

Antarctic Meteorite NEWSLETTER

**Volume 15
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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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**SAMPLE REQUEST DEADLINE:
October 2, 1992 !!!!**

MWG MEETS October 22-24, 1992

SAMPLE REQUEST GUIDELINES

All sample requests should be made in writing to:

Secretary, MWG
SN2/Planetary Science Branch
NASA/Johnson Space Center
Houston, TX 77058 USA.

Requests that are received by the MWG Secretary before October 2, 1992 will be reviewed at the MWG meeting on Oct. 22-24, 1992 to be held in Houston, Texas. Requests that are received after the Oct. 2 deadline may possibly be delayed for review until the MWG meets again in the Spring of 1993. **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 at (713) 483-5135 or the secretary at (713) 483-5125.

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 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 four Smithsonian Contr. Earth Sci.: Nos. 23, 24, 26, and 28.

New Meteorites

This newsletter presents classifications of 800 new meteorites from the 1986-1991 ANSMET collections and reclassifications of 2 meteorites. Included are the first classifications of meteorites from the 1991 collection in the Thiel Mountains - Pecora Escarpment area as well as the last classifications of the 1986 and 1987 meteorites. Individual descriptions are given for 32 meteorites of special petrologic type. These include 3 achondrites, 2 stony irons, 2 irons, 5 carbonaceous chondrites, 4 enstatite chondrites, 2 unusual chondrites, and 14 unequilibrated ordinary chondrites. Of particular interest are our first pallasites PCA91004/5, ungrouped chondrite PAT91001 which resembles Shaw. One of the reasons for the large number of meteorites classified is the occurrence of two large L chondrite pairing groups in the 1990 collection (EET90053 L6 and QUE 90201 L5) which could be identified without thin section preparation.

New AMLAMP Maps

The Antarctic Meteorite Location and Mapping Project (AMLAMP) announces the availability of four new meteorite location maps. These are preliminary maps from the Pecora Escarpment, Thiel Mountains, Wisconsin Range and Beardmore Regions which include locations for all meteorites collected through the 1991

ANSMET expedition. Many of these meteorites have not yet been classified. Detailed information, an example of a map, and an order form are given at the end of this newsletter.

EUROMET Newsletter

Our EUROMET colleagues have been busy collecting and classifying meteorites. In addition to classifying meteorites from the 1990-1991 expedition in Antarctica, they have recently collaborated with the Australians on collections of meteorites in the Nullarbor Plain. These activities were described in four talks at the recent Meteoritical Society Meeting (see abstracts by Pillinger, Bevan, Fulco and Maurette in *Meteoritics* 27,3). These meteorites will eventually be announced in the *Meteoritical Bulletin* part of *Meteoritics*. However, in an attempt for more rapid dissemination of information, EUROMET will publish an electronic newsletter. If you wish to be on the EUROMET mailing list send your name, full address, telephone, FAX and e-mail address to: Phil Bland, EUROMET curator, Earth Sciences Department, Planetary Sciences Unit, The Open University, Walton Hall, Milton Keynes MK7 6AA, England.

From 1986-1991 Collections

Pages 5-32 contain preliminary descriptions and classifications of meteorites that were completed since publication of issue 15(1) (March 1992). All specimens of special petrologic type (carbonaceous chondrite, unequilibrated ordinary chondrite, achondrite, etc.) are represented by separate descriptions. 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:

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Antarctic Meteorite Locations

- ALH — Allan Hills
- BOW — Bowden Neve
- BTN — Bates Nunataks
- 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
- MAC — MacAlpine Hills
- MBR — Mount Baldr
- MET — Meteorite Hills
- MIL — Miller Range
- OTT — Outpost Nunatak
- QUE — Queen Alexandra Range
- PAT — Patuxent Range
- PCA — Pecora Escarpment
- PGP — Purgatory Peak
- RKP — Reckling Peak
- TIL — Thiel Mountains
- TYR — Taylor Glacier
- WIS — Wisconsin Range

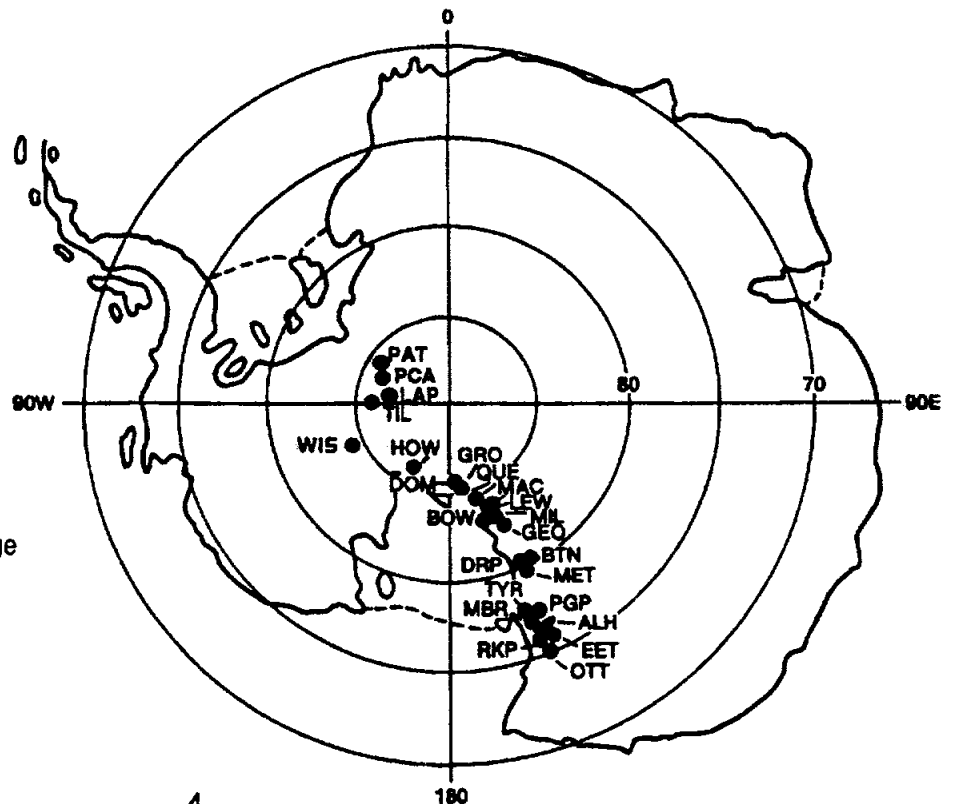


TABLE 1

List of Newly Classified Antarctic Meteorites **

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
LEW 85332**	113.7	CARBONACEOUS (UNGR)	B/C	B	1-20	1-16
LEW 86448	39.4	H-5 CHONDRITE	C	A	19	16
LEW 87094	2.6	L-6 CHONDRITE	B/C	A	23	20
LEW 87180	36.6	H-4 CHONDRITE	B/C	A	19	16-20
LEW 87184	47.2	H-5 CHONDRITE	B/C	B	19	17
LEW 87185	5.4	H-5 CHONDRITE	B/C	A	19	17
LEW 87186	27.4	H-5 CHONDRITE	C	A	18	16
LEW 87188	11.0	H-5 CHONDRITE	Ce	A	19	16
LEW 87190	24.1	H-5 CHONDRITE	B/C	A	19	17
LEW 87191	6.7	H-5 CHONDRITE	B/C	A	18	16
LEW 87195	22.1	H-5 CHONDRITE	B	B	18	16
LEW 87197	10.4	H-5 CHONDRITE	B/C	A	19	17
LEW 87198	47.2	H-5 CHONDRITE	B/C	B	18	16
LEW 87200	17.1	H-4 CHONDRITE	B/C	A	17	13-18
LEW 87201	19.5	H-5 CHONDRITE	B/C	A	17	15
LEW 87202	20.8	H-5 CHONDRITE	B/Ce	B	18	16
LEW 87204	47.7	H-5 CHONDRITE	B/C	A	19	16
LEW 87206	6.3	H-5 CHONDRITE	C	B	19	17
LEW 87210	119.5	H-5 CHONDRITE	B	B	17	15
LEW 87215	26.3	H-5 CHONDRITE	C	A	17	15
LEW 87216	7.3	H-5 CHONDRITE	B/C	B	18	16
LEW 87217	25.6	H-5 CHONDRITE	B/Ce	A	19	17
LEW 87219	21.5	H-5 CHONDRITE	B/C	A	17	15
LEW 87220	6.7	E-3 CHONDRITE	C	B	-	0.2-12
LEW 87225	9.1	H-5 CHONDRITE	B/C	A	18	16
LEW 87228	2.4	H-6 CHONDRITE	B	A	18	16
LEW 87232	23.1	CARBONACEOUS C2R	B	A	0.6-2	0.5-9
LEW 87233	36.6	H-5 CHONDRITE	C	B	18	16
LEW 87234	34.2	E-3 CHONDRITE	Ce	C	2	0.2-9
LEW 87236	23.5	H-5 CHONDRITE	Ce	B	18	16
LEW 87259	9.6	H-5 CHONDRITE	C	A/B	18	16
LEW 87281	24.9	L-4 CHONDRITE	B	A	23	19
LEW 87293	0.8	H-6 CHONDRITE	A/B	A	18	16
LEW 88145	3.4	H-5 CHONDRITE	B/C	A	18	16
LEW 88148	4.4	H-5 CHONDRITE	B/C	A	19	17
LEW 88149	1.5	H-5 CHONDRITE	B/C	A	19	17
LEW 88151	5.9	H-5 CHONDRITE	B/C	A	18	16
LEW 88153	1.0	H-5 CHONDRITE	B/C	A	19	17
LEW 88154	1.5	H-6 CHONDRITE	B/Ce	A	19	17
LEW 88230	8.8	H-4 CHONDRITE	B/C	A	19	8-15
LEW 88236	9.1	H-5 CHONDRITE	B/C	A	19	17
LEW 88237	5.2	H-6 CHONDRITE	B/C	A	19	17
LEW 88239	5.3	H-6 CHONDRITE	B/C	A	18	16
LEW 88242	5.1	H-6 CHONDRITE	B/Ce	A	18	16
LEW 88249	4.2	H-5 CHONDRITE	B/C	A	19	17
LEW 88257	9.4	L-5 CHONDRITE	B/C	A	25	21

-Classified by using refractive indices.

**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
LEW 88265	3.8	H-5 CHONDRITE	B/Ce	A	19	17
LEW 88269	7.6	L-5 CHONDRITE	B/C	A	23	20
LEW 88274	6.0	H-5 CHONDRITE	B/C	A/B	19	16
LEW 88276	8.9	H-5 CHONDRITE	B/C	A	19	17
LEW 88278	3.1	L-6 CHONDRITE	B/C	A	24	20
LEW 88286	3.9	L-3 CHONDRITE	B/C	A	3-34	2-24
LEW 88292	4.5	H-6 CHONDRITE	B	A	19	17
LEW 88295	1.3	H-6 CHONDRITE	B/C	A	18	16
LEW 88296	3.8	H-6 CHONDRITE	B/C	A	18	16
LEW 88354	8.7	H-6 CHONDRITE	C	A	18	16
LEW 88365	4.4	H-5 CHONDRITE	C	A	18	16
LEW 88370	4.0	L-5 CHONDRITE	C	A	24	20
LEW 88381	1.7	H-5 CHONDRITE	C	A	18	16
LEW 88385	3.1	H-6 CHONDRITE	C	A	17	15
LEW 88388	3.8	L-6 CHONDRITE	C	A	24	21
LEW 88390	8.2	H-4 CHONDRITE	C	A	19	16-19
LEW 88392	8.1	H-5 CHONDRITE	C	A	18	16
LEW 88394	3.0	H-5 CHONDRITE	C	A	19	17
LEW 88398	7.5	H-5 CHONDRITE	C	A	18	16
LEW 88399	7.0	H-6 CHONDRITE	C	A	17	15
LEW 88401	3.9	H-5 CHONDRITE	C	A	19	17
LEW 88403	3.6	H-6 CHONDRITE	Ce	A	19	16
LEW 88404	1.3	H-5 CHONDRITE	C	A	19	17
LEW 88405	3.8	H-5 CHONDRITE	C	A	18	16
LEW 88406	4.4	H-5 CHONDRITE	C	A	19	17
LEW 88408	3.2	H-5 CHONDRITE	C	A	18	16
LEW 88410	6.2	H-5 CHONDRITE	Ce	A	17	15
LEW 88414	7.3	H-5 CHONDRITE	C	A	17	15
LEW 88417	6.8	H-5 CHONDRITE	C	A	18	16
LEW 88423	3.6	H-6 CHONDRITE	B/C	A	18	16
LEW 88428	6.5	H-5 CHONDRITE	C	A	17	15
LEW 88429	13.9	H-5 CHONDRITE	B/C	A	18	16
LEW 88430	12.7	H-5 CHONDRITE	C	A	19	17
LEW 88431	4.8	H-5 CHONDRITE	C	A	19	17
LEW 88437	4.2	H-5 CHONDRITE	C	A	19	16
LEW 88439	6.7	H-5 CHONDRITE	C	A	17	15
LEW 88442	6.5	H-5 CHONDRITE	C	A	19	16
LEW 88445	9.9	H-5 CHONDRITE	C	A	19	17
LEW 88448	6.5	H-5 CHONDRITE	C	A	19	17
LEW 88449	1.7	H-5 CHONDRITE	C	A	18	16
LEW 88460	7.7	H-5 CHONDRITE	C	A	18	16
LEW 88464	8.4	H-6 CHONDRITE	C	A	18	16
LEW 88466	5.4	H-5 CHONDRITE	C	A	18	16
LEW 88470	3.2	H-5 CHONDRITE	C	A	17	15
LEW 88475	9.7	H-5 CHONDRITE	C	A	19	16
LEW 88476	8.9	H-5 CHONDRITE	C	A	17	15
LEW 88479	4.2	H-5 CHONDRITE	C	A	18	16
LEW 88480	4.6	H-5 CHONDRITE	C	A/B	18	16
LEW 88482	4.9	H-6 CHONDRITE	C	A	19	16
LEW 88483	3.8	L-4 CHONDRITE	C	A	24	9-23
LEW 88485	7.2	H-5 CHONDRITE	C	A	18	16
LEW 88488	5.0	H-5 CHONDRITE	C	A	19	17
LEW 88489	4.5	H-6 CHONDRITE	C	A	18	16
LEW 88501	3.3	H-5 CHONDRITE	C	A	18	16
LEW 88502	3.2	L-6 CHONDRITE	C	A	25	21
LEW 88503	7.4	H-3 CHONDRITE	Ce	A	12-24	6-16
LEW 88510	5.4	H-5 CHONDRITE	C	A	18	16

-Classified by using refractive indices.

**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
LEW 88511	3.2	L-4 CHONDRITE	C	A	23	12-19
LEW 88513	9.2	H-5 CHONDRITE	C	A	18	16
LEW 88514	6.7	H-5 CHONDRITE	Ce	A	19	16
LEW 88517	7.5	H-6 CHONDRITE	C	A	18	16
LEW 88518	3.1	H-6 CHONDRITE	C	A	18	16
LEW 88519	3.6	H-3 CHONDRITE	C	A	1-22	3-18
LEW 88524	8.7	H-5 CHONDRITE	C	A	19	17
LEW 88527	8.0	L-6 CHONDRITE	C	A	25	21
LEW 88528	6.9	H-6 CHONDRITE	C	A	19	17
LEW 88530	6.9	L-6 CHONDRITE	C	A	24	20
LEW 88539	5.9	H-5 CHONDRITE	C	A	19	17
LEW 88541	7.4	H-6 CHONDRITE	C	A	18	16
LEW 88546	1.6	H-6 CHONDRITE	B/C	A	19	17
LEW 88549	4.9	H-5 CHONDRITE	Ce	A	18	16
LEW 88552	2.9	H-5 CHONDRITE	C	A	17	15
LEW 88553	2.5	H-5 CHONDRITE	C	A	18	16
LEW 88554	7.6	H-5 CHONDRITE	B/C	A	19	16
LEW 88555	6.7	H-5 CHONDRITE	C	A	19	17
LEW 88556	3.9	H-6 CHONDRITE	C	C	19	17
LEW 88557	8.7	L-6 CHONDRITE	B/C	A	25	21
LEW 88558	1.4	L-6 CHONDRITE	B/C	A	25	21
LEW 88560	0.9	H-5 CHONDRITE	C	A	18	16
LEW 88562	3.1	H-5 CHONDRITE	C	A	18	16
LEW 88567	9.7	H-5 CHONDRITE	C	A	18	16
LEW 88568	3.4	LL-6 CHONDRITE	C	A	29	24
LEW 88573	6.1	H-5 CHONDRITE	C	A	17	15
LEW 88576	6.5	H-5 CHONDRITE	C	A	18	16
LEW 88578	5.8	H-5 CHONDRITE	B/C	A	19	17
LEW 88579	6.0	H-5 CHONDRITE	C	A	19	17
LEW 88580	3.2	H-6 CHONDRITE	C	A	18	16
LEW 88581	9.2	H-5 CHONDRITE	C	A	18	16
LEW 88582	1.4	H-6 CHONDRITE	C	A	19	17
LEW 88583	6.0	H-6 CHONDRITE	Ce	A	18	16
LEW 88584	4.5	H-5 CHONDRITE	C	A	18	16
LEW 88585	4.3	H-6 CHONDRITE	Ce	C	18	16
LEW 88587	4.1	H-5 CHONDRITE	C	A	19	17
LEW 88591	2.7	L-6 CHONDRITE	Ce	A	25	21
LEW 88594	5.4	L-3 CHONDRITE	C	A	6-28	10-21
LEW 88595	5.0	H-5 CHONDRITE	C	A/B	19	17
LEW 88599	8.5	H-6 CHONDRITE	C	A	17	15
LEW 88600	3.8	H-5 CHONDRITE	C	A	17	15
LEW 88602	4.2	H-5 CHONDRITE	B/C	A	19	16
LEW 88609	7.0	H-5 CHONDRITE	C	A	19	17
LEW 88610	1.5	H-5 CHONDRITE	C	A	19	17
LEW 88611	2.6	H-5 CHONDRITE	C	A	18	16
LEW 88612	4.3	H-6 CHONDRITE	C	A	19	17
LEW 88613	8.3	H-5 CHONDRITE	C	A	18	16
LEW 88617	3.2	L-3 CHONDRITE	B/C	A	2-44	1-14
LEW 88619	5.1	H-5 CHONDRITE	C	A	17	15
LEW 88620	8.6	H-5 CHONDRITE	C	A	17	15
LEW 88622	2.7	H-5 CHONDRITE	C	A	17	15
LEW 88627	4.9	H-5 CHONDRITE	C	A	18	16
LEW 88628	6.8	H-5 CHONDRITE	C	A	18	16
LEW 88633	4.0	H-6 CHONDRITE	C	A	18	16
LEW 88636	1.1	H-5 CHONDRITE	C	A	18	16
LEW 88637	6.8	H-5 CHONDRITE	C	A	17	15
LEW 88641	8.6	H-5 CHONDRITE	Ce	C	19	17

-Classified by using refractive indices.

**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 90011	305.1	H-6 CHONDRITE	Be	A/B	19	17
EET 90051	715.4	H-6 CHONDRITE	B	A	17	15
EET 90053~	427.9	L-6 CHONDRITE	A/B	A		
EET 90054~	311.5	L-6 CHONDRITE	Be	A		
EET 90055~	38.9	L-6 CHONDRITE	A/B	A		
EET 90056~	89.2	L-6 CHONDRITE	A/B	A		
EET 90057~	22.1	L-6 CHONDRITE	A/B	A		
EET 90058~	16.9	L-6 CHONDRITE	A/B	A		
EET 90059~	83.9	L-6 CHONDRITE	A/B	A		
EET 90060~	5.3	L-6 CHONDRITE	B	A		
EET 90061~	10.1	L-6 CHONDRITE	A/B	A		
EET 90062~	43.4	L-6 CHONDRITE	A/B	A		
EET 90063~	44.3	L-6 CHONDRITE	A/B	A		
EET 90064~	35.5	L-6 CHONDRITE	B	A		
EET 90065~	17.2	L-6 CHONDRITE	A/B	A		
EET 90066	9.8	L-3 CHONDRITE	B	A	1-28	3-18
EET 90067~	37.3	L-6 CHONDRITE	A/B	A		
EET 90068~	5.5	L-6 CHONDRITE	B	A		
EET 90069	21.1	H-5 CHONDRITE	A/B	A	18	16
EET 90070~	106.5	L-6 CHONDRITE	A/B	A		
EET 90071~	103.4	L-6 CHONDRITE	B	A		
EET 90073~	60.7	L-6 CHONDRITE	B	A/B		
EET 90074~	26.6	L-6 CHONDRITE	B	A		
EET 90075~	18.3	L-6 CHONDRITE	B	A		
EET 90076~	150.5	L-6 CHONDRITE	B	A		
EET 90077~	65.3	L-6 CHONDRITE	B	A		
EET 90078~	22.9	L-6 CHONDRITE	B	A		
EET 90079~	40.8	L-6 CHONDRITE	A/B	A		
EET 90080	4.1	L-3 CHONDRITE	B	A	1-22	1-27
EET 90081~	39.1	L-6 CHONDRITE	A/B	A		
EET 90082~	28.6	L-6 CHONDRITE	A/B	A		
EET 90083	3.6	L-3 CHONDRITE	B	A	2-30	3-21
EET 90084~	25.4	L-6 CHONDRITE	A/B	A		
EET 90085~	2.4	L-6 CHONDRITE	B	A		
EET 90086~	30.5	L-6 CHONDRITE	A/B	A		
EET 90087~	22.7	L-6 CHONDRITE	A/B	A		
EET 90088~	17.2	L-6 CHONDRITE	A/B	A		
EET 90089~	32.7	L-6 CHONDRITE	A/B	A		
EET 90090~	16.7	L-6 CHONDRITE	A/B	A		
EET 90091~	3.9	L-6 CHONDRITE	A/B	A		
EET 90092~	9.0	L-6 CHONDRITE	B	A		
EET 90093~	5.8	L-6 CHONDRITE	A/B	A		
EET 90094~	8.9	L-6 CHONDRITE	A/B	A		
EET 90095~	6.5	L-6 CHONDRITE	A/B	A		
EET 90096~	11.9	L-6 CHONDRITE	A/B	A		
EET 90097	18.6	H-6 CHONDRITE	B	A	17	15
EET 90098	4.7	L-3 CHONDRITE	B	A	5-27	4-19
EET 90099	11.7	L-6 CHONDRITE	B	A	23	20
EET 90100	12.8	L-5 CHONDRITE	A/B	A	24	20
EET 90101~	12.8	L-6 CHONDRITE	B	A		
EET 90102	17.0	E-6 CHONDRITE	B/Ce	A	-	0.3
EET 90103~	6.2	L-6 CHONDRITE	B	A		
EET 90104	1.3	H-5 CHONDRITE	B/C	A	18	16
EET 90105~	8.5	L-6 CHONDRITE	B	A		
EET 90106	3.0	H-5 CHONDRITE	B/C	A	18	16
EET 90107~	1.0	L-6 CHONDRITE	B	A		

-Classified by using refractive indices.

**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 90108~	15.4	L-6 CHONDRITE	B	A		
EET 90109~	33.5	L-6 CHONDRITE	B	A		
EET 90110~	74.0	L-6 CHONDRITE	A/B	A		
EET 90111~	74.4	L-6 CHONDRITE	B/C	C		
EET 90112~	20.0	L-6 CHONDRITE	B/C	A/B		
EET 90113~	78.2	L-6 CHONDRITE	B	A/B		
EET 90114~	65.4	L-6 CHONDRITE	B	A/B		
EET 90115~	238.4	L-6 CHONDRITE	B/C	B		
EET 90116~	66.4	L-6 CHONDRITE	B	B		
EET 90117~	26.1	L-6 CHONDRITE	B	A/B		
EET 90118~	64.6	L-6 CHONDRITE	B	A/B		
EET 90119~	47.1	L-6 CHONDRITE	B	A		
EET 90120~	35.3	L-6 CHONDRITE	A/B	A		
EET 90121~	232.2	L-6 CHONDRITE	B	A		
EET 90122~	13.0	L-6 CHONDRITE	A/B	A		
EET 90123~	39.2	L-6 CHONDRITE	A/B	A		
EET 90124~	33.2	L-6 CHONDRITE	A/B	A		
EET 90125~	90.2	L-6 CHONDRITE	A/B	A		
EET 90126~	5.5	L-6 CHONDRITE	A/B	A		
EET 90127~	14.6	L-6 CHONDRITE	A/B	A		
EET 90128~	50.1	L-6 CHONDRITE	A/B	A		
EET 90129~	50.0	L-6 CHONDRITE	A/B	A/B		
EET 90130~	21.8	L-6 CHONDRITE	B	A/B		
EET 90131~	26.9	L-6 CHONDRITE	A/B	A		
EET 90132~	20.6	L-6 CHONDRITE	B	A/B		
EET 90133~	52.4	L-6 CHONDRITE	B	A/B		
EET 90134~	21.9	L-6 CHONDRITE	B	A		
EET 90135~	15.5	L-6 CHONDRITE	B	A		
EET 90136~	37.9	L-6 CHONDRITE	B	A		
EET 90137~	29.1	L-6 CHONDRITE	B	A/B		
EET 90138~	74.8	L-6 CHONDRITE	B	B/C		
EET 90139~	13.9	L-6 CHONDRITE	B	A		
EET 90140~	2.1	L-6 CHONDRITE	B	A		
EET 90141~	12.3	L-6 CHONDRITE	B	A		
EET 90142~	9.7	L-6 CHONDRITE	B	A		
EET 90143~	69.2	L-6 CHONDRITE	A/B	A		
EET 90144~	74.3	L-6 CHONDRITE	A/B	A		
EET 90145~	26.8	L-6 CHONDRITE	A/B	A		
EET 90146~	104.1	L-6 CHONDRITE	A/B	A		
EET 90147~	61.4	L-6 CHONDRITE	A/B	A		
EET 90148~	66.9	L-6 CHONDRITE	A/B	A		
EET 90149~	175.4	L-6 CHONDRITE	A/B	A/B		
EET 90150~	36.2	L-6 CHONDRITE	B	A		
EET 90151	17.9	H-6 CHONDRITE	B/C	A	17	15
EET 90152~	76.6	L-6 CHONDRITE	A/B	A		
EET 90153~	15.6	L-6 CHONDRITE	B	A		
EET 90154~	18.1	L-6 CHONDRITE	B/C	A		
EET 90155~	26.2	L-6 CHONDRITE	A/B	A		
EET 90156~	51.0	L-6 CHONDRITE	B/C	A		
EET 90157~	101.4	L-6 CHONDRITE	A/B	A		
EET 90158~	79.0	L-6 CHONDRITE	B/C	A		
EET 90159~	47.1	L-6 CHONDRITE	B/C	A		
EET 90160~	21.3	L-6 CHONDRITE	A/B	A		
EET 90161	9.7	L-3 CHONDRITE	B	A	1-18	1-10
EET 90162~	8.3	L-6 CHONDRITE	A/B	A		
EET 90163~	9.0	L-6 CHONDRITE	A/B	A		
EET 90164~	19.4	L-6 CHONDRITE	A/B	A		

~Classified by using refractive indices.

**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 90165	103.6	H-5 CHONDRITE	B	A	18	16
EET 90166	104.2	H-6 CHONDRITE	B	A	18	16
EET 90167~	130.0	L-6 CHONDRITE	A/B	A		
EET 90168~	19.6	L-6 CHONDRITE	A/B	A		
EET 90169~	73.4	L-6 CHONDRITE	A/B	A/B		
EET 90170~	16.3	L-6 CHONDRITE	B/C	A		
EET 90171~	42.4	L-6 CHONDRITE	B	A		
EET 90172~	15.3	L-6 CHONDRITE	C	A		
EET 90173~	24.5	L-6 CHONDRITE	Be	A		
EET 90174~	20.0	L-6 CHONDRITE	B	A		
EET 90175~	82.8	L-6 CHONDRITE	Be	A		
EET 90176~	33.6	L-6 CHONDRITE	B	A		
EET 90177~	91.2	L-6 CHONDRITE	Be	A		
EET 90178	280.4	H-5 CHONDRITE	C	A	18	16
EET 90179	21.6	H-5 CHONDRITE	C	A	18	16
EET 90180~	14.9	L-6 CHONDRITE	A/B	A		
EET 90181~	15.4	L-6 CHONDRITE	A/B	A		
EET 90182~	70.3	L-6 CHONDRITE	A/B	A		
EET 90183~	21.3	L-6 CHONDRITE	B	A		
EET 90184~	25.0	L-6 CHONDRITE	A/B	A		
EET 90185~	21.9	L-6 CHONDRITE	A/B	A		
EET 90186~	19.5	L-6 CHONDRITE	A/B	A		
EET 90187~	45.9	L-6 CHONDRITE	A/B	A/B		
EET 90188~	49.6	L-6 CHONDRITE	A/B	A		
EET 90189~	7.8	L-6 CHONDRITE	B	A		
EET 90190~	5.4	L-6 CHONDRITE	A/B	A		
EET 90191~	11.0	L-6 CHONDRITE	B	A		
EET 90192~	24.7	L-6 CHONDRITE	C	A		
EET 90193~	26.7	L-6 CHONDRITE	B	A		
EET 90194~	7.2	L-6 CHONDRITE	B	A		
EET 90195~	7.7	L-6 CHONDRITE	C	A		
EET 90196~	62.3	L-6 CHONDRITE	A/B	A		
EET 90197~	24.4	L-6 CHONDRITE	A/B	A		
EET 90198~	24.3	L-6 CHONDRITE	B/C	A		
EET 90199~	27.9	L-6 CHONDRITE	B	A		
EET 90200~	6.7	L-6 CHONDRITE	B	A		
EET 90201~	10.8	L-6 CHONDRITE	B	A		
EET 90202~	23.8	L-6 CHONDRITE	A/B	A		
EET 90203~	51.5	L-6 CHONDRITE	B	A		
EET 90204~	143.4	L-6 CHONDRITE	A/B	A		
EET 90205~	46.0	L-6 CHONDRITE	B/C	A		
EET 90206~	25.6	L-6 CHONDRITE	B	A		
EET 90207~	114.0	L-6 CHONDRITE	A/B	A		
EET 90208~	31.4	L-6 CHONDRITE	B/C	A		
EET 90209~	36.4	L-6 CHONDRITE	B	A		
EET 90210~	20.5	L-6 CHONDRITE	A/B	A		
EET 90211~	23.1	L-6 CHONDRITE	B	A		
EET 90212	11.5	H-5 CHONDRITE	B	A	17	15
EET 90213~	60.5	L-6 CHONDRITE	A/B	A		
EET 90214~	38.5	L-6 CHONDRITE	B	A		
EET 90215	25.0	H-5 CHONDRITE	B	A	18	16
EET 90216~	28.9	L-6 CHONDRITE	A/B	A		
EET 90217~	23.2	L-6 CHONDRITE	A/B	A		
EET 90218~	15.6	L-6 CHONDRITE	A/B	A		
EET 90219~	8.6	L-6 CHONDRITE	A/B	A		
EET 90220~	16.8	L-6 CHONDRITE	A/B	A		
EET 90221~	67.3	L-6 CHONDRITE	A/B	A		

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**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 90222~	28.6	L-6 CHONDRITE	A/B	A		
EET 90223~	21.0	L-6 CHONDRITE	A/B	A		
EET 90224~	8.7	L-6 CHONDRITE	A/B	A		
EET 90225~	2.2	L-6 CHONDRITE	B	A		
EET 90226~	22.4	L-6 CHONDRITE	A/B	A		
EET 90227~	5.8	L-6 CHONDRITE	A/B	A		
EET 90228~	6.0	L-6 CHONDRITE	A/B	A		
EET 90229	245.5	H-5 CHONDRITE	B	A	17	15
EET 90230~	105.3	L-6 CHONDRITE	A/B	A		
EET 90231~	33.9	L-6 CHONDRITE	C	A		
EET 90232~	16.9	L-6 CHONDRITE	B/C	A		
EET 90233~	6.6	L-6 CHONDRITE	A/B	A		
EET 90234	8.5	CARBONACEOUS C4	Ae	B	28	-
EET 90235~	36.2	L-6 CHONDRITE	B/C	A		
EET 90236~	1.6	L-6 CHONDRITE	B	A		
EET 90237	157.2	H-5 CHONDRITE	B/C	A	18	16
EET 90238	150.1	H-6 CHONDRITE	B/C	A	19	16
EET 90239~	78.8	L-6 CHONDRITE	B	A		
EET 90240~	11.0	L-6 CHONDRITE	Be	A		
EET 90241~	9.1	L-6 CHONDRITE	B	A/B		
EET 90242~	15.3	L-6 CHONDRITE	B	A		
EET 90243~	21.7	L-6 CHONDRITE	A/B	A		
EET 90244~	44.8	L-6 CHONDRITE	A/B	A		
EET 90245~	19.0	L-6 CHONDRITE	B	A		
EET 90246	362.9	H-6 CHONDRITE	B/C	A	19	17
EET 90247	37.1	CARBONACEOUS C4	A	B	29	-
EET 90248	0.4	CARBONACEOUS C30	A	A	1-26	1-9
EET 90249~	8.3	L-6 CHONDRITE	B	A		
EET 90250~	13.5	L-6 CHONDRITE	B	A		
EET 90251~	45.4	L-6 CHONDRITE	B	A		
EET 90252~	12.2	L-6 CHONDRITE	B/C	A		
EET 90253	6.5	H-5 CHONDRITE	C	A	17	15
EET 90254~	12.8	L-6 CHONDRITE	B	A		
EET 90255	8.3	L-5 CHONDRITE	B/C	A	23	20
EET 90256~	3.2	L-6 CHONDRITE	B	A		
EET 90257~	11.0	L-6 CHONDRITE	A/B	A		
EET 90258	10.5	H-6 CHONDRITE	B	A	18	16
EET 90259~	22.9	L-6 CHONDRITE	B	A		
EET 90260~	7.3	L-6 CHONDRITE	B	A		
EET 90261	6.6	L-3 CHONDRITE	Be	A	1-23	1-18
EET 90262~	9.2	L-6 CHONDRITE	B	A		
EET 90263~	4.8	L-6 CHONDRITE	B	A		
EET 90264	2.8	H-6 CHONDRITE	B/C	A	18	16
EET 90265~	3.0	L-6 CHONDRITE	B	A		
EET 90266~	101.7	L-6 CHONDRITE	B	A		
EET 90267~	88.5	L-6 CHONDRITE	B	A		
EET 90268~	7.2	L-6 CHONDRITE	B	A		
EET 90269~	9.2	L-6 CHONDRITE	B/C	A		
EET 90270~	32.9	L-6 CHONDRITE	B	A		
EET 90271~	17.8	L-6 CHONDRITE	B	A		
EET 90272~	28.1	L-6 CHONDRITE	B	A		
EET 90273	8.6	H-5 CHONDRITE	B/Ce	A	18	16
EET 90274~	55.5	L-6 CHONDRITE	B/C	A		
EET 90275~	19.5	L-6 CHONDRITE	B/C	A		
EET 90276~	15.3	L-6 CHONDRITE	B	A		
EET 90277~	13.5	L-6 CHONDRITE	B	A		
EET 90278~	5.6	L-6 CHONDRITE	C	A		

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**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 90279~	17.4	L-6 CHONDRITE	B	A		
EET 90280~	11.1	L-6 CHONDRITE	B	A		
EET 90281~	52.6	L-6 CHONDRITE	B	A		
EET 90282~	15.3	L-6 CHONDRITE	B	A		
EET 90283~	81.5	L-6 CHONDRITE	B	A		
EET 90284~	51.6	L-6 CHONDRITE	B	A		
EET 90285~	77.4	L-6 CHONDRITE	B	A		
EET 90286~	23.8	L-6 CHONDRITE	B	A		
EET 90287~	13.8	L-6 CHONDRITE	B	A		
EET 90288~	5.7	L-6 CHONDRITE	B	A		
EET 90289~	33.1	L-6 CHONDRITE	B	A		
EET 90290~	47.5	L-6 CHONDRITE	B	A		
EET 90291~	11.1	L-6 CHONDRITE	B	A/B		
EET 90292~	20.4	L-6 CHONDRITE	C	A		
EET 90293~	13.4	L-6 CHONDRITE	B	A		
EET 90294~	14.5	L-6 CHONDRITE	B/C	A/B		
EET 90295~	12.4	L-6 CHONDRITE	A/B	A		
EET 90296~	11.0	L-6 CHONDRITE	B	A		
EET 90297~	15.4	L-6 CHONDRITE	C	A		
EET 90298~	7.5	L-6 CHONDRITE	C	A		
EET 90299	8.1	E-3 CHONDRITE	C	C	-	0.2-8
EET 90300~	45.1	L-6 CHONDRITE	B	A		
EET 90301~	23.5	L-6 CHONDRITE	B	A		
EET 90302~	34.9	L-6 CHONDRITE	B	A		
EET 90303	8.0	H-6 CHONDRITE	C	A	18	16
EET 90304	16.4	H-5 CHONDRITE	C	A	19	17
EET 90305~	15.0	L-6 CHONDRITE	B	A		
EET 90306~	11.2	L-6 CHONDRITE	B	A		
EET 90307~	25.6	L-6 CHONDRITE	B	A		
EET 90308~	48.4	L-6 CHONDRITE	B/C	A		
EET 90309~	36.5	L-6 CHONDRITE	A/B	A		
EET 90310~	21.1	L-6 CHONDRITE	B	A		
EET 90311~	55.4	L-6 CHONDRITE	B	A		
EET 90312~	5.4	L-6 CHONDRITE	B	A		
EET 90313	27.5	H-5 CHONDRITE	B/C	A	17	15
EET 90314~	18.4	L-6 CHONDRITE	B	A		
EET 90315~	21.3	L-6 CHONDRITE	B/C	A		
EET 90316~	76.9	L-6 CHONDRITE	B/C	A		
EET 90317~	22.7	L-6 CHONDRITE	B	A		
EET 90318~	10.9	L-6 CHONDRITE	B/C	A		
EET 90319~	13.7	L-6 CHONDRITE	B	A		
EET 90320~	6.3	L-6 CHONDRITE	B/C	A		
EET 90321~	50.1	L-6 CHONDRITE	B	A		
EET 90322~	6.5	L-6 CHONDRITE	B	A		
EET 90323~	16.8	L-6 CHONDRITE	B	A		
EET 90324~	9.4	L-6 CHONDRITE	B/C	A		
EET 90325~	10.0	L-6 CHONDRITE	C	A		
EET 90326~	28.3	L-6 CHONDRITE	B	A		
EET 90327~	11.8	L-6 CHONDRITE	B	A		
EET 90328	35.1	H-5 CHONDRITE	C	A	17	15
EET 90329~	22.5	L-6 CHONDRITE	B	A		
EET 90330	6.5	H-6 CHONDRITE	C	A	18	16
EET 90331~	6.2	L-6 CHONDRITE	C	A		
EET 90332~	16.1	L-6 CHONDRITE	B	A		
EET 90333~	6.5	L-6 CHONDRITE	C	A		
EET 90334~	45.2	L-6 CHONDRITE	B/C	A		
EET 90335~	4.7	L-6 CHONDRITE	B	A		

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**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 90336~	14.1	L-6 CHONDRITE	B	A		
EET 90337~	2.0	L-6 CHONDRITE	B	A		
EET 90338~	2.1	L-6 CHONDRITE	C	A		
EET 90339~	2.9	L-6 CHONDRITE	B	A		
EET 90340~	24.6	L-6 CHONDRITE	B	A		
EET 90341~	9.5	L-6 CHONDRITE	B	A		
EET 90342~	3.3	L-6 CHONDRITE	C	A		
EET 90343~	9.0	L-6 CHONDRITE	B/C	A		
EET 90344~	2.7	L-6 CHONDRITE	B/C	A		
EET 90345	1.9	L-5 CHONDRITE	C	A/B	25	21
EET 90346~	5.5	L-6 CHONDRITE	B/C	A		
EET 90347~	0.6	L-6 CHONDRITE	A/B	A		
EET 90348~	0.6	L-6 CHONDRITE	C	A		
EET 90349~	7.3	L-6 CHONDRITE	C	A		
EET 90350~	174.0	L-6 CHONDRITE	B/C	A		
EET 90351~	105.8	L-6 CHONDRITE	A/Be	A		
EET 90352~	63.0	L-6 CHONDRITE	A/B	A		
EET 90353~	77.8	L-6 CHONDRITE	A/B	A		
EET 90354~	194.6	L-6 CHONDRITE	B/C	A		
EET 90355~	83.0	L-6 CHONDRITE	A/B	A		
EET 90356~	99.9	L-6 CHONDRITE	A/B	A		
EET 90357~	45.6	L-6 CHONDRITE	B/C	A		
EET 90358~	44.4	L-6 CHONDRITE	C	A		
EET 90359~	65.5	L-6 CHONDRITE	B	A		
EET 90360~	28.9	L-6 CHONDRITE	B	A		
EET 90361~	32.8	L-6 CHONDRITE	B	A		
EET 90362~	111.0	L-6 CHONDRITE	B	A		
EET 90363~	114.3	L-6 CHONDRITE	Be	A		
EET 90364~	220.4	L-6 CHONDRITE	B	A		
EET 90365~	16.0	L-6 CHONDRITE	B	A		
EET 90366~	57.9	L-6 CHONDRITE	B	A		
EET 90367~	140.2	L-6 CHONDRITE	B	A		
EET 90368~	17.2	L-6 CHONDRITE	B	A		
EET 90369~	71.6	L-6 CHONDRITE	B	A		
EET 90370~	163.9	L-6 CHONDRITE	B	A		
EET 90371~	15.8	L-6 CHONDRITE	B/C	A		
EET 90372	158.8	H-5 CHONDRITE	B	A	17	15
EET 90373~	6.5	L-6 CHONDRITE	C	A		
EET 90374~	38.8	L-6 CHONDRITE	B	A		
EET 90375~	29.0	L-6 CHONDRITE	B	A		
EET 90376~	40.2	L-6 CHONDRITE	B	A		
EET 90377~	55.5	L-6 CHONDRITE	A/B	A		
EET 90378~	66.6	L-6 CHONDRITE	A/B	A		
EET 90379~	15.4	L-6 CHONDRITE	A/B	A		
EET 90380~	18.2	L-6 CHONDRITE	A/B	A		
EET 90381~	76.9	L-6 CHONDRITE	A/B	A/B		
EET 90382~	14.5	L-6 CHONDRITE	A/B	A		
EET 90383~	12.0	L-6 CHONDRITE	A/B	A		
EET 90384~	20.6	L-6 CHONDRITE	A/B	A		
EET 90385~	8.9	L-6 CHONDRITE	B	A		
EET 90386	54.0	LL-6 CHONDRITE	A	A	27	22
EET 90387~	19.5	L-6 CHONDRITE	A/B	A		
EET 90388	58.1	H-5 CHONDRITE	B	A	19	17
EET 90389~	23.2	L-6 CHONDRITE	A/B	A		
EET 90390~	45.6	L-6 CHONDRITE	B	A		
EET 90391~	59.8	L-6 CHONDRITE	B	A		
EET 90392~	27.2	L-6 CHONDRITE	B	A		

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**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 90393~	10.9	L-6 CHONDRITE	B	A		
EET 90394~	97.3	L-6 CHONDRITE	B	A		
EET 90395~	45.0	L-6 CHONDRITE	B	A		
EET 90396~	22.0	L-6 CHONDRITE	B	A		
EET 90397~	23.1	L-6 CHONDRITE	B	A		
EET 90398~	36.3	L-6 CHONDRITE	B/C	A		
EET 90399~	65.9	L-6 CHONDRITE	B	A		
EET 90400~	10.9	L-6 CHONDRITE	B	A		
EET 90401~	13.4	L-6 CHONDRITE	B	A		
EET 90402~	69.3	L-6 CHONDRITE	B	A		
EET 90403~	86.8	L-6 CHONDRITE	B	A		
EET 90404~	11.6	L-6 CHONDRITE	B	A		
EET 90405	3.8	H-6 CHONDRITE	B/C	A	18	16
EET 90406	1.8	L-5 CHONDRITE	B/C	A	25	21
EET 90407~	33.9	L-6 CHONDRITE	B	A		
EET 90408~	8.3	L-6 CHONDRITE	B/C	A		
EET 90409~	26.0	L-6 CHONDRITE	B	A		
EET 90410~	29.7	L-6 CHONDRITE	B	A		
EET 90411~	16.3	L-6 CHONDRITE	B	A		
EET 90412	5.9	H-6 CHONDRITE	C	A	17	15
EET 90413~	11.8	L-6 CHONDRITE	B	A		
EET 90414~	55.6	L-6 CHONDRITE	B	A		
EET 90415~	14.5	L-6 CHONDRITE	B	A		
EET 90416~	5.3	L-6 CHONDRITE	B	A		
EET 90417~	7.6	L-6 CHONDRITE	B/C	B		
EET 90418~	19.1	L-6 CHONDRITE	C	A		
EET 90419~	2.1	L-6 CHONDRITE	C	A		
EET 90420~	31.1	L-6 CHONDRITE	B	A		
EET 90421~	9.7	L-6 CHONDRITE	B	A		
EET 90422~	1.4	L-6 CHONDRITE	A/B	A		
EET 90423~	24.0	L-6 CHONDRITE	B	A		
EET 90424	1.7	L-5 CHONDRITE	B/C	A	25	20
EET 90426~	14.4	L-6 CHONDRITE	B	A		
EET 90427~	13.1	L-6 CHONDRITE	B	A		
EET 90428	7.3	CARBONACEOUS C4	A/Be	A	30	-
EET 90429~	18.2	L-6 CHONDRITE	B	A		
EET 90430~	3.9	L-6 CHONDRITE	B/C	A		
EET 90431~	24.8	L-6 CHONDRITE	A/B	A		
EET 90432~	0.7	L-6 CHONDRITE	C	A		
EET 90433	3.9	H-6 CHONDRITE	B/C	A	18	16
EET 90434~	2.6	L-6 CHONDRITE	C	A		
EET 90435~	13.7	L-6 CHONDRITE	B	A		
EET 90436~	7.9	L-6 CHONDRITE	B	A		
EET 90437~	10.8	L-6 CHONDRITE	C	A		
EET 90438~	7.1	L-6 CHONDRITE	B/C	A		
EET 90439~	6.8	L-6 CHONDRITE	B	A		
EET 90440~	87.0	L-6 CHONDRITE	B	A		
EET 90441~	125.4	L-6 CHONDRITE	B	A		
EET 90442~	102.9	L-6 CHONDRITE	B	A		
EET 90443~	136.3	L-6 CHONDRITE	B	A		
EET 90444~	103.9	L-6 CHONDRITE	B	A		
EET 90445~	127.1	L-6 CHONDRITE	B	A		
EET 90446~	84.7	L-6 CHONDRITE	B	A		
EET 90447~	105.2	L-6 CHONDRITE	B	A		
EET 90448~	2.2	L-6 CHONDRITE	B	A		
EET 90449~	0.5	L-6 CHONDRITE	B	A		
EET 90450~	63.6	L-6 CHONDRITE	B	A		

~Classified by using refractive indices.

**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 90451~	78.7	L-6 CHONDRITE	B	A		
EET 90452	122.1	LL-6 CHONDRITE	A	A	30	24
EET 90453~	60.9	L-6 CHONDRITE	B	A		
EET 90454~	212.9	L-6 CHONDRITE	B	A		
EET 90455~	85.9	L-6 CHONDRITE	B	A		
EET 90456	51.0	H-5 CHONDRITE	C	A	19	17
EET 90457~	80.7	L-6 CHONDRITE	B	A		
EET 90458~	150.8	L-6 CHONDRITE	B	A		
EET 90459~	62.7	L-6 CHONDRITE	B	A		
EET 90460~	46.2	L-6 CHONDRITE	Be	A/B		
EET 90461~	36.3	L-6 CHONDRITE	B	A		
EET 90462~	68.3	L-6 CHONDRITE	A/B	A		
EET 90463~	66.4	L-6 CHONDRITE	Be	A		
EET 90464~	159.1	L-6 CHONDRITE	B/C	A		
EET 90465~	217.3	L-6 CHONDRITE	B	A/B		
EET 90466~	162.3	L-6 CHONDRITE	Be	A		
EET 90467~	141.8	L-6 CHONDRITE	B	B		
EET 90468~	202.0	L-6 CHONDRITE	B	A		
EET 90469	48.5	H-5 CHONDRITE	B	A	19	17
EET 90470~	82.6	L-6 CHONDRITE	B	A		
EET 90471~	76.6	L-6 CHONDRITE	B	A		
EET 90472~	78.3	L-6 CHONDRITE	B	A		
EET 90473~	50.1	L-6 CHONDRITE	Ae	A		
EET 90474~	117.7	L-6 CHONDRITE	B/C	A		
EET 90475~	68.9	L-6 CHONDRITE	B	A		
EET 90476~	63.8	L-6 CHONDRITE	B	A		
EET 90477~	62.3	L-6 CHONDRITE	B	A		
EET 90478~	58.7	L-6 CHONDRITE	A/B	A		
EET 90479~	82.6	L-6 CHONDRITE	A/B	A		
EET 90480~	66.8	L-6 CHONDRITE	A/B	A		
EET 90481~	74.8	L-6 CHONDRITE	B	A/B		
EET 90482~	66.0	L-6 CHONDRITE	A/B	A		
EET 90483~	177.9	L-6 CHONDRITE	A/B	A		
EET 90484~	93.6	L-6 CHONDRITE	A/B	A		
EET 90485~	52.4	L-6 CHONDRITE	A/B	A		
EET 90486~	152.9	L-6 CHONDRITE	A/B	A		
EET 90487~	300.8	L-6 CHONDRITE	A/B	A/B		
EET 90488~	240.6	L-6 CHONDRITE	A/B	A		
EET 90489~	48.8	L-6 CHONDRITE	A/B	A		
EET 90490~	93.0	L-6 CHONDRITE	A/B	A		
EET 90491~	107.1	L-6 CHONDRITE	A/B	A		
EET 90492~	140.2	L-6 CHONDRITE	B	A		
EET 90493	219.0	L-6 CHONDRITE	B	A	24	20
EET 90494~	65.3	L-6 CHONDRITE	A/B	A		
EET 90495	96.8	L-4 CHONDRITE	C	A	24	15-21
EET 90496~	103.4	L-6 CHONDRITE	B	A		
EET 90497~	103.6	L-6 CHONDRITE	B	A		
EET 90498~	71.3	L-6 CHONDRITE	B	A		
EET 90499~	104.9	L-6 CHONDRITE	B	A		
EET 90500~	107.6	L-6 CHONDRITE	Be	A		
EET 90501~	53.7	L-6 CHONDRITE	B	A		
EET 90502	150.0	H-6 CHONDRITE	B	A	19	17
EET 90503~	85.0	L-6 CHONDRITE	B	A		
EET 90504~	117.4	L-6 CHONDRITE	B	A		
EET 90505~	98.0	L-6 CHONDRITE	B	A		
EET 90506~	112.4	L-6 CHONDRITE	B	A		
EET 90507~	4.9	L-6 CHONDRITE	B	A		

-Classified by using refractive indices.

**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 90508~	42.6	L-6 CHONDRITE	B	A		
EET 90509~	8.7	L-6 CHONDRITE	B	A		
EET 90510~	23.5	L-6 CHONDRITE	B	A		
EET 90511~	7.9	L-6 CHONDRITE	B	A		
EET 90512	18.7	H-5 CHONDRITE	C	A	18	16
EET 90513~	25.4	L-6 CHONDRITE	B/C	A		
EET 90514~	11.7	L-6 CHONDRITE	B	A		
EET 90515~	8.3	L-6 CHONDRITE	B	A		
EET 90516~	4.3	L-6 CHONDRITE	B/C	A		
EET 90517~	36.7	L-6 CHONDRITE	B	A		
EET 90518~	20.9	L-6 CHONDRITE	C	A		
EET 90519	5.2	L-3 CHONDRITE	B/Ce	A	5-23	5-15
EET 90520~	21.4	L-6 CHONDRITE	A/B	A		
EET 90521~	5.5	L-6 CHONDRITE	B	A		
EET 90522~	6.9	L-6 CHONDRITE	A/B	A		
EET 90523~	4.0	L-6 CHONDRITE	A/B	A		
EET 90524~	8.9	L-6 CHONDRITE	A/B	A		
EET 90525	14.6	L-4 CHONDRITE	B	A	24	18-21
EET 90526~	12.7	L-6 CHONDRITE	A/B	A		
EET 90527~	6.6	L-6 CHONDRITE	A/B	A		
EET 90528~	14.9	L-6 CHONDRITE	A/B	A		
EET 90529~	6.8	L-6 CHONDRITE	B	A		
EET 90530~	8.4	L-6 CHONDRITE	B	A		
EET 90531~	24.8	L-6 CHONDRITE	B	A		
EET 90532~	29.9	L-6 CHONDRITE	B	A		
EET 90533~	11.0	L-6 CHONDRITE	B	A		
EET 90534~	9.6	L-6 CHONDRITE	B/C	A		
EET 90535~	9.0	L-6 CHONDRITE	B/C	A		
EET 90536~	17.9	L-6 CHONDRITE	B	A		
EET 90537~	17.6	L-6 CHONDRITE	B	A		
EET 90538~	4.9	L-6 CHONDRITE	B/C	A		
EET 90539~	20.2	L-6 CHONDRITE	B/C	A		
EET 90540~	15.5	L-6 CHONDRITE	A/B	A		
EET 90541~	38.2	L-6 CHONDRITE	A/B	A		
EET 90542	5.0	L-3 CHONDRITE	B	A	9-26	8-18
EET 90543~	6.7	L-6 CHONDRITE	B	A		
EET 90544~	48.7	L-6 CHONDRITE	A/B	A		
EET 90545~	8.3	L-6 CHONDRITE	A/B	A		
EET 90546~	12.3	L-6 CHONDRITE	A/B	A		
EET 90547	4.1	H-6 CHONDRITE	B	A	18	16
EET 90548	2.2	L-6 CHONDRITE	A/B	A	24	20
EET 90549~	4.1	L-6 CHONDRITE	B	A		
EET 90550~	30.3	L-6 CHONDRITE	B	A		
EET 90551~	12.4	L-6 CHONDRITE	B	A		
EET 90552~	38.7	L-6 CHONDRITE	B	A		
EET 90553	7.5	L-6 CHONDRITE	C	A	25	21
EET 90554~	19.1	L-6 CHONDRITE	B	A		
EET 90555~	6.8	L-6 CHONDRITE	B/C	A		
EET 90556~	21.3	L-6 CHONDRITE	C	A		
EET 90557~	6.1	L-6 CHONDRITE	B	A		
EET 90558~	6.9	L-6 CHONDRITE	B	A		
EET 90559~	42.2	L-6 CHONDRITE	B	A		
EET 90560~	28.1	L-6 CHONDRITE	B	A		
EET 90561~	0.9	L-6 CHONDRITE	B/C	A		
EET 90562~	5.2	L-6 CHONDRITE	B/C	A		
EET 90563~	4.2	L-6 CHONDRITE	B/C	A		
EET 90564~	27.2	L-6 CHONDRITE	B	A		

-Classified by using refractive indices.

**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 90565~	32.4	L-6 CHONDRITE	B	A		
EET 90566	15.6	L-5 CHONDRITE	B	A	25	20
EET 90580~	11.1	L-6 CHONDRITE	C	A		
EET 90581~	18.4	L-6 CHONDRITE	Be	A		
EET 90582~	1.7	L-6 CHONDRITE	C	A		
EET 90583~	2.1	L-6 CHONDRITE	C	A		
EET 90584~	5.5	L-6 CHONDRITE	B	A		
EET 90585~	31.5	L-6 CHONDRITE	B	A		
EET 90586~	2.7	L-6 CHONDRITE	C	A		
EET 90587~	4.6	L-6 CHONDRITE	B	A		
EET 90588~	4.0	L-6 CHONDRITE	C	A		
EET 90589~	4.3	L-6 CHONDRITE	B	A		
EET 90590~	3.2	L-6 CHONDRITE	B	A		
EET 90591~	6.2	L-6 CHONDRITE	B	A		
EET 90592~	6.4	L-6 CHONDRITE	C	A		
EET 90593~	31.9	L-6 CHONDRITE	B	A		
EET 90594~	3.1	L-6 CHONDRITE	C	A		
EET 90595~	36.7	L-6 CHONDRITE	C	A		
EET 90596~	20.3	L-6 CHONDRITE	B	A		
EET 90597~	78.9	L-6 CHONDRITE	A/B	A		
EET 90598~	33.1	L-6 CHONDRITE	B	A		
EET 90599~	57.9	L-6 CHONDRITE	A/B	A		
EET 90600~	34.2	L-6 CHONDRITE	B	A		
EET 90601	14.4	H-6 CHONDRITE	C	A	18	16
EET 90602~	26.9	L-6 CHONDRITE	A/B	A		
EET 90603~	21.0	L-6 CHONDRITE	B	A		
EET 90604~	25.6	L-6 CHONDRITE	B/C	A		
EET 90605~	42.3	L-6 CHONDRITE	B	A		
EET 90606~	37.0	L-6 CHONDRITE	B	A		
EET 90607~	37.0	L-6 CHONDRITE	B	A		
EET 90608~	11.8	L-6 CHONDRITE	B	A		
EET 90609~	39.7	L-6 CHONDRITE	A/B	A		
EET 90611~	34.7	L-6 CHONDRITE	B/C	A		
EET 90612~	37.0	L-6 CHONDRITE	B	A		
EET 90613~	35.0	L-6 CHONDRITE	C	A		
EET 90614~	8.4	L-6 CHONDRITE	B	A		
EET 90615~	43.0	L-6 CHONDRITE	B	A		
EET 90616	26.1	H-5 CHONDRITE	C	A	19	17
EET 90617~	53.8	L-6 CHONDRITE	B	A		
EET 90618~	42.5	L-6 CHONDRITE	B	A		
EET 90619~	55.0	L-6 CHONDRITE	B	A		
EET 90620~	14.8	L-6 CHONDRITE	B	A		
EET 90621~	4.3	L-6 CHONDRITE	B/C	A		
EET 90622~	14.1	L-6 CHONDRITE	A/B	A		
EET 90623	16.7	L-5 CHONDRITE	B	A	26	21
EET 90624~	3.2	L-6 CHONDRITE	B	A		
EET 90625~	3.8	L-6 CHONDRITE	B	A		
EET 90626~	25.1	L-6 CHONDRITE	B	A		
EET 90627~	19.3	L-6 CHONDRITE	B	A		
EET 90628	23.1	L-3 CHONDRITE	A/Be	A	1-20	1-19
EET 90629~	36.3	L-6 CHONDRITE	B/C	A		
EET 90630~	8.6	L-6 CHONDRITE	B	A		
EET 90631~	25.5	L-6 CHONDRITE	B	A		
EET 90632~	30.2	L-6 CHONDRITE	B	A		
EET 90633~	44.8	L-6 CHONDRITE	B	A		
EET 90634~	2.1	L-6 CHONDRITE	B	A		
EET 90635~	1.3	L-6 CHONDRITE	B	A		

-Classified by using refractive indices.

**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
EET 90636~	32.2	L-6 CHONDRITE	B	A		
EET 90637~	23.3	L-6 CHONDRITE	B	A		
EET 90638~	26.5	L-6 CHONDRITE	B	A		
EET 90639~	24.2	L-6 CHONDRITE	B	A		
EET 90641~	1.4	L-6 CHONDRITE	B	A		
EET 90642~	5.4	L-6 CHONDRITE	B	A		
EET 90643~	19.0	L-6 CHONDRITE	B	A		
EET 90644~	1.3	L-6 CHONDRITE	A	A		
EET 90645~	55.3	L-6 CHONDRITE	B	A		
EET 90646~	27.2	L-6 CHONDRITE	B	A		
EET 90647~	13.4	L-6 CHONDRITE	B	A		
EET 90648~	21.5	L-6 CHONDRITE	B	A		
EET 90649~	48.7	L-6 CHONDRITE	B	A		
LEW 90500**	294.7	CARBONACEOUS C2	B	A	1-28	
QUE 90220~	377.4	L-6 CHONDRITE	B/C	A/B		
QUE 90223~	329.5	H-6 CHONDRITE	B/C	B		
QUE 90250~	150.7	L-5 CHONDRITE	A/B _e	A		
QUE 90251~	126.6	L-5 CHONDRITE	B _e	A		
QUE 90252~	253.4	L-5 CHONDRITE	A/B	A		
QUE 90253~	115.9	L-5 CHONDRITE	B	A		
QUE 90254~	166.9	L-5 CHONDRITE	B	A		
QUE 90255	99.5	H-6 CHONDRITE	B/C	A	18	16
QUE 90256~	166.0	L-5 CHONDRITE	B	A		
QUE 90257~	104.0	L-5 CHONDRITE	A/B	A		
QUE 90258~	126.5	L-5 CHONDRITE	B	A		
QUE 90259~	178.5	L-5 CHONDRITE	A/B	A		
QUE 90260~	131.2	L-5 CHONDRITE	B	A/B		
QUE 90261~	125.5	L-5 CHONDRITE	B	A		
QUE 90263~	105.8	L-5 CHONDRITE	B	A		
QUE 90264~	109.3	L-5 CHONDRITE	A/B	A		
QUE 90265~	141.3	L-5 CHONDRITE	B	A		
QUE 90266~	87.6	L-5 CHONDRITE	B	A		
QUE 90267~	98.0	L-5 CHONDRITE	A/B	A		
QUE 90268~	75.2	L-5 CHONDRITE	B	A		
QUE 90269~	54.0	L-5 CHONDRITE	B	A		
QUE 90270~	78.0	L-5 CHONDRITE	B	A		
QUE 90271~	79.8	L-5 CHONDRITE	B	A		
QUE 90272~	109.2	L-5 CHONDRITE	B	A		
QUE 90273~	64.1	L-5 CHONDRITE	B	A/B		
QUE 90274~	99.5	L-5 CHONDRITE	B	A/B		
QUE 90275~	45.7	L-5 CHONDRITE	A/B	A		
QUE 90276	65.7	H-5 CHONDRITE	B/C	A	19	17
QUE 90277	26.0	H-6 CHONDRITE	B/C	A	19	17
QUE 90278~	16.7	L-5 CHONDRITE	B	A		
QUE 90279~	8.9	L-5 CHONDRITE	B	A		
QUE 90280~	7.5	L-5 CHONDRITE	B/C	A		
QUE 90281~	29.3	L-5 CHONDRITE	B	A		
QUE 90282~	236.8	L-5 CHONDRITE	B	A		
QUE 90283~	93.0	L-5 CHONDRITE	B	A		
QUE 90284~	85.7	L-5 CHONDRITE	B	A		
QUE 90285~	179.1	L-5 CHONDRITE	B	A		
QUE 90286~	429.3	L-5 CHONDRITE	B	A		
LAP 91900	786.9	DIAGENITE	A/B	A	23	

-Classified by using refractive indices.

**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
PAT 91500	16540.6	L-5 CHONDRITE	C	B/C	24	20
PAT 91501	8550.6	L-7 CHONDRITE	B	B/C	24	20
PCA 91001	622.6	L-4 CHONDRITE	B	A	22	12-19
PCA 91002	210.2	CHONDRITE (UNGR)	A/B	A	1-44	1-28
PCA 91003	117.2	IRON				
PCA 91004	25.7	PALLASITE	B/C	A	11	
PCA 91005	3.8	PALLASITE	B/C	A	11	
PCA 91006	104.4	EUCRITE	A/B	A	16-55	
PCA 91007	223.6	EUCRITE	A/Be	A	35-56	
PCA 91008	51.7	CARBONACEOUS C2	B	A	1-37	1-7
PCA 91009~	18000.0	L-6 CHONDRITE	A/Be	A		
PCA 91010~	3900.6	L-6 CHONDRITE	A/B	A		
PCA 91011	7272.6	L-5 CHONDRITE	B/Ce	B/C	23	19
PCA 91012	6091.8	L-5 CHONDRITE	Ce	B/C	23	19
PCA 91013	3413.1	L-5 CHONDRITE	C	B/C	23	19
PCA 91016~	3366.7	L-6 CHONDRITE	A/B	A		
PCA 91017~	1420.5	L-6 CHONDRITE	A/B	A/B		
PCA 91018~	909.5	L-6 CHONDRITE	A/B	A		
PCA 91021~	522.1	L-6 CHONDRITE	A/B	A		
TIL 91725	91.1	IRON-W/SIL.INC.	B/C	A/B	5	7

-Classified by using refractive indices.

**Reclassified

TABLE 2

Newly Classified Specimens Listed By Type **

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
Achondrites						
LAP 91900	786.9	DIOGENITE	A/B	A	23	
PCA 91006	104.4	EUCRITE	A/B	A	16-55	
PCA 91007	223.6	EUCRITE	A/Be	A	35-56	
Chondrites - Ungrouped						
PCA 91002	210.2	CHONDRITE (UNGR)	A/B	A	1-44	1-28
Carbonaceous Chondrites						
LEW 85332**	113.7	CARBONACEOUS (UNGR)	B/C	B	1-20	1-16
LEW 90500**	294.7	CARBONACEOUS C2	B	A	1-28	
PCA 91008	51.7	CARBONACEOUS C2	B	A	1-37	1-7
LEW 87232	23.1	CARBONACEOUS C2R	B	A	0.6-2	0.5-9
EET 90248	0.4	CARBONACEOUS C30	A	A	1-26	1-9
EET 90234	8.5	CARBONACEOUS C4	Ae	B	28	-
EET 90247	37.1	CARBONACEOUS C4	A	B	29	-
EET 90428	7.3	CARBONACEOUS C4	A/Be	A	30	-
Chondrites - Type 3						
LEW 88503	7.4	H-3 CHONDRITE	Ce	A	12-24	6-16
LEW 88519	3.6	H-3 CHONDRITE	C	A	1-22	3-18
LEW 88286	3.9	L-3 CHONDRITE	B/C	A	3-34	2-24
LEW 88594	5.4	L-3 CHONDRITE	C	A	6-28	10-21
LEW 88617	3.2	L-3 CHONDRITE	B/C	A	2-44	1-14
EET 90066	9.8	L-3 CHONDRITE	B	A	1-28	3-18
EET 90080	4.1	L-3 CHONDRITE	B	A	1-22	1-27
EET 90083	3.6	L-3 CHONDRITE	B	A	2-30	3-21
EET 90098	4.7	L-3 CHONDRITE	B	A	5-27	4-19
EET 90161	9.7	L-3 CHONDRITE	B	A	1-18	1-10
EET 90261	6.6	L-3 CHONDRITE	Be	A	1-23	1-18
EET 90519	5.2	L-3 CHONDRITE	B/Ce	A	5-23	5-15
EET 90542	5.0	L-3 CHONDRITE	B	A	9-26	8-18
EET 90628	23.1	L-3 CHONDRITE	A/Be	A	1-20	1-19

-Classified by using refractive indices.

**Reclassified

Sample Number	Weight (g)	Classification	Weathering	Fracturing	% Fa	% Fs
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E Chondrites

LEW 87220	6.7	E-3 CHONDRITE	C	B	-	0.2-12
LEW 87234	34.2	E-3 CHONDRITE	Ce	C	2	0.2-9
EET 90299	8.1	E-3 CHONDRITE	C	C	-	0.2-8
EET 90102	17.0	E-6 CHONDRITE	B/Ce	A	-	0.3

Irons

PCA 91003	117.2	IRON				
TIL 91725	91.1	IRON-W/SIL.INC.	B/C	A/B	5	7

Stony-Irons

PCA 91004	25.7	PALLASITE	B/C	A	11	
PCA 91005	3.8	PALLASITE	B/C	A	11	

****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.

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).

PALLASITE:

PCA 91004, 91005.

CARBONACEOUS C4:

EET 90234, 90247, 90428 WITH EET 87507

E-3 CHONDRITE:

LEW 87220, 87234 with LEW 87057.

L-3 CHONDRITE:

EET 90080, 90161 ,90261.

L-5 CHONDRITE:

QUE 90250, 90251, 90252, 90253, 90254, 90256, 90257, 90258, 90259, 90260, 90261, 90263, 90264, 90265, 90266, 90267, 90268, 90269, 90270, 90271, 90272,90273, 90274, 90275, 90278, 90279, 90280, 90281, 90282, 90283, 90284, 90285, 90286 with QUE 90201.

L-5 CHONDRITE

PCA 91011, 91012, 91013.

L-6 CHONDRITE:

EET 90053, 90054, 90055, 90056, 90057, 90058, 90059, 90060, 90061, 90062, 90063, 90064, 90065, 90067, 90068, 90070, 90071, 90073, 90074, 90075, 90076, 90077, 90078, 90079, 90081, 90082, 90084, 90085, 90086, 90087, 90088, 90089, 90090, 90091, 90092, 90093, 90094, 90095, 90096, 90101, 90103, 90105, 90107, 90108, 90109, 90110, 90111, 90112, 90113, 90114, 90115, 90116, 90117, 90118, 90119, 90120, 90121, 90122, 90123, 90124, 90125, 90126, 90127, 90128, 90129, 90130, 90131, 90132, 90133, 90134, 90135, 90136, 90137, 90138, 90139, 90140, 90141, 90142, 90143, 90144, 90145, 90146, 90147, 90148, 90149, 90150, 90152, 90153, 90154, 90155, 90156, 90157, 90158, 90159, 90160, 90162, 90163, 90164, 90167, 90168, 90169, 90170, 90171, 90172, 90173, 90174, 90175, 90176, 90177, 90180, 90181, 90182, 90183, 90184, 90185, 90186, 90187, 90188, 90189, 90190, 90191, 90192, 90193, 90194, 90195, 90196, 90197, 90198, 90199, 90200, 90201, 90202, 90203, 90204, 90205, 90206, 90207, 90208, 90209, 90210, 90211, 90213, 90214, 90216, 90217, 90218, 90219, 90220, 90221, 90222, 90223, 90224, 90225, 90226, 90227, 90228, 90230, 90231, 90232, 90233, 90235, 90236, 90239, 90240, 90241, 90242, 90243, 90244, 90245, 90249, 90250, 90251, 90252, 90254, 90256, 90257, 90259, 90260, 90262, 90263, 90265, 90266, 90267, 90268, 90269, 90270, 90271, 90272, 90274, 90275, 90276, 90277, 90278, 90279, 90280, 90281, 90282, 90283, 90284,

90285, 90286, 90287, 90288, 90289, 90290, 90291, 90292, 90293, 90294,
90295, 90296, 90297, 90298, 90300, 90301, 90302, 90305, 90306, 90307,
90308, 90309, 90310, 90311, 90312, 90314, 90315, 90316, 90317, 90318,
90319, 90320, 90321, 90322, 90323, 90324, 90325, 90326, 90327, 90329,
90331, 90332, 90333, 90334, 90335, 90336, 90337, 90338, 90339, 90340,
90341, 90342, 90343, 90344, 90346, 90347, 90348, 90349, 90350, 90351,
90352, 90353, 90354, 90355, 90356, 90357, 90358, 90359, 90360, 90361,
90362, 90363, 90364, 90365, 90366, 90367, 90368, 90369, 90370, 90371,
90373, 90374, 90375, 90376, 90377, 90378, 90379, 90380, 90381, 90382,
90383, 90384, 90385, 90387, 90389, 90390, 90391, 90392, 90393, 90394,
90395, 90396, 90397, 90398, 90399, 90400, 90401, 90402, 90403, 90404,
90407, 90408, 90409, 90410, 90411, 90413, 90414, 90415, 90416, 90417,
90418, 90419, 90420, 90421, 90422, 90423, 90426, 90427, 90429, 90430,
90431, 90432, 90434, 90435, 90436, 90437, 90438, 90439, 90440, 90441,
90442, 90443, 90444, 90445, 90446, 90447, 90448, 90449, 90450, 90451,
90453, 90454, 90455, 90457, 90458, 90459, 90460, 90461, 90462, 90463,
90464, 90465, 90466, 90467, 90468, 90470, 90471, 90472, 90473, 90474,
90475, 90476, 90477, 90478, 90479, 90480, 90481, 90482, 90483, 90484,
90485, 90486, 90487, 90488, 90489, 90490, 90491, 90492, 90494, 90496,
90497, 90498, 90499, 90500, 90501, 90503, 90504, 90505, 90506, 90507,
90508, 90509, 90510, 90511, 90513, 90514, 90515, 90516, 90517, 90518,
90520, 90521, 90522, 90523, 90524, 90526, 90527, 90528, 90529, 90530,
90531, 90532, 90533, 90534, 90535, 90536, 90537, 90538, 90539, 90540,
90541, 90543, 90544, 90545, 90546, 90549, 90550, 90551, 90552, 90554,
90555, 90556, 90557, 90558, 90559, 90560, 90561, 90562, 90563, 90564,
90565, 90580, 90581, 90582, 90583, 90584, 90585, 90586, 90587, 90588,
90589, 90590, 90591, 90592, 90593, 90594, 90595, 90596, 90597, 90598,
90599, 90600, 90602, 90603, 90604, 90605, 90606, 90607, 90608, 90609,
90611, 90612, 90613, 90614, 90615, 90617, 90618, 90619, 90620, 90621,
90622, 90624, 90625, 90626, 90627, 90629, 90630, 90631, 90632, 90633,
90634, 90635, 90636, 90637, 90638, 90639, 90641, 90642, 90643, 90644,
90645, 90646, 90647, 90648, 90649.

L-6 CHONDRITE

PCA 91009, 91010, 91016, 91017, 91018, 91021.

PETROGRAPHIC DESCRIPTIONS

Sample No.: LEW87220; 87234
Location: Lewis Cliff
Field Number: 4733; 4786
Dimensions (cm): 2.5x2x0.4; 5x2.5x2
Weight (g): 6.7; 34.2
Meteorite Type: E3 Chondrite

Macroscopic Description: Carol Schwarz

There is no fusion crust remaining on either of these extremely weathered specimens. Both are extensively fractured and friable with no features visible on the interior. 87234 has some evaporites.

Thin Section (LEW87220.2; 87234.2)

Description: Brian Mason

These two meteorites are identical and can be confidently paired with LEW87057, 87223, 87237, and 87285. The sections show a closely packed aggregate of chondrules, up to 1.2 mm across, together with abundant metal grains and minor sulfide. The meteorites are severely weathered, with limonite staining and areas of brown limonite throughout the sections. The chondrules consist of radiating or granular pyroxene. Most of the pyroxene is close to $MgSiO_3$ in composition, but a few more Fe-rich grains were analysed. One grain of forsteritic olivine was analysed in LEW87234. The metal contains 0.4-0.6% Si. The meteorites are classified as E3 chondrites.

Sample No.: LEW87232
Location: Lewis Cliff
Field Number: 4796
Dimensions (cm): 3.0 x 2.5 x 2.0
Weight (g): 23.1
Meteorite Type: C2R chondrite

Macroscopic Description: Carol Schwarz

LEW87232 is a rounded stone with small patches of fusion crust remaining on one side. This specimen appears to be more weathered at the very center than on the exterior. The matrix is yellowish. Some metal was noted.

Thin Section (.2) Description: Brian Mason

The section shows numerous chondrules (up to 1.8 mm across), chondrule fragments, and mineral grains in a translucent brown matrix. Chondrules are mainly granular or

porphyritic olivine and olivine-pyroxene. Minor amounts of nickel-iron and a little sulfide are present as small grains scattered through the matrix or sometimes concentrated on chondrule rims. Many of the metal grains are rimmed with brown limonite. The matrix appears to consist largely of phyllosilicates. Microprobe analyses show the olivine is close to Mg_2SiO_4 in composition ($Fa_{0.6-2}$, mean $Fa_{1.0}$, CV FeO = 56); pyroxene is enstatite or clinoenstatite, $Fs_{0.5-9}$. One small xenocryst of plagioclase, An_{19} , was analysed. The meteorite is tentatively classified as a C2 chondrite of the Renazzo subtype.

Sample No.: LEW88286
Location: Lewis Cliff
Field Number: 6003
Dimensions (cm): 2.5 x 0.9 x 0.7
Weight (g): 3.9
Meteorite Type: L3 chondrite

Macroscopic Description: Cecilia Satterwhite

Pitted, dull, brown fusion crust covers most of this chondrite. Abundant chondrules/inclusions are present in the weathered dark matrix. Some metal was noted.

Thin Section (.2) Description: Brian Mason

The section shows a close-packed aggregate of chondrules and chondrule fragments, up to 1.8 mm across; most of the chondrules are rimmed with black opaque material. The matrix consists of finely granular olivine and pyroxene with a little nickel-iron and troilite. Weathering is extensive, with brown limonitic staining throughout the section. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa_{3-34} , mean Fa_{18} (CV FeO is 48); pyroxene, Fs_{2-24} . The variability of olivine and pyroxene compositions indicates type 3, and the amount of nickel-iron L group, hence the meteorite is classified as an L3 chondrite (estimated L3.5).

Sample No.: LEW88503
Location: Lewis Cliff
Field Number: 5232
Dimensions (cm): 2.4 x 1.8 x 1.1
Weight (g): 7.4
Meteorite Type: H3 chondrite

Macroscopic Description: Robbie Marlow

Shiny brown fusion crust covers approximately 80% of the exterior of this specimen. Numerous orange millimeter-sized chondrules/inclusions were noted in the weathered matrix. Evaporite deposit is also present.

Thin Section (.2) Description: Brian Mason

The section shows numerous chondrules and chondrule fragments, up to 1.8 mm across, in a granular matrix of olivine and pyroxene with some nickel-iron and a little troilite. Weathering is extensive, with limonitic staining and patches of brown limonite throughout the section. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa₁₂₋₂₄, mean Fa₁₉ (CV FeO is 12); pyroxene, Fs₆₋₁₆. The meteorite is classified as an H3 chondrite (estimated H3.8).

Sample No.: LEW88519
Location: Lewis Cliff
Field Number: 5385
Dimensions (cm): 1.5 x 1.2 x 1
Weight (g): 3.6
Meteorite Type: H3 chondrite

Macroscopic Description: Cecilia Satterwhite

Eighty-five percent of the exterior of LEW88519 is covered with fusion crust. The interior is mostly orange-brown, but a small patch of dark gray matrix is visible. Some small inclusions are present and they are highly weathered. Metal is obvious.

Thin Section (.2) Description: Brian Mason

Chondrules and chondrule fragments are abundant, up to 2.4 mm across. They are set in a granular matrix of olivine and pyroxene, with some nickel-iron and a little troilite. Extensive weathering is indicated by limonitic staining and areas of brown limonite throughout the section. Microprobe analyses

show olivine and pyroxene of variable composition: olivine, Fa₁₋₂₂, mean Fa₁₄; pyroxene, Fs₃₋₁₈. The meteorite is classified as an H3 chondrite (estimated H3.5).

Sample No.: LEW88594
Location: Lewis Cliff
Field Number: 5306
Dimensions (cm): 2 x 2 x 0.5
Weight (g): 5.4
Meteorite Type: L3 chondrite

Macroscopic Description: Cecilia Satterite

Minor amounts of fusion crust remain on this extensively weathered meteorite. The interior matrix is brown to black with a few weathered inclusions. Some metal is present.

Thin Section (.2) Description: Brian Mason

The section shows a close-packed aggregate of chondrules and chondrule fragments, up to 3 mm across, in a small amount of black matrix containing a little nickel-iron and troilite. Minor weathering is indicated by limonitic staining around metal grains. Microprobe analyses show olivine and pyroxene of variable compositions: olivine, Fa₆₋₂₈, mean Fa₂₂ (CV FeO is 22); pyroxene, Fs₁₀₋₂₁. The variability of olivine and pyroxene compositions indicates type 3, and the small amount of nickel-iron L group, hence the meteorite is classified as an L3 chondrite (estimated L3.7).

Sample No.: LEW88617
Location: Lewis Cliff
Field Number: 5525
Dimensions (cm): 1.9 x 1.1 x 1.1
Weight (g): 3.2
Meteorite Type: L3 chondrite

Macroscopic Description: Robbie Marlow

LEW88617 is approximately 75% covered with dull black fusion crust. Interior matrix is medium gray and there are areas of heavy oxidation. Several millimeter-sized light and dark inclusions are visible.

Thin Section (.2) Description: Brian Mason

The section shows numerous chondrules and chondrule fragments, up to 1.8 mm across, in a dark matrix containing little nickel-iron and troilite. Weathering is extensive, with brown limonitic staining throughout the section. Microprobe analyses show olivine and pyroxene of variable compositions: olivine, Fa₂₋₄₄, mean Fa₂₂ (CV FeO is 41); pyroxene, Fs₁₋₁₄. The meteorite is classified as an L3 chondrite (estimated L3.5).

Sample No.: EET90066
Location: Elephant Moraine
Field Number: 6926
Dimensions (cm): 2.1 x 1.5 x 1.2
Weight (g): 9.8
Meteorite Type: L3 chondrite

Macroscopic Description: Cecilia Satterwhite

Most of the exterior is covered with fusion crust containing several oxidation haloes. Abundant inclusions/chondrules are present in the dark brown to black matrix. Areas of heavy oxidation exist.

Thin Section (.2) Description: Brian Mason

The section shows a close-packed aggregate of chondrules and chondrule fragments, up to 2.4 mm across, in a black matrix which contains a small amount of nickel-iron and troilite. A variety of chondrule types is present, mainly granular and porphyritic olivine and olivine-pyroxene with some radiating and cryptocrystalline pyroxene. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa₁₋₂₈, mean Fa₁₀ (CV FeO is 76); pyroxene, Fs₃₋₁₈. The meteorite is classified as an L3 chondrite (estimated L3.3).

Sample No.: EET90080; 90161;
90261
Location: Elephant Moraine
Field Number: 7336; 6675; 7313
Dimensions (cm): 1.5 x 1.5 x 0.8; 2 x 1.7 x 0.9; 2 x 1.7 x 0.6
Weight (g): 4.1; 9.7; 6.6
Meteorite Type: L3 chondrite

Macroscopic Description: Cecilia Satterwhite

Black, pitted, and fractured fusion crust covers most of EET90080 and 90261 and half of 90161. The interiors of all three stones are black with abundant light and dark colored chondrules/inclusions. Many of the chondrules have well-defined edges. Evaporite deposit is present on 90261.

Thin Section (EET90080.2) Description: Brian Mason

EET90161,2 and 90261,2 are similar in all respects, and are probably paired with EET90080. The section of EET90080 shows a close-packed aggregate of chondrules and chondrule fragments, up to 1.5 mm across, in a dark matrix which contains a little nickel-iron and troilite. Minor weathering is indicated by a limited amount of brown limonitic staining throughout the section. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa₁₋₂₂, mean Fa₁₂ (CV FeO is 60); pyroxene, Fs₁₋₂₇. The variability of olivine and pyroxene compositions indicates type 3, and the small amount of nickel-iron L group, hence the meteorite is classified as an L3 chondrite (estimated L3.4).

Sample No.: EET90083
Location: Elephant Moraine
Field Number: 6568
Dimensions (cm): 1.6 x 1.5 x 1.0
Weight (g): 3.6
Meteorite Type: L3 chondrite

Macroscopic Description: Cecilia Satterwhite

Most of the fusion crust present is shiny, pitted, and black. A small percentage of the fusion crust is frothy. The interior of EET90083 is gray. A profusion of chondrules/inclusions are present; some have well-defined edges. A minor amount of metal was noted.

Thin Section (.2) Description: Brian Mason

The section shows a close-packed aggregate of chondrules and chondrule fragments, up to 2.4 mm across, in a granular matrix of olivine and pyroxene with a little nickel-iron and troilite. Remnants of fusion crust rim the section. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa₂₋₃₀, mean Fa₂₀ (CV FeO is 43); pyroxene, Fs₃₋₂₁. The variability of olivine and pyroxene compositions indicates type 3, and the small amount of nickel-iron L group, hence the meteorite is classified as an L3 chondrite (estimated L3.5).

Sample No.: EET90098
Location: Elephant Moraine
Field Number: 6994
Dimensions (cm): 1.5 x 1.7 x 1.2
Weight (g): 4.7
Meteorite Type: L3 chondrite

Macroscopic Description: Cecilia Satterwhite

Three-quarters of the exterior of this unequilibrated chondrite is covered with weathered fusion crust. Abundant chondrules are visible in the weathered brown matrix. Some metal was noted.

Thin Section (.2) Description: Brian Mason

The section shows numerous chondrules and chondrule fragments, up to 1.9 mm across, in a granular matrix of olivine and pyroxene with a little nickel-iron and troilite. Considerable weathering is indicated by brown limonitic staining throughout the

section. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa₅₋₂₇, mean Fa₂₁ (CV FeO is 28); pyroxene, Fs₄₋₁₉. The variability of olivine and pyroxene compositions indicates type 3, and the small amount of nickel-iron L group, hence the meteorite is classified as an L3 chondrite (estimated L3.7).

Sample No.: EET90102
Location: Elephant Moraine
Field Number: 6932
Dimensions (cm): 3 x 2 x 1.3
Weight (g): 17.0
Meteorite Type: E6 chondrite

Macroscopic Description: Carol Schwarz

This smooth oblong stone is completely covered with black to iridescent fusion crust. The interior is fine-grained and dark red-brown with abundant metal. Rusty evaporites are abundant in the freshly broken surface.

Thin Section (.2) Description: Brian Mason

Only vague traces of chondritic structure are visible in the thin section, which shows the meteorite to consist largely of granular enstatite (grain size 0.1-0.2 mm), a considerable amount of nickel-iron (~20%), and minor amounts of sulfides and plagioclase; traces of a highly birefringent colorless mineral, probably sinoite, are present. Remnants of fusion crust rim the section. Considerable weathering is indicated by areas of brown limonite throughout the section. Microprobe analyses show the enstatite is almost pure MgSiO₃ (CaO 0.7%; FeO 0.2%; Al₂O₃, TiO₂, and MnO each < 0.1%); plagioclase is somewhat variable in composition, An₁₁₋₁₈. The metal contains 0.8% Si. The meteorite is an E6 chondrite.

Sample No.: EET90234; 90247;
90428

Location: Elephant Moraine
Field Number: 7320; 7334; 7287
Dimensions (cm): 2.3 x 2.1 x 1.1;
4 x 2.5 x 2.5; 2.0 x 1.7 x 0.7
Weight (g): 8.5; 37.1; 7.3
Meteorite Type: C4 chondrite

Macroscopic Description: Robbie Marlow

Fractured, dull, black fusion crust covers up to 50% of each of these carbonaceous chondrite fragments. Areas devoid of fusion crust are greenish gray in color. EET90234 and 90248 are more weathered than 90247. 90234 and 90248 have a dark gray interior and contain evaporite deposit. 90247 is light gray, has a thin weathering rind and several millimeter-sized dark gray inclusions.

Thin Section (EET90234.5) Description: Brian Mason

A few well-defined chondrules, up to 1.2 mm across, are present, but most of the section consists of anhedral olivine grains, 0.05-0.1 mm across, with minor plagioclase and opaques. The opaques consist largely of magnetite and pentlandite; nickel-iron is absent. Microprobe analyses show olivine of uniform composition, Fa_{28} ; one grain of diopside, $Wo_{46}Fs_7$, and one grain of plagioclase, An_{49} , were analysed. The meteorite is classified as a C4 chondrite, and probably belongs to the EET87507 pairing group. EET90247,3 and EET90428,2 are similar in all respects.

Sample No.: EET90248
Location: Elephant Moraine
Field Number: 7333
Dimensions (cm): 0.7 x 0.5 x 0.4
Weight (g): 0.4
Meteorite Type: C3O chondrite

Macroscopic Description: Carol Schwarz

Frothy fusion crust covers this small smooth pebble. The interior is medium gray and has small light gray inclusions.

Thin Section (.2) Description: Brian Mason

The section shows an aggregate of small chondrules (up to 0.7 mm across, but most are less than 0.3 mm) and chondrule fragments in a black opaque matrix containing minor amounts of nickel-iron and troilite. Remnants of fusion crust rim the section. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa_{1-26} , mean Fa_9 (CV FeO is 100); pyroxene, Fs_{1-9} . The meteorite is classified as a C3 chondrite of the Ormans subtype.

Sample No.: EET90299
Location: Elephant Moraine
Field Number: 6358
Dimensions (cm): 2.6 x 2.1 x 0.8
Weight (g): 8.1
Meteorite Type: E3 chondrite

Macroscopic Description: Robbie Marlow

The exterior surface of EET90299 is brown, shiny and smooth. The interior matrix is fine-grained and has a dark brown to black color. Oxidation is heavy and has masked any features present.

Thin Section (.2) Description: Brian Mason

The section consists mostly of chondrules and chondrule fragments, up to 1.8 mm across; they are made up of granular or radiating pyroxene. The opaque material consists largely of nickel-iron with minor sulfides. Weathering is extensive, with limonitic staining and areas of brown limonite throughout the section. Remnants of fusion crust rim the section. Microprobe analyses show that most of the pyroxene is close to $MgSiO_3$ in composition, but FeO contents up to 5.3% were recorded; the mean composition is $Fs_{2.4}$. The nickel-iron contains up to 0.5% Si. One grain of silica polymorph, probably tridymite, was analysed. The meteorite is an enstatite chondrite, and the variable pyroxene composition suggests the E3 classification.

Sample No.: EET90519
Location: Elephant Moraine
Field Number: 6449
Dimensions (cm): 1.5 x 1.6 x 0.7
Weight (g): 5.2
Meteorite Type: L3 chondrite

Macroscopic Description Robbie Marlow

Fractured, dull brown to black fusion crust covers ~90% of the exterior of EET90519. The interior matrix is dark gray with numerous beige and orange inclusions that are <1 mm in dimension. A small amount of evaporite deposit is present.

Thin Section (.2) Description: Brian Mason

The section shows a close-packed aggregate of chondrules (up to 1.8mm across), chondrule fragments, and mineral grains in a black matrix containing a little nickel-iron and troilite. Minor weathering is indicated by limonitic staining around metal grains. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa₅₋₂₃, mean Fa₁₃ (CV FeO is 34); pyroxene, Fs₅₋₁₅. The variability of olivine and pyroxene indicates type 3, and the small amount of nickel-iron L group, hence the meteorite is classified as an L3 chondrite (estimated L3.6).

Sample No.: EET90542
Location: Elephant Moraine
Field Number: 6454
Dimensions (cm): 1.6 x 1.6 x 1
Weight (g): 5.0
Meteorite Type: L3 chondrite

Macroscopic Description: Cecilia Satterwhite

Black, frothy fusion crust covers 50% of this stone. Light and dark inclusions/chondrules are visible in the heavily oxidized dark gray matrix.

Thin Section (.2) Description: Brian Mason

The section shows numerous chondrules and chondrule fragments, up to 1.5 mm across, in a granular matrix consisting largely of olivine and pyroxene with a little nickel-iron and troilite. Minor weathering is indicated by limonitic staining around metal grains. Microprobe analyses show olivine and

pyroxene of variable composition: olivine, Fa₉₋₂₆, mean Fa₂₂ (CV FeO is 19); pyroxene, Fs₈₋₁₈. The variability of olivine and pyroxene compositions indicates type 3, and the small amount of nickel-iron L group, hence the meteorite is classified as an L3 chondrite (estimated L3.8).

Sample No.: EET90628
Location: Elephant Moraine
Field Number: 7182
Dimensions (cm): 2.5 x 2 x 1.5
Weight (g): 23.0
Meteorite Type: L3 chondrite

Macroscopic Description: Cecilia Satterwhite

The exterior surface of this chondrite is covered with shiny fractured black fusion crust. A bluish colored evaporite deposit is pervasive. The interior is chock-full of inclusions/chondrules. Most of the chondrules have well-defined edges. A 3 mm sized clast was noted. Matrix is dark gray.

Thin Section (.2) Description: Brian Mason

The section shows a close-packed aggregate of chondrules and chondrule fragments, up to 2.4 mm across, in a dark matrix containing small mineral grains and a little nickel-iron and troilite. Minor weathering is indicated by some brown limonitic staining, mostly in association with the metal grains. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa₁₋₂₀, mean Fa₁₁ (CV FeO is 48); pyroxene, Fs₁₋₁₉. The variability of olivine and pyroxene compositions indicates type 3, and the small amount of nickel-iron L group, hence the meteorite is classified as an L3 chondrite (estimated L3.5).

Sample No.: LAP91900
Location: LaPaz Icefield
Field Number: 7710
Dimensions (cm): 13.0 x 6.9 x 6.0
Weight (g): 786.9
Meteorite Type: Diogenite

Macroscopic Description: Cecilia Satterwhite

This light grayish-green colored achondrite has dull, black, patchy fusion crust scattered over the exterior. The crystalline interior surfaces are more greenish-gray in color. A minor amount of metal is visible in the medium to coarse grained textured matrix.

Thin Section (.8) Description: Brian Mason

The section consists of orthopyroxene clasts, up to 3.6 mm in maximum dimension, in a groundmass of comminuted orthopyroxene. Pyroxene compositions are essentially uniform, Wo_2Fs_{23} , with Al_2O_3 0.5%, MnO 0.6%. This meteorite is a diogenite.

Sample No.: PAT91501
Location: Patuxent Range
Field Number: 4742, 5482, 5772, 6254, 6261
Dimensions (cm): 19.1 x 14.3 x 14.5 plus many large fragments
Weight (g): 8550.6
Meteorite Type: L7 chondrite

Macroscopic Description: Robbie Marlow and Roberta Score

The exterior of this handsome green rock is extremely polished but no fusion crust remains on any of the many fragments collected. A minute amount of evaporite deposit lines some of the thin exterior fractures. Large (>1 cm) inclusions of copper-colored sulfides are scattered throughout this meteorite. One area shows a highly vesicular texture on both interior and exterior surfaces.

A 2 mm thick weathering rind was noted when PAT91501 was cleaved. The interior is coarse-grained, has a granular texture, and is very green in color.

The oxygen isotopic composition of PAT 91501,19 has been measured by T.K. Mayeda and R.N. Clayton, and is closest to that of L-chondrites. For PAT 91501, $\delta^{18}O = +4.7\%$, $\delta^{17}O = +3.7\%$, compared with the mean for L4, L5, and L6: $\delta^{18}O = +4.70 \pm 0.24$, $\delta^{17}O = +3.52 \pm 0.14$ (Clayton et al., *Geochim. Cosmochim. Acta* 55, 2317, 1991).

Thin Section (.26 & .28) Description: Brian Mason

The sections show an equigranular aggregate of anhedral to subhedral olivine and pyroxene (average grain size 0.4 mm), with minor plagioclase and accessory nickel-iron and troilite. Plagioclase laths are larger than olivine and pyroxene (up to 3 mm long) and poikilitically enclose these minerals. Minor weathering is indicated by a small amount of limonitic staining in 91501,28. Microprobe analyses show the following compositions: olivine, Fa_{24} ; pyroxene, Wo_2-6Fs_{20} ; plagioclase, An_{12} . The mineral compositions are characteristic of an L-group chondrite, but the absence of chondrules and the small amount of metal and troilite indicate complete recrystallization. The meteorite is therefore tentatively classified as an L7 chondrite; it resembles the Shaw meteorite (*Geochim. Cosmochim. Acta*, v. 31, p. 1705, 1967).

Sample No.: PCA91002
Location: Pecora Escarpment
Field Number: 5499
Dimensions (cm): 7.8 x 4.9 x 4.7
Weight (g): 210.2
Meteorite Type: Ungrouped chondrite (similar to ALH85151 and Carlisle Lake)

Macroscopic Description: Robbie Marlow

One third of PCA91002 is covered with dull, dark brown fusion crust. Evaporite deposit is present on the interior and exterior surfaces. The interior matrix is fine-grained, dark gray, and contains numerous inclusions which have a wide range of sizes. Sulfides are present.

Thin Section (.8) Description: Brian Mason

The section shows numerous polycrystalline silicate clasts (up to 1.2 mm in maximum dimension), some small chondrules (up to 0.5 mm across), and mineral grains in a finely-granular gray matrix. A moderate amount of sulfides is present, much of it as minute grains disseminated through the matrix. No nickel-iron was seen. The meteorite appears to be unweathered. Microprobe analyses show olivine and pyroxene of variable composition. Olivine compositions show a prominent peak at Fa₃₉, with occasionally more magnesian grains (CV FeO is 44). The pyroxene is almost entirely low-Ca: Wo_{0.3-5}, Fs₁₋₂₈; one grain of diopside, Wo₄₅Fs₁₂, was analyzed. Maskelynite is present in a few clasts. The sulfides are mainly pentlandite, with minor troilite. This meteorite cannot readily be placed in any of the recognized chondrite classes, and hence is recorded as ungrouped. It is very similar to ALH85151 and Carlisle Lake (Geochim. Cosmochim. Acta, v. 53, p. 3035, 1989; v. 55, p. 2657, 1991).

Sample No.: PCA91003
Location: Pecora Escarpment
Field Number: 6220
Dimensions (cm): 5.0 x 2.1 x 1.8
Weight (g): 117.2
Meteorite Type: Heat-altered coarse octahedrite?

Macroscopic Description: Roy S. Clarke, Jr.

This somewhat elongated, irregular shaped mass has a reddish brown weathering crust that contains small patchy black areas and is mildly corrosion pitted.

Polished Section Description: Roy S. Clarke, Jr.

A slice was removed from near the heavy end of the specimen and a polished section of ~2.4 cm³ was prepared from half of it. Exterior edges of the section are covered with patches of secondary corrosion products from 50 to 350 μm thick over about 80% of the surface. Corrosion has invaded along major grain boundaries visible on sawn surfaces and on the polished section. This grain boundary pattern suggests a coarse octahedrite

structure. The interior of the section, however, reveals a preterrestrial heat-altered structure, predominantly recrystallized kamacite. Dimensions of recrystallized grains vary from a few microns to a few hundreds of microns. Micron to submicron precipitates are common along kamacite grain boundaries and within kamacite grains. Many of these seem to be kamacite, but some are undoubtedly taenite. Individual kamacite grains vary in Ni and Co contents, some Ni values as low as 3.5% were observed. Typically kamacite contains ~0.15% P. Remnants of cracked and corroded schreibersite crystals are present. Much of the edge of the section has a several hundred micron rim of an α₂ atmospheric ablation zone superimposed on the original heat altered structure. This specimen is possibly a preterrestrially heat-altered coarse octahedrite.

Sample No.: PCA91004; 91005
Location: Pecora Escarpment
Field Number: 5805; 6208
Dimensions (cm): 2.5 x 2.3 x 2.4; 1.5 x 1.1 x 1.1
Weight (g): 25.7; 3.8
Meteorite Type: Pallasite

Macroscopic Description: Cecilia Satterwhite and Robbie Marlow

The exteriors of these two fragments are brown and shiny. Abundant yellow (olivine) crystals and black (chromite) crystals are prominent in the weathered metal matrix.

Thin Section (PCA91004.2 & .4; 91005.4) Description: Brian Mason

PCA91004.2 consists of individual olivine and chromite grains; the other sections show rounded to subhedral olivine grains, up to 3 mm in maximum dimension, in a matrix of nickel-iron. Some of the metal is rimmed with brown limonite. The olivine has uniform composition, Fa₁₁. The meteorite is a pallasite.

Sample No.: PCA91006
Location: Pecora Escarpment
Field Number: 7707
Dimensions (cm): 7.3 x 4.5 x 2.2
Weight (g): 104.4
Meteorite Type: Eucrite

Macroscopic Description: Cecilia Satterwhite

Seventy percent of this eucrite is covered with dark black fusion crust, which is pitted, fractured and shiny in some areas. Flow marks are present. The interior is light to medium gray and coarse grained with abundant clasts as large as 1 cm. The clasts range in color from white to coarse-grained beige and black (basaltic). Some clasts are oxidized. Metal is visible.

Thin Section (.5) Description: Brian Mason

The section shows numerous clasts, up to 3.6 mm in greatest dimension, in a fine-grained matrix of comminuted pyroxene and plagioclase with accessory opaques. Most of the clasts consist of pyroxene and plagioclase with coarse to fine texture, but some consist entirely of plagioclase. Pyroxene compositions show two groups, low-calcium ($W_{02-5}Fs_{39-55}$) and high-calcium ($W_{038-42}Fs_{16-30}$), with a few grains of intermediate composition. Plagioclase compositions are somewhat variable, An78-91. The meteorite is a eucrite.

Sample No.: PCA91007
Location: Pecora Escarpment
Field Number: 7729
Dimensions (cm): 6.8 x 4.8 x 4.5
Weight (g): 223.6
Meteorite Type: Eucrite

Macroscopic Description: Cecilia Satterwhite

Shiny, black fusion crust covers 40% of the exterior of PCA91007. The interior matrix is medium to coarse grained, and medium gray in color. Abundant green crystals, and minor amounts of metal and oxidation characterize this eucrite.

Thin Section (.8) Description: Brian Mason

The section shows a uniform fine-grained aggregate of granular pyroxene and acicular plagioclase (plagioclase needles up to 0.3 mm

long). The proportion of pyroxene to plagioclase is approximately 2:1. Microprobe analyses show pyroxene compositions ranging fairly continuously from $W_{05}Fs_{56}$ to $W_{030}Fs_{35}$, the range in En content being quite limited. Plagioclase composition is somewhat variable, An80-91. The meteorite is a eucrite.

Sample No.: PCA91008
Location: Pecora Escarpment
Field Number: 8801
Dimensions (cm): 3.9 x 3.1 x 3.4
Weight (g): 51.7
Meteorite Type: C2 chondrite

Macroscopic Description: Robbie Marlow

Ninety percent of the exterior is covered with thin, dull, black fusion crust. A few irregular-shaped beige-colored inclusions dot the dark gray to black matrix. Tiny specks of metal are scattered throughout the interior.

Thin Section (.7) Description: Brian Mason

The section shows numerous small chondrules (up to 0.6 mm across), irregular aggregates, and mineral grains in a black matrix. Remnants of fusion crust are present along one edge. Microprobe analyses show olivine compositions mainly Fa_{0-2} , but with a few iron-rich grains; pyroxene compositions are mainly Fs_1 , but range up to Fs_7 . The meteorite is a C2 chondrite.

Sample No.: TIL91725
Location: Thiel Mountains
Field Number: 7589
Dimensions (cm): 4.0 x 2.5 x 2.0
Weight (g): 91.1
Meteorite Type: Iron with silicate inclusions

Macroscopic Description: Cecilia Satterwhite

The exterior of this irregular-shaped meteorite is dark brown to black and shiny. The interior has an orangish-brown color with abundant silicates in metal. Surfaces are rough and jagged. The white deposit present is probably a weathering feature.

Thin Section (.5) Description: Brian Mason

The section consists of silicate clasts, up to 9 mm in maximum dimension, and individual silicate grains, in a nickel-iron matrix. The clasts are made up mainly of anhedral pyroxene and olivine grains, with some plagioclase. Microprobe analyses show the following compositions: olivine, Fa₅; orthopyroxene, Wo₂Fs₇; diopside, Wo₄₅Fs₃; plagioclase, An₁₂. The meteorite is an iron with silicate inclusions.

TABLE 4

Natural Thermoluminescence (NTL) Data for Antarctic Meteorites

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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 NTL lies between 5 and 100 krad, the natural TL is related primarily to terrestrial age. Samples with NTL <5 krad have TL below that which can reasonably 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, by "anomalous fading". We suggest that meteorites with NTL > 100 krad are candidates for an unusual history involving high radiation doses and/or low temperatures. NTL data for 40 Allan Hills meteorites collected by EUROMET in 1988 have been published in Meteorical Bulletin 71 (Meteoritics 26:3).

Sample	Class	NTL [krad at 250 deg. C]	Sample	Class	NTL [krad at 250 deg. C]
EET90001	C4	1.1 ± 0.1	QUE90229	L5	9.4 ± 0.1
EET90005	C4	1.2 ± 0.4	QUE90230	L5	14.8 ± 0.1
EET90006	C4	<1	QUE90231	L5	7.3 ± 0.1
EET90008	C4	0.4 ± 0.1	QUE90232	L5	6.6 ± 0.1
EET90009	C4	0.7 ± 0.1	QUE90233	L5	9.4 ± 0.1
EET90013	C4	<1	QUE90234	L5	7.6 ± 0.1
EET90016	C4	0.6 ± 0.1	QUE90235	L5	14.2 ± 0.1
EET90025	C4	2.1 ± 0.3	QUE90236	L5	0.7 ± 0.1
WIS90302	H5	63.5 ± 0.1	QUE90237	L5	5.5 ± 0.1
QUE90204	H6	1.0 ± 0.1	QUE90238	L5	4.2 ± 0.4
QUE90205	L5	0.6 ± 0.1	QUE90239	L5	32.6 ± 0.1
QUE90206	L5	1.4 ± 0.4	QUE90240	L5	3.2 ± 0.4
QUE90207	L5	9.7 ± 0.1	QUE90241	L5	9.9 ± 0.1
QUE90208	L5	10.3 ± 0.1	QUE90242	L5	3.2 ± 0.3
QUE90209	L5	8.5 ± 0.1	QUE90243	L5	7.1 ± 0.1
QUE90210	L5	1.2 ± 0.2	QUE90244	L5	9.7 ± 0.1
QUE90211	L5	0.3 ± 0.1	QUE90245	L5	5.1 ± 0.1
QUE90212	L5	0.6 ± 0.1	QUE90246	L5	11.4 ± 0.1
QUE90213	L5	10.7 ± 0.1	QUE90247	L5	2.5 ± 0.5
QUE90214	L5	12.3 ± 0.1	QUE90248	L5	10.3 ± 0.1
QUE90215	L5	8.8 ± 0.1	QUE90249	L5	0.7 ± 0.2
QUE90216	L5	11.8 ± 0.1	QUE90250	L5	6.6 ± 0.1
QUE90217	L5	1.5 ± 0.1	QUE90251	L5	0.6 ± 0.1
QUE90218	L5	34 ± 3	QUE90252	L5	14.3 ± 0.1
QUE90219	L5	12.3 ± 0.1	QUE90254	L5	6.9 ± 0.1
QUE90221	L5	0.5 ± 0.1	QUE90257	L5	12.1 ± 0.1
QUE90224	L5	2 ± 2	QUE90258	L5	10.1 ± 0.1
QUE90225	L5	9.5 ± 0.1	QUE90259	L5	10.0 ± 0.1
QUE90226	L5	0.3 ± 0.1	QUE90260	L5	9.7 ± 0.1
QUE90227	L5	2.1 ± 0.1	QUE90261	L5	3.3 ± 0.7
			QUE90263	L5	0.7 ± 0.3
			QUE90264	L5	4 ± 1
			QUE90267	L5	2.4 ± 0.5

Sample	Class	NTL [krad at 250 deg. C]	Sample	Class	NTL [krad at 250 deg. C]
QUE90271	L5	3.1 ± 0.2	WIS90300	L5	197.1 ± 0.1
QUE90272	L5	12.1 ± 0.1	WIS90303	L5	5.9 ± 0.1
QUE90282	L5	10.1 ± 0.1	QUE90222	L6	11.3 ± 0.1
QUE90283	L5	5.4 ± 0.1	WIS90301	L6	40.2 ± 0.1
QUE90285	L5	3.7 ± 0.2			

The quoted uncertainties are the standard deviations shown by replicate measurements of 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 group sample descriptions.

QUE90222 (L6) and QUE90226 (L5) may have been shocked.

Pairings (Confirmations of pairings suggested in AMN 15:1 and 15:2):

C4: EET90001, EET90005, EET90006, EET90008, EET90009,
EET90013, EET90016, and EET90025 with EET87507

L5: QUE90207, QUE90208, QUE90209, QUE90213, QUE90214,
QUE90215, QUE90216, QUE90219, QUE90225, QUE90229,
QUE90230, QUE90231, QUE90232, QUE90233, QUE90234,
QUE90235, QUE90237, QUE90241, QUE90243, QUE90244,
QUE90245, QUE90246, QUE90248, QUE90250, QUE90252,
QUE90254, QUE90257, QUE90258, QUE90259, QUE90260,
QUE90272, QUE90282, and QUE90283.

L5: QUE90205, QUE90206, QUE90210, QUE90211, QUE90212,
QUE90217, QUE90221, QUE90224, QUE90227, QUE90236,
QUE90238, QUE90240, QUE90242, QUE90247, QUE90249,
QUE90251, QUE90261, QUE90263, QUE90264, QUE90267,
QUE90271, and QUE90285.

Pairing of the QUE90205 group with the QUE90207 group
is possible.

L5: QUE90201 and QUE90202 (TL data reported in AMN
15:1) are paired with the QUE90207 group.

TABLE 5

²⁶Al ACTIVITY DATA FOR ANTARCTIC METEORITES

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SPECIMEN NUMBER	CLASS	²⁶ Al Activity (dpm/kg)	SPECIMEN NUMBER	CLASS	²⁶ Al Activity (dpm/kg)
ALHA 76001	L6	63 ±3	ALHA 83065	H5	65 ±5
ALHA 76003	L6	64 ±5	ALHA 83100	C2	12 ±1
ALHA 76009	L6	65 ±5	ALHA 83101,0	L6	90 ±3
ALHA 77222	H4	59 ±4	ALHA 83102	C2	11 ±1
ALHA 77226	H4	59 ±3	ALHA 84002	L6	52 ±4
ALHA 78084	H4	45 ±2	ALHA 84005	L5	51 ±3
ALHA 79005	H6	61 ±5	ALHA 84028	C3V	43 ±3
ALHA 81015	H5	49 ±3	ALHA 84029	C2	12 ±1
ALHA 81016	L6	55 ±4	ALHA 84033	C2	52 ±3
ALHA 81018	L5	41 ±3	ALHA 84044	C2	14 ±3
ALHA 81021	E6	44 ±3	ALHA 84056	L6	70 ±4
ALHA 81023	L5	36 ±1	ALHA 84065	L6	57 ±4
ALHA 81027	L6	45 ±3	ALHA 84100	H5	59 ±4
ALHA 81030	L3	53 ±3	ALHA 84101	H6	66 ±4
ALHA 81033	H5	64 ±4	ALHA 84102	L6	94 ±4
ALHA 81034	H5	51 ±3	ALHA 84103	H4	34 ±2
ALHA 81036	H5	49 ±3	ALHA 84107	LL6	59 ±4
ALHA 81037	H6	56 ±4	ALHA 84111	H5	51 ±3
ALHA 81067	H5	55 ±3	ALHA 84131	H5	59 ±4
ALHA 81256	H5	48 ±5	ALHA 84153	H6	78 ±4
ALHA 83012	H5	50 ±3			
ALHA 83025	H5	47 ±4	EETA 82601	L3	65 ±4
ALHA 83029	H5	42 ±3			
ALHA 83038	L3	44 ±3	PCA 82511	H4	51 ±3
ALHA 83040	H5	52 ±3			
ALHA 83057	H5	40 ±2	TIL 82415	H5	50 ±3
ALHA 83062	H5	58 ±4			

Uncertainties are calculated from counting statistics. All data have been corrected for background effects and counting geometry, and preliminary corrections have been made for sample geometry effects. For more information or to request a copy of the complete Battelle ²⁶Al dataset, please contact John Wacker [telephone: (509) 376-1076; FAX: (509) 376-5021].

The Antarctic Meteorite Location and Mapping Project (AMLAMP) Announces New Maps and Services (TA-DA)

Four new meteorite location maps and accompanying explanatory texts are now available from AMLAMP. These are:

- 1) The Pecora Escarpment Meteorite Location Map, 1992 Edition (preliminary), showing the location of the 1982 and 1991 (field numbers only) collection.
- 2) The Thiel Mountains Map Series - Moulton Escarpment Meteorite Map, 1992 Edition showing the locations of the 1982 and 1991 collections.
- 3) The Wisconsin Range Map Series - Upper Reedy Glacier Area Meteorite Location Map, 1992 Edition with the locations of the 1991 collections.
- 4) The Beardmore Region Map Series - Queen Alexandra Range - Goodwin Nunataks Area Meteorite Location Map, 1992 Edition with the locations of the 1986 and 1990 collections.

Examples of one of these new maps is shown in the following figure. These maps or thematic maps may be ordered from AMLAMP using the included order form. In addition, meteorite location map or thematic maps of the Allan Hills icefields, the Lewis Cliff icefields, and the Elephant Moraine icefields can also be ordered. However, please note that thematic map design is a time consuming process, so please be patient.

The AMLAMP maps and databases are also now available through the NASA Science Internet computer network. The map files are in a graphics format used by Hewlett Packard plotters called the HPGL format. These files can be downloaded and maps plotted out on site if an E size HP plotter is available. These files have the extension *.HPGL. A freeware viewing utility software package is also available on the network which will allow the *.HPGL files to be viewed on the PC VGA monitor. Explanatory texts for the newer maps and updated editions of other maps are also included. The raw database files which includes location data (latitude and longitude) are also available.

The files are available on the LPI computer via TCP/IP from most Unix computer systems or DECNET from most DEC VMS computer systems.

To access the AMLAMP files via TCP/IP use FTP:

```
% ftp lpi.jsc.nasa.gov
or
% ftp 192.101.147.11
```

Enter "anonymous" as the USERNAME and your last name as the PASSWORD.

To access the AMLAMP files via DECNET use COPY:

```
$ COPY LPI::DUA2:
[ANONYMOUS.AMLAMP]README.1ST
or
$ COPY 9258::DUA2:
[ANONYMOUS.AMLAMP]README.1ST
```

All AMLAMP files are located in the AMLAMP subdirectory of ANONYMOUS. The README.1ST file describes the AMLAMP directory and file structures and is highly recommended as the first file to download.

If you have any questions about downloading AMLAMP please consult your local TCP/IP or DECNET expert or call Brian Fessler at the Lunar and Planetary Institute, (713) 486-2184.

