	L6 CHONDRITE	B	A		
QUE 94449 ~	1.3	L6 CHONDRITE	B	A		
QUE 94450 ~	5.2	L5 CHONDRITE	A/B	B		
QUE 94451 ~	19.5	L5 CHONDRITE	A/B	B		
QUE 94452 ~	40.6	L5 CHONDRITE	A/B	B		
QUE 94453	19.3	LL6 CHONDRITE	A/B	B	29	23
QUE 94454 ~	5.0	L6 CHONDRITE	B/C	A		
QUE 94455 ~	1.8	L6 CHONDRITE	B/Ce	B		
QUE 94456 ~	25.3	L6 CHONDRITE	A/B	B		
QUE 94457 ~	1.6	L6 CHONDRITE	B/C	A		
QUE 94458 ~	4.0	H5 CHONDRITE	B	A		
QUE 94459 ~	1.0	L6 CHONDRITE	A/B	B		
QUE 94460	4.0	H5 CHONDRITE	B	B	18	16
QUE 94461 ~	8.6	L6 CHONDRITE	A/B	B		
QUE 94462 ~	2.8	L6 CHONDRITE	B	B		
QUE 94463	2.2	L6 CHONDRITE	A	A	25	21
QUE 94464 ~	13.8	L5 CHONDRITE	A/B	B		
QUE 94465 ~	10.1	L6 CHONDRITE	A/B	A		
QUE 94466 ~	1.6	H5 CHONDRITE	B	B		
QUE 94467 ~	1.3	L6 CHONDRITE	A/B	A		
QUE 94468 ~	0.3	L6 CHONDRITE	B	B		
QUE 94469 ~	1.3	L6 CHONDRITE	B/Ce	A		
QUE 94470	17.3	H5 CHONDRITE	B	A/B	17	15
QUE 94471 ~	9.6	L5 CHONDRITE	A/B	B		
QUE 94472 ~	4.9	L6 CHONDRITE	B/Ce	A/B		
QUE 94473 ~	69.0	L5 CHONDRITE	A/B	B		
QUE 94474	39.0	H5 CHONDRITE	B	A	17	15
QUE 94475 ~	29.3	L5 CHONDRITE	A/B	B		
QUE 94476 ~	20.1	L5 CHONDRITE	A/B	A/B		

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 94477 ~	120.1	L5 CHONDRITE	B	B		
QUE 94478 ~	32.5	L5 CHONDRITE	A/B	B		
QUE 94479 ~	26.5	L5 CHONDRITE	A/B	B		
QUE 94480 ~	34.2	L5 CHONDRITE	A/B	B		
QUE 94481 ~	8.8	L5 CHONDRITE	A/B	B		
QUE 94482	11.0	LL6 CHONDRITE	A	A	30	24
QUE 94483 ~	10.6	L5 CHONDRITE	B	B/C		
QUE 94484	5.6	EUCRITE (UNBRECCIATED)	B	B	25-49	
QUE 94485 ~	3.3	L5 CHONDRITE	A/B	A		
QUE 94486 ~	2.4	L5 CHONDRITE	A/B	A		
QUE 94487 ~	3.7	L6 CHONDRITE	B	A		
QUE 94488 ~	11.5	L5 CHONDRITE	A	A		
QUE 94489 ~	6.6	H5 CHONDRITE	B/C	A		
QUE 94490 ~	8.3	L6 CHONDRITE	B/C	A		
QUE 94491 ~	1.5	H5 CHONDRITE	B/C	A		
QUE 94492 ~	7.3	L5 CHONDRITE	A/B	A/B		
QUE 94493 ~	2.3	L5 CHONDRITE	A/B	A		
QUE 94494 ~	3.2	L5 CHONDRITE	A/B	A		
QUE 94495 ~	5.8	L6 CHONDRITE	A/B	A		
QUE 94496	4.6	L5 CHONDRITE	B	A	24	20
QUE 94497 ~	1.5	L6 CHONDRITE	B/C	A		
QUE 94498 ~	1.4	H5 CHONDRITE	B/C	A		
QUE 94499 ~	0.4	L6 CHONDRITE	B/C	A		
QUE 94500	167.3	H5 CHONDRITE	B/C	A/B	18	16
QUE 94501	62.1	H6 CHONDRITE	B/Ce	B	19	17
QUE 94502 ~	45.8	H6 CHONDRITE	B	B		
QUE 94503	72.8	LL5 CHONDRITE	B	A/B	27	22
QUE 94504 ~	27.6	L6 CHONDRITE	B	A		
QUE 94505 ~	1.7	H5 CHONDRITE	B/C	A		
QUE 94506	4.5	L5 CHONDRITE	B/C	B	24	20
QUE 94507 ~	2.8	L6 CHONDRITE	B	A		
QUE 94508 ~	1.0	H5 CHONDRITE	A/B	A		
QUE 94509 ~	3.5	L6 CHONDRITE	B	B		
QUE 94510 ~	7.9	L6 CHONDRITE	B/C	A		
QUE 94511 ~	0.9	H6 CHONDRITE	B/C	A		
QUE 94512 ~	0.2	H5 CHONDRITE	B/C	A		
QUE 94513	4.8	L4 CHONDRITE	C	A	25	20-22
QUE 94514 ~	1.4	L6 CHONDRITE	B/C	A		
QUE 94515 ~	3.2	L6 CHONDRITE	B/C	A		
QUE 94516 ~	8.0	L6 CHONDRITE	B/C	A		
QUE 94517 ~	0.4	H5 CHONDRITE	B/Ce	A		
QUE 94518 ~	10.5	L6 CHONDRITE	B/C	A		
QUE 94519 ~	28.5	L5 CHONDRITE	A/B	A/B		
QUE 94520 ~	89.7	L5 CHONDRITE	A/B	B		
QUE 94521	16.5	H5 CHONDRITE	B	A	18	16
QUE 94522 ~	28.9	L5 CHONDRITE	A/B	B		
QUE 94523 ~	29.6	L5 CHONDRITE	A/B	B/C		
QUE 94524 ~	39.1	LL6 CHONDRITE	A/B	B		
QUE 94525 ~	16.8	L5 CHONDRITE	A/B	B		
QUE 94526 ~	13.1	L5 CHONDRITE	A/B	B		
QUE 94527 ~	11.8	LL6 CHONDRITE	A/B	B		
QUE 94528 ~	18.1	LL6 CHONDRITE	A/B	B		
QUE 94529 ~	53.4	L5 CHONDRITE	A/B	B		
QUE 94530 ~	36.7	L5 CHONDRITE	A/B	A/B		
QUE 94531 ~	2.9	L5 CHONDRITE	B	A/B		
QUE 94532 ~	19.4	L6 CHONDRITE	B/Ce	A		
QUE 94533	37.0	H6 CHONDRITE	B/C	A/B	18	16

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 94534	4.2	L5 CHONDRITE	B/C	A	25	21
QUE 94535	11.3	CHONDRITE (ANOMALOUS)	C	A	1-3	1-2
QUE 94536 ~	3.5	L6 CHONDRITE	B/C	A		
QUE 94537	7.4	L3.6 CHONDRITE	B/Ce	A	7-27	14-18
QUE 94538 ~	11.1	L6 CHONDRITE	A/B	A		
QUE 94539 ~	2.9	L6 CHONDRITE	A/B	A		
QUE 94540 ~	28.7	L5 CHONDRITE	A/B	B		
QUE 94541 ~	2.7	L6 CHONDRITE	B/C	B		
QUE 94542 ~	13.2	LL6 CHONDRITE	A/Be	B		
QUE 94543 ~	0.3	L6 CHONDRITE	B	A/B		
QUE 94544 ~	2.1	H6 CHONDRITE	B	A		
QUE 94545	6.6	H5 CHONDRITE	B	A	19	17
QUE 94546	1.8	CV3 CHONDRITE	B/Ce	B/C	1-29	1-4
QUE 94547 ~	1.2	L5 CHONDRITE	B	A/B		
QUE 94548 ~	11.7	LL6 CHONDRITE	A/B	A/B		
QUE 94549	1.5	H5 CHONDRITE	B/C	A	19	17
QUE 94550 ~	103.7	L5 CHONDRITE	A/B	A/B		
QUE 94551 ~	18.7	L6 CHONDRITE	B/C	A		
QUE 94552 ~	62.0	L5 CHONDRITE	A/B	A/B		
QUE 94553 ~	10.5	L5 CHONDRITE	A/B	A		
QUE 94554 ~	39.0	L5 CHONDRITE	A/B	A		
QUE 94555	26.0	H5 CHONDRITE	B/C	A	18	16
QUE 94556 ~	7.6	L5 CHONDRITE	A/B	A		
QUE 94557 ~	3.8	L5 CHONDRITE	A/B	A		
QUE 94558	3.8	H5 CHONDRITE	B/C	A	18	16
QUE 94559 ~	8.5	L5 CHONDRITE	A/B	A		
QUE 94560 ~	1.6	L6 CHONDRITE	B/C	A/B		
QUE 94561 ~	6.1	L6 CHONDRITE	B/C	A/B		
QUE 94562	4.8	H5 CHONDRITE	B/C	B	18	16
QUE 94563 ~	4.6	L5 CHONDRITE	A/B	B		
QUE 94564	14.0	H5 CHONDRITE	B/C	B	18	16
QUE 94565 ~	1.3	H6 CHONDRITE	B/C	A/B		
QUE 94566 ~	2.0	H6 CHONDRITE	B/C	A/B		
QUE 94568	2.9	H5 CHONDRITE	B/C	A/B	19	17
QUE 94569 ~	5.9	L6 CHONDRITE	B	A		
QUE 94570	57.2	C4 CHONDRITE	B/Ce	A	10-13	9-12
QUE 94571 ~	7.1	L5 CHONDRITE	A/B	A		
QUE 94572 ~	1.4	H6 CHONDRITE	B/C	A		
QUE 94573 ~	1.6	H6 CHONDRITE	B/Ce	A		
QUE 94574	19.3	H5 CHONDRITE	B/C	A	19	17
QUE 94575	39.4	H3.6 CHONDRITE	C	A	1-22	12-24
QUE 94576 ~	16.0	L6 CHONDRITE	B/C	A/B		
QUE 94577 ~	5.3	L5 CHONDRITE	A/B	A/B		
QUE 94578 ~	10.5	LL6 CHONDRITE	A/B	A/B		
QUE 94579 ~	43.9	L6 CHONDRITE	B	A		
QUE 94580 ~	4.1	L6 CHONDRITE	B	A/B		
QUE 94581 ~	53.3	L6 CHONDRITE	B	A/B		
QUE 94582	7.1	C2 CHONDRITE	B	A/B	2-31	1-20
QUE 94583 ~	9.6	L6 CHONDRITE	A/B	B		
QUE 94584 ~	4.0	LL6 CHONDRITE	A/B	A/B		
QUE 94585 ~	1.3	H6 CHONDRITE	A/B	A/B		
QUE 94586	15.3	H5 CHONDRITE	B	A/B	19	17
QUE 94587 ~	24.0	LL6 CHONDRITE	A/B	B		
QUE 94588 ~	7.7	L6 CHONDRITE	B	A		
QUE 94589 ~	15.2	L6 CHONDRITE	A	B		
QUE 94590	10.0	H5 CHONDRITE	B/C	A	18	16
QUE 94591 ~	4.1	L5 CHONDRITE	A/B	A		

~Classified by using refractive indices.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
QUE 94592	12.9	L5 CHONDRITE	B/Ce	A	24	20
QUE 94593 ~	28.3	L5 CHONDRITE	A/B	A		
QUE 94594	12.2	EL3 CHONDRITE	B/C	A	0-1	0-1
QUE 94595 ~	16.0	L5 CHONDRITE	A/B	A/B		
QUE 94596	35.8	H5 CHONDRITE	B/C	A	18	16
QUE 94597 ~	23.3	L6 CHONDRITE	B	A		
QUE 94598	9.8	L5 CHONDRITE	B/C	A	24	20
QUE 94599 ~	22.7	LL6 CHONDRITE	A/B	A		
QUE 94600 ~	20.8	L5 CHONDRITE	B	B/C		
QUE 94601 ~	3.9	L5 CHONDRITE	B	B/C		
QUE 94602 ~	2.2	L5 CHONDRITE	B	B		
QUE 94603	1.7	CR2 CHONDRITE	C	B	1-23	1-5
QUE 94604	8.6	H5 CHONDRITE	B/Ce	B	17	15
QUE 94605 ~	4.5	L5 CHONDRITE	B	B		
QUE 94606 ~	0.7	L5 CHONDRITE	B	A/B		
QUE 94607	1.8	L6 CHONDRITE	Be	B	24	20
QUE 94608 ~	0.8	H6 CHONDRITE	B/C	A/B		
QUE 94609 ~	0.9	H6 CHONDRITE	B	B		

***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.

~Classified by using refractive indices.

TABLE 2

Newly Classified Specimens Listed By Type **

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
		Achondrites				
QUE 94484	5.6	EUCRITE (UNBRECCIATED)	B	B		25-49
		Carbonaceous Chondrites				
QUE 94220	2.6	C2 CHONDRITE	Be	A/B	1-33	
QUE 94222	4.8	C2 CHONDRITE	Be	A	1-29	
QUE 94582	7.1	C2 CHONDRITE	B	A/B	2-31	1-20
QUE 94570	57.2	C4 CHONDRITE	B/Ce	A	10-13	9-12
QUE 94603	1.7	CR2 CHONDRITE	C	B	1-23	1-5
QUE 94366	0.8	CV3 CHONDRITE	A/B	A	1-25	1-8
QUE 94546	1.8	CV3 CHONDRITE	B/Ce	B/C	1-29	1-4
		Chondrites - Type 3				
QUE 94535	11.3	CHONDRITE (ANOMALOUS)	C	A	1-3	1-2
QUE 94575	39.4	H3.6 CHONDRITE	C	A	1-22	12-24
LEW 86102 #	21.8	L3.4 CHONDRITE	C	A	1-48	1-41
LEW 86105 #	6.4	L3.4 CHONDRITE	C	A	1-50	1-32
QUE 94396	2.8	L3.4 CHONDRITE	B/C	A	1-27	5-10
QUE 94420	2.1	L3.4 CHONDRITE	B/C	A	6-29	3-15
QUE 94537	7.4	L3.6 CHONDRITE	B/Ce	A	7-27	14-18
		E Chondrites				
QUE 94368	1.2	E5 CHONDRITE	C	B		0-2
QUE 94204	2427.9	E7 CHONDRITE	C	C		0-5
QUE 93372 @	7.4	EH5 CHONDRITE	B	B		0-1
QUE 93351 @	4.7	EL3 CHONDRITE	B/C	A		0-10
QUE 94321	1.3	EL3 CHONDRITE	B/C	A	0-1	0-2
QUE 94594	12.2	EL3 CHONDRITE	B/C	A	0-1	0-1
EET 92063 @	74.6	EL6 CHONDRITE	C	A		.2-0.4
EET 92093 @	0.4	EL6 CHONDRITE	C	A		.2-0.4
		Irons				
QUE 94411	39.7	IRON	B	A	2-4	1-4
		Stony-Irons				
QUE 94299	13.4	MESOSIDERITE	B/C	A/B		32

~Classified by using refractive indices. #Reclassed by A. Krot. @Reclassed by A. Rubin.

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 (1994).

C2 CHONDRITE

QUE 94220 and 94222.

CV3 CHONDRITE

QUE 94366 and 94546.

EL3 CHONDRITE

QUE 94321, 94594 with QUE 93351.

L3.4 CHONDRITE

LEW 86102, 86105 with LEW 85434.

L6 CHONDRITE

QUE 94202, 94203, 94205, 94206, 94207, 94208, 94209, 94210, 94211, 94213, 94214, 94215, 94216, 94227, 94228, 94231, 94233, 94234, 94235, 94236, 94238, 94239, 94241.

Sample No.:	**QUE94204**
Location:	Queen Alexandra Range
Dimensions (cm):	16.5 x 10.0 x 9.5
Weight (g):	2427.9
Meteorite Type:	E7 chondrite

Macroscopic Description: Kathleen McBride

Smooth, brown, fusion crust covers ~30% of the exterior surface. Areas devoid of fusion crust are extremely weathered and have a rough, pitted texture. Metal is still obvious in the interior despite the extremely weathered condition of this stone.

Thin Section (.2) Description: Brian Mason

The section shows a granular aggregate of about 75% pyroxene (average grain size 1.5 mm), 20% nickel-iron and troilite, and 5% intergranular plagioclase. The meteorite is severely weathered, with much of the nickel-iron altered to brown limonite. Some of the metal grains contain numerous inclusions of graphite. Microprobe analyses show that the pyroxene is close to $MgSiO_3$ in composition, with a few more iron-rich grains. Plagioclase composition is An_{19-26}. The nickel-iron contains 2.4-2.9% Si. The mineralogy is that of an enstatite chondrite, but no chondrules are present; therefore the meteorite is tentatively classified as E7. It resembles Ilafegh 009 (Geochim. Cosmochim. Acta, v. 59, p. 161, 1995).

Sample No.:	**QUE94220; 94222**
Location:	Queen Alexandra Range
Dimensions (cm):	2 x 1.3 x 1; 2.5 x 2.0 x 0.9
Weight (g):	2.6; 4.8
Meteorite Type:	C2 chondrite

Macroscopic Description: Cecilia Satterwhite

Black, weathered fusion crust covers fifty percent of the exterior of QUE94222. The broken surface has distinct, thick, rounded blebs of evaporite deposit. No fusion crust remains on 94220 but there is a minor amount of evaporite deposit on the exterior surface. The interior material of both of these carbonaceous chondrites is medium to dark gray. Small white and light gray inclusions are scattered throughout.

Thin Section (QUE94220,2; 94222,2) Description: Brian Mason

The sections are so similar that a single description suffices; the meteorites are possibly paired. They show a few small chondrules, up to 0.5 mm across, some irregular aggregates, and numerous small mineral grains in a translucent brown isotropic matrix. The mineral grains are almost entirely olivine, near Mg_2SiO_4 in composition, with a few iron-rich grains. The matrix consist of iron-rich serpentine. The meteorites are C2 chondrites.

Sample No.:	**QUE94299**
Location:	Queen Alexandra Range
Dimensions (cm):	2.4 x 2.1 x 0.9
Weight (g):	13.4
Meteorite Type:	Mesosiderite

Macroscopic Description: Cecilia Satterwhite

The exterior of this meteorite has some patches of thin shiny black fusion crust. Most surfaces have a brownish color and areas of heavy oxidation are yellowish-brown in color. A few fractures penetrate the interior. The interior reveals a mixture of very fine-grained metal grains and very weathered, fine-grained silicates. Despite the abundant metal, this stone broke easily.

Thin Section (.3) Description: Brian Mason

The section shows a granular aggregate of subequal amounts of nickel-iron and silicates, with minor amounts of troilite; the silicates are pyroxene and plagioclase. Minor weathering is indicated by a moderate amount of brown limonitic staining. Pyroxene composition is almost uniform at Wo_2Fs_{32}; the plagioclase is anorthite, An_{91-96}; accessory amounts of an SiO_2 polymorph, probably tridymite, are present. The meteorite is a mesosiderite.

Sample No.:	**QUE94321; 94594**
Location:	Queen Alexandra Range
Dimensions (cm):	1.0 x 0.8 x 0.5; 3.4 x 2.6 x 1.6
Weight (g):	1.3; 12.2
Meteorite Type:	EL3 chondrite

Macroscopic Description: Cecilia Satterwhite

Weathered, iridescent, brown-black fusion crust covers 75-100% of both of these chondrites. Interior is black with some inclusions and metal visible despite the heavily oxidized interior.

Thin Section (QUE94321,2) Description: Brian Mason

The sections of QUE94321 and 94594 are so similar, one description should suffice. The section shows an aggregate of chondrules and chondrule fragments, up to 0.9 mm across, and mineral grains in a moderate amount of dark matrix. The chondrules and mineral grains consist almost entirely of pyroxene; one chondrule consists of subhedral olivine grains. The matrix contains a minor amount of finely granular sulfides and a little nickel-iron. Weathering is extensive, with veinlets and patches of brown limonite throughout the section. Microprobe analyses show that most of the pyroxene is close to $MgSiO_3$ in composition, but a few more iron-rich grains were analysed; olivine composition is essentially pure Mg_2SiO_4. The nickel-iron contains 0.8% Si. One grain of yagiite was analysed. The meteorite is classified as an EL3 chondrite. It is similar to QUE93351, and the possibility of pairing should be considered.

Sample No.:	**QUE94366**
Location:	Queen Alexandra Range
Dimensions (cm):	1.0 x 0.5 x 0.8
Weight (g):	0.8
Meteorite Type:	CV3 chondrite

Macroscopic Description: Roberta Score

This tiny carbonaceous chondrite is almost totally covered with dull, black fusion crust. There is not much interior material available but what is visible is light gray with troilite and small areas of crystalline material which will be impossible to separate.

Thin Section (,2) Description: Brian Mason

The section shows chondrules (up to 1.2 mm across) and irregular granular aggregates in a brown to black semi-translucent matrix. The chondrules and aggregates consist almost entirely of olivine; trace amounts of nickel-iron and troilite are present, mainly within the chondrules. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa_{1-25}, mean Fa_6; pyroxene, Fs_{1-8}. The matrix appears to consist largely of iron-rich serpentine or other phyllosilicates. The meteorite is tentatively classified as a C3 chondrite of the Vigarano subtype, although the phyllosilicate matrix suggests C2; in this respect it is similar to Bali (Geochim. Cosmochim. Acta, v. 58, p. 5589, 1994).

Sample No.:	**QUE94368**
Location:	Queen Alexandra Range
Dimensions (cm):	1.5 x 1.0 x 0.5
Weight (g):	1.2
Meteorite Type:	E5 chondrite

Macroscopic Description: Kathleen McBride

The exterior of QUE94368 is shiny and iridescent. The interior is heavily oxidized and has a sugary texture.

Thin Section (,2) Description: Brian Mason

The section shows numerous chondrules and irregular aggregates, up to 0.6 mm across, and mineral grains in a moderate amount of dark matrix. The matrix contains a minor amount of nickel-iron and sulfides. The chondrules, aggregates, and mineral grains appear to consist entirely of pyroxene. Weathering is extensive, with veinlets and patches of brown limonite throughout the section. Microprobe analyses show that most of the pyroxene is close to $MgSiO_3$ in composition, but a few more iron-rich grains were analysed. The nickel-iron contains 0.5-0.7% Si. The meteorite is classified as an E5 chondrite.

Sample No.: **QUE94396**
Location: Queen Alexandra Range
Dimensions (cm): 1.3 x 1.2 x 0.8
Weight (g): 2.8
Meteorite Type: L3.4 chondrite

Macroscopic Description: Cecilia Satterwhite
Ninety percent of the exterior of QUE94396 is covered with dull, fractured, brownish-black fusion crust. A few millimeter sized weathered inclusions are obvious in the heavily oxidized interior.

Thin Section (,2) Description: Brian Mason
The section shows numerous chondrules (up to 0.9 mm across), chondrule fragments, and mineral grains in a dark brown to black matrix which contains minor amounts of nickel-iron and troilite. Brown limonitic staining pervades the section. Microprobe analyses show a range of olivine and pyroxene compositions: olivine, Fa_{1-27}, mean Fa_{14}; pyroxene, Fs_{5-10}. The meteorite is classified as an L3 chondrite (estimated L3.4).

Sample No.: **QUE94411**
Location: Queen Alexandra Range
Dimensions (cm): 3.2 x 2.1 x 1.4
Weight (g): 39.7
Meteorite Type: Iron

Macroscopic Description: Cecilia Satterwhite
Eighty-five percent of the exterior is covered with dull brown fusion crust. This stone was difficult to break. It is unusual in that at first glance it appears to look chondritic but it is dense. The interior black metal is fine-grained. White angular inclusions as large as 2 mm are scattered throughout. Oxidation is heavy in areas.

Thin Section (,2) Description: Brian Mason
The section consists of nickel-iron with 10-20% of disseminated silicates. The nickel-iron is granular (grains 0.5-1.0 mm), the grains outlined by limonitic alteration. Most of the silicate grains are small (0.1-0.2 mm) and angular, but a few are spherical, and there are some irregular aggregates up to 1.5 mm across. The silicate material is fine-grained and polymineralic, suggestive of devitrified glass. Microprobe analyses show the silicates consist mainly of iron-poor orthopyroxene, with some iron-poor olivine and a little anorthite. The meteorite is tentatively classified as an iron.

Sample No.: **QUE94420**
Location: Queen Alexandra Range
Dimensions (cm): 1.5 x 1.0 x 0.5
Weight (g): 2.1
Meteorite Type: L3.4 chondrite

Macroscopic Description: Kathleen McBride
Patches of thin brown and black fusion crust remain on this small weathered stone. The weathered black interior has areas of heavy oxidation.

Thin Section (,2) Description: Brian Mason
The section shows a close-packed aggregate of chondrules (up to 1.8 mm across) and chondrule fragments in a black matrix containing some troilite and nickel-iron. The section is partly rimmed with fusion crust. Weathering is extensive, with limonitic staining and patches of brown limonite throughout the section. Microprobe analyses show olivine and pyroxene of variable composition: olivine Fa_{6-29}, mean Fa_{16}; pyroxene, Fs_{3-15}. The meteorite is classified as an L3 chondrite (estimated L3.4).

Sample No.: **QUE94484**
Location: Queen Alexandra Range
Dimensions (cm): 2.5 x 2.0 x 0.8
Weight (g): 5.6
Meteorite Type: Eucrite (unbrecciated)

Macroscopic Description: Kathleen McBride
QUE94484 is a complete button-shaped stone. The fusion crust is dull brownish-black. The interior consists of dark gray crystalline material, some appearing as laths. Patches of heavy rust are present.

Thin Section (,2) Description: Brian Mason
The section shows an aggregate of plagioclase laths (up to 1.3 mm long) and anhedral pale brown pyroxene grains; interstitial to the plagioclase and pyroxene are angular areas of fine-grained black material. The section is partly rimmed with fusion crust. Microprobe analyses show that most of the pyroxene is low-Ca: Wo_{5-10}, Fs_{28-49}, but a few Ca-rich grains are present, up to $Wo_{43}Fs_{25}$. Plagioclase

compositions are An_{82-87}. The fine-grained black areas consist largely of troilite and tridymite, suggestive of a quenched residual liquid. The composition of the fusion crust, probably similar to that of the bulk meteorite, is (weight percent): SiO_2 50, Al_2O_3 13, FeO 17, MgO 6.5, CaO 11, TiO_2 1.0, MnO 0.55, Na_2O 0.80, K_2O less than 0.1. The meteorite is an unbrecciated eucrite.

Sample No.: **QUE94535**
Location: Queen Alexandra Range
Dimensions (cm): 2.4 x 2.3 x 0.8
Weight (g): 11.3
Meteorite Type: Anomalous chondrite

Macroscopic Description: Roberta Score
There is nothing pretty about this extensively weathered stone. Ten percent of the thin brown fusion crust remains. The interior is red-brown.

Thin Section (,2) Description: Brian Mason
The section shows a finely granular aggregate of olivine and pyroxene (average grain size about 0.02 mm) with a few coarser areas (possibly vestigial chondrules); about 20% of nickel-iron and troilite are present, much of the metal as thin veinlets throughout the section. The metal is extensively weathered to brown limonite. The olivine and pyroxene are iron-poor: olivine, Fa_{1-3}; pyroxene, Fs_{1-2}. The nickel-iron contains 0.1-0.2% Si. The meteorite is classified as an anomalous chondrite; it resembles Pontlyfni (Mineral Mag., v. 41, p. 201, 1977).

Sample No.: **QUE94537**
Location: Queen Alexandra Range
Dimensions (cm): 1.8 x 1.5 x 1.1
Weight (g): 7.4
Meteorite Type: L3.6 chondrite

Macroscopic Description: Cecilia Satterwhite
Sixty percent of the dull black fusion crust remains on this weathered gem. No inclusions are visible in the lovely red-brown interior, but evaporite deposit is present.

Thin Section (,2) Description: Brian Mason
The section shows numerous chondrules (up to 1.2 mm across) and chondrule fragments in a brown to black matrix containing some troilite and nickel-iron. Weathering is extensive, with limonitic staining and patches of brown limonite throughout the section. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa_{7-27}, mean Fa_{16} ; pyroxene, Fs_{14-18}. The meteorite is classified as an L3 chondrite (estimated L3.6).

Sample No.: **QUE94546**
Location: Queen Alexandra Range
Dimensions (cm): 1.0 x 1.0 x 1.0
Weight (g): 1.8
Meteorite Type: CV3 chondrite

Macroscopic Description: Kathleen McBride
Dull, polygonally-fractured, vesicular fusion crust remains on 90% of the exterior of this stone. The interior is black and has abundant evaporite deposit scattered across the broken surface. Oxidation is heavy.

Thin Section (,2) Description: Brian Mason
The section shows chondrules (up to 2.4 mm across) and irregular granular aggregates in a brown to black semi-translucent matrix. The chondrules and aggregates consist largely of olivine; minor amounts of nickel-iron and troilite are present, often concentrated as rims to the chondrules. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa_{1-29}, mean Fa_8; pyroxene, Fs_{1-4}. The meteorite is classified as a C3 of the Vigarano subclass; it is very similar to QUE94366, and the possibility of pairing should be considered.

Sample No.: **QUE94570**
Location: Queen Alexandra Range
Dimensions (cm): 5.0 x 3.6 x 1.8
Weight (g): 57.2
Meteorite Type: C4 chondrite

Macroscopic Description: Roberta Score
Thin, extremely weathered, iridescent fusion crust remains on half of this angular specimen. Black weathered material makes up the interior. Small, silver-colored blebs of sulfides are scattered across the broken face. Evaporite deposit is present.

Thin Section (,2) Description: Brian Mason
The section shows a close-packed aggregate of chondrules, up to 2.4 mm across, in a small

amount of dark matrix. About 20% of the nickel-iron and troilite is present, much of it rimming the chondrules. Weathering is extensive, with veins of brown limonite throughout the section. Microprobe analyses show olivine and pyroxene of fairly uniform composition: olivine, Fa_{10-13}, Fs_{9-12}. This meteorite is very similar to Coolidge (Meteoritics, v. 30, p. 20, 1995), and is tentatively classified as a C4 chondrite.

Sample No.:	**QUE94575**
Location:	Queen Alexandra Range
Dimensions (cm):	4.6 x 3.0 x 2.1
Weight (g):	39.4
Meteorite Type:	H3.6 chondrite

Macroscopic Description: Roberta Score
This stone is completely weathered, devoid of fusion crust, and any other worthwhile characteristics.

Thin Section (,2) Description: Brian Mason
The section shows abundant chondrules, up to 0.9 mm across, and chondrule fragments in a black matrix which contains about 25% of nickel-iron and troilite. Weathering is extensive, with limonitic staining and areas of brown limonite throughout the section. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa_{1-22}, mean Fa_{13}; pyroxene, Fs_{12-24}. The variability of the olivine and pyroxene compositions indicate type 3, and the abundance of metal H group, so the meteorite is classified as an H3 chondrite (estimated H3.6).

Sample No.:	**QUE94582**
Location:	Queen Alexandra Range
Dimensions (cm):	2.5 x 2.0 x 1.5
Weight (g):	7.1
Meteorite Type:	C2 chondrite

Macroscopic Description: Kathleen McBride
Polygonally fractured, vesicular, black fusion crust totally covers QUE94582. The medium gray interior has a few white inclusions scattered throughout.

Thin Section (,2) Description: Brian Mason
The section shows numerous small grains of olivine and pyroxene and a few chondrules (up to 0.6 mm across) in a matrix which is partly black and opaque and partly pale green and isotropic. Trace amounts of nickel-iron and troilite are present in the matrix. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa_{2-31}; pyroxene, Fs_{1-20}. The meteorite is classified as a C2 chondrite.

Sample No.:	**QUE94603**
Location:	Queen Alexandra Range
Dimensions (cm):	1.0 x 1.5 x 0.5
Weight (g):	1.7
Meteorite Type:	CR2 chondrite

Macroscopic Description: Roberta Score
This of one of the most rusted stones I have seen!

Thin Section (,2) Description: Brian Mason
The section shows a close-packed aggregate of chondrules (up to 1.8 mm across) and chondrule fragments in a small amount of matrix; much of the matrix is black, but there are areas of pale green isotropic material. About 20% of the nickel-iron and troilite is present, dispersed through the matrix and within the chondrules. Microprobe analyses show that most of the olivine and pyroxene is almost iron-free, but with occasional iron-rich grains: olivine, Fa_{1-23}, mean Fa_4; pyroxene, Fs_{1-5}. The meteorite is tentatively classified as a C2 chondrite of the Renazzo subtype.

TABLE 4

NATURAL THERMOLUMINESCENCE (NTL) DATA FOR ANTARCTIC METEORITES

Paul Benoit and Derek Sears
Cosmochemistry Group
Dept. Chemistry and Biochemistry
University of Arkansas
Fayetteville, AR 72701

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 below that which can reasonable be ascribed to long terrestrial ages. Such meteorites have had their TL lowered by heating within the past million years or so by close solar passage, shock heating, or atmospheric entry, exacerbated, in the case of certain achondrite classes and possibly enstatite chondrites, by "anomalous fading". We suggest meteorites with NTL >100 krad are candidates for unusual orbital/thermal histories (Benoit and Sears, 1993, EPSL 120, 463-471).

Sample	Class	NTL [krad at 250 deg. C]
LON94101	C2	0.0 +- 0.1
LON94102	C2	0.0 +- 0.1
LON94100	E6	2.4 +- 0.2
QUE94200	HOW	2.3 +- 0.4
QUE93069	LUN	0.0 +- 0.1
QUE94281	LUN	0.21 +- 0.01
ALHA77009	H4	30 +- 1
ALHA77208	H4	27.9 +- 0.1
ALHA77232	H4	33.1 +- 0.2
ALHA78134	H4	64.8 +- 0.2
ALHA77182	H5	1.0 +- 0.1
ALHA77268	H5	1.2 +- 0.4
ALHA78128	H5	4.4 +- 0.2
ALHA78194	H5	42.5 +- 0.3
ALHA79025	H5	0.33 +- 0.07
LEW93802	H5	12.1 +- 0.1
QUE93013	H5	3.1 +- 0.3
ALHA76006	H6	0.4 +- 0.1
ALHA77285	H6	31.2 +- 0.1
QUE93014	H6	33.9 +- 0.9
LEW93800	L5	9.9 +- 0.1
QUE93020	L5	11.6 +- 0.1
QUE93021	L5	161 +- 1
QUE93197	L5	2.1 +- 0.5
QUE93216	L5	12.7 +- 0.1
QUE93231	L5	3.5 +- 0.5
QUE93245	L5	6.0 +- 0.1
QUE93247	L5	0.35 +-0.04
QUE93251	L5	8.2 +- 0.1
QUE93307	L5	10.2 +- 0.1
QUE93330	L5	1.2 +- 0.1
QUE93370	L5	6.5 +- 0.1
QUE93600	L5	0.71 +- 0.02
QUE93683	L5	10.6 +- 0.1
QUE93696	L5	13.7 +- 0.1
QUE93697	L5	1.8 +- 0.1
QUE93699	L5	5.2 +- 0.4
QUE93706	L5	15.3 +- 0.1
QUE93707	L5	3.9 +- 0.7
QUE93015	L6	4.8 +- 0.2
QUE93019	L6	25.9 +- 0.1
QUE93080	L6	1.3 +- 0.1
QUE93410	L6	1.5 +- 0.8

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 glow curve, classifications, and JSC and Arkansas group sample descriptions.

QUE93015 (L6) and QUE93410 (L6) may be heavily shocked.

QUE94200 (HOW) has a TL sensitivity similar to Kapoeta and Binda (GCA 55, 3831-3844).

1. Pairings (Confirmations of pairings):

L5: QUE93020 with QUE90207 group (AMN 18:1 and 15:2).
H4: ALHA77208 and ALHA77232 with ALHA77004 group (Meteoritics 29, 100-143)

2. Additional pairings suggested by TL data:

H4: ALHA78134 may be paired with ALHA77262 (Meteoritics 29, 100-143)
H5: ALHA78047 and ALH88028 with ALHA77268 (AMN 17:1; JGR 98, 1875-1888)
H5: ALH86601 with ALHA78128 (Meteoritics 29, 100-143).
H5: LEW93802 may be paired with LEW85464 (JGR 97, 4629- 4647).
H5: QUE93013 with QUE93028 group (AMN 18:2).
H6: QUE93014 with QUE90223 group (AMN 18:1).
L5: LEW93800 may be paired with LEW85385.
L5: QUE93197, QUE93231, QUE93247, QUE93330, QUE93600, QUE93697, QUE93699, and QUE93707 with QUE90205 group (AMN 15:2).
L5: QUE93020, QUE93245, QUE93251, QUE93307, QUE93370, QUE93683 and QUE93696 with QUE90207 group (AMN 15:2).
L5: QUE93216 with QUE93706, and possibly with QUE90207 group (AMN 15:2).
L6: QUE93015 is possibly paired with QUE87400.

METEORITES ON LINE

ACCESSING THE JSC SN2 CURATORIAL DATABASES

The curatorial databases may be accessed as follows:

Via INTERNET	1) Type **TELNET 139.169.126.35** or **TELNET CURATE.JSC.NASA.GOV.** 2) Type **PMPUBLIC** at the USERNAME: prompt.
Via WWW	1) Using a Web browser, such as Mosaic, open URL **http://www-curator.jsc.nasa.gov/curator/curator.htm.** 2) Activate the ***Database Access*** link.
Via modem	The modem may be between 1200 and 19200 baud; no parity; 8 data bits; and 1 stop bit. If you are calling long distance, the area code is 713. 1) Dial 483-2500 for 1200-9600 bps, V.32bis/V.42bis, or 483-9498 for 1200-19200 bps, V.32bis/V.42bis. 2) Once the connection is made, press <CR>. Type **INS** in response to the Enter Number: prompt. 3) Press <CR> twice quickly until the XYPLEX#> prompt displays. 4) Type **C CURATE.JSC.NASA.GOV** at the XYPLEX#> prompt. 5) Type **PMPUBLIC** at the USERNAME: prompt.

For problems or additional information, you may contact: Claire Dardano, Lockheed Engineering & Sciences Company, (713) 483-5329, dardano@snmail.jsc.nasa.gov.

Visit the Curator's home page by opening the URL http://www-curator.jsc.nasa.gov/curator/curator.htm

M. Lindstrom/SN2
NASA Johnson Space Center
Houston, Texas 77058