Antarctic Meteorite NEWSLETTER

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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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Code SN2, NASA
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77058

SAMPLE REQUEST DEADLINE: October 15, 1990 !!!

MWG MEETS November 1-3, 1990

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 15, 1990 will be reviewed at the MWG meeting on November 1-3 to be held in Washington D.C. Requests that are received after the October 15 deadline may possibly be delayed for review until the MWG meets again in the Spring of 1991. **PLEASE SUBMIT YOUR REQUESTS ON TIME.** Questions pertaining to sample requests can be directed in writing to the above address or can be directed by telephone 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. Consortium requests should be initialed or countersigned by a member of each group in the consortium. All necessary information should be condensable into a one- or two-page letter, although informative attachments (reprints of publications 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 260 new meteorites from the 1986 and 1988 collections. Descriptions are given for the fifteen meteorites of special petrologic type which include three achondrites, one iron, one enstatite chondrite and ten type 3 ordinary chondrites. The most unusual are LEW88280, a unique achondrite, and LEW88055, an anomalous iron. The tables also include reclassifications of several specimens based on studies brought to our attention since publication of our comprehensive catalog (AMN 13(1)).

New MWG Secretary

John Annexstad retired as MWG secretary following the April meeting. John helped to set up the meteorite curation program and has served as MWG secretary since the committee was instituted. We wish to thank John for his many years of dedicated service to the committee and the US Antarctic Meteorite Program.

Roberta Score of JSC's Antarctic Meteorite Laboratory has been appointed the new MWG secretary. Although Robbie may not be able to literally fill John's shoes, she has lots of experience with the Antarctic Meteorite Program and is ready to take on the task.

German Antarctic Meteorites

The Germans have joined the ranks of Antarctic meteorite curators. A 1988 German expedition to study ice movements in the Allan Hills collected 198 meteorites. Ludolf Schultz of the Max-Planck Institut fur Chemie, Mainz, was a member of the expedition and is responsible for their curation. The specimens, which are named Allan Hills 88001 to 88198, are currently being described and classified by several European groups. Descriptions of two carbonaceous chondrites were presented by Wlotzka and others at the 1989 Meteoritical Society Meeting and are published in Meteoritics 24(4). Classifications of these carbonaceous chondrites and twelve ordinary chondrites will appear in the next Meteoritical Bulletin in Meteoritics 25(3). Requests for chips or thin sections of these meteorites for scientific research should be directed in writing to Schultz.

FROM 1986-1988 COLLECTIONS

Pages 6-19 contain preliminary descriptions and classifications of meteorites that were completed since publication of issue 13(2) (March 1990). Some large (>150g) specimens (regardless of petrologic type) and all "pebble"-sized (<150g) 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:

Robbie Marlow, Rene Martinez,
Cecilia Satterwhite,
Carol Schwarz, Roberta Score
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Houston, Texas

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Department of Mineral Sciences
U.S. National Museum of
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Washington, D.C.

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
LEW	Lewis Cliff
MAC	MacAlpine Hills
MBR	Mount Baldr
MET	Meteorite Hills
MIL	Miller Range
OTT	Outpost Nunatak
QUE	Queen Alexandra Range
PCA	Pecora Escarpment
PGP	Purgatory Peak
RKP	Reckling Peak
TIL	Thiel Mountains
TYR	Taylor Glacier

****NOTES TO TABLES 1 AND 2:**

"Weathering" categories:

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

"Fracturing" categories:

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

TABLE 1

List of Newly Classified Antarctic Meteorites **

Sample Number	Weight (g)	Classification	Weathering	Fracturing	%Fa	%Fs
ALHA81313*	.5	EUCRITE				38
ALH 85151*	13.9	CHONDRITE (UNIQUE)	B	A/B	0.4-41	6-30
EET 83213*	2727.0	LL-3 CHONDRITE	Be	A	13-30	3-26
LEW 86102	21.8	H-3 CHONDRITE	C	A	1-48	1-41
LEW 86103	9.2	H-5 CHONDRITE	C	A	19	16
LEW 86104	33.8	H-5 CHONDRITE	C	A	19	16
LEW 86105	6.4	H-3 CHONDRITE	C	A	1-50	1-32
LEW 86106	5.8	H-5 CHONDRITE	C	A	18	16
LEW 86107	47.3	H-5 CHONDRITE	C	A	19	17
LEW 86108	4.2	H-5 CHONDRITE	C	A	18	16
LEW 86109	17.4	H-5 CHONDRITE	C	A	18	16
LEW 86111	32.9	H-5 CHONDRITE	C	A	18	16
LEW 86112	17.8	H-5 CHONDRITE	Ce	A	19	17
LEW 86114	8.7	H-4 CHONDRITE	B/C	A	18	7-25
LEW 86116	16.7	H-5 CHONDRITE	C	A	19	17
LEW 86118	29.7	H-5 CHONDRITE	C	A	18	16
LEW 86119	44.3	H-4 CHONDRITE	C	A	18	15-20
LEW 86121	7.6	H-5 CHONDRITE	B/C	A	18	16
LEW 86122	9.3	H-5 CHONDRITE	C	A	19	17
LEW 86124	7.7	L-5 CHONDRITE	B/C	A	25	20
LEW 86125	13.7	H-5 CHONDRITE	C	A	17	15
LEW 86126	6.7	H-5 CHONDRITE	C	A	19	17
LEW 86128	15.1	H-5 CHONDRITE	C	A	18	16
LEW 86129	7.0	H-5 CHONDRITE	B/C	B	19	17
LEW 86130	2.7	H-5 CHONDRITE	C	A	19	16
LEW 86131	9.8	H-5 CHONDRITE	C	A	18	16
LEW 86136	12.5	H-5 CHONDRITE	C	B	18	16
LEW 86138	46.9	L-4 CHONDRITE	C	A	24	15-24
LEW 86142	14.3	H-5 CHONDRITE	C	A	18	16
LEW 86143	23.4	H-5 CHONDRITE	C	A	18	16
LEW 86145	3.8	LL-5 CHONDRITE	B/C	B	28	23
LEW 86385	34.5	H-5 CHONDRITE	C	A	18	16
LEW 86390	30.2	H-4 CHONDRITE	C	A	16	11-15
LEW 86407	36.3	H-5 CHONDRITE	C	A/B	19	17
LEW 86438	45.4	H-5 CHONDRITE	C	A	17	15
LEW 86451	33.5	H-5 CHONDRITE	C	A	18	16
LEW 86453	49.4	H-5 CHONDRITE	C	A/B	18	16
LEW 86455	49.9	H-5 CHONDRITE	C	A	18	16
LEW 86500	45.2	H-5 CHONDRITE	C	A	19	17
LEW 86506	30.0	H-5 CHONDRITE	B/C	A/B	19	17
LEW 86515	33.9	H-5 CHONDRITE	B/C	A	18	16
LEW 86517	32.4	H-5 CHONDRITE	B/C	A	17	15
LEW 86518	267.3	H-5 CHONDRITE	B/Ce	B	18	16
LEW 86525	46.3	H-5 CHONDRITE	C	A	17	15
LEW 86546	41.2	L-6 CHONDRITE	C	A	23	19

~Classified by using refractive indices.
*Classification change.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	%Fa	%Fs
EET 87560*	389.9	H-5 CHONDRITE	C	A		
LEW 88028	6.7	H-6 CHONDRITE	Ce	A	18	16
LEW 88030	35.2	H-5 CHONDRITE	C	A	19	16
LEW 88032	11.2	L-5 CHONDRITE	B/C	A	25	21
LEW 88033	1.9	L-3 CHONDRITE	B	A	1-32	2-19
LEW 88034	7.3	H-5 CHONDRITE	C	A	18	16
LEW 88035	6.1	H-5 CHONDRITE	B/C	A	17	15
LEW 88036	4.1	H-5 CHONDRITE	C	B	18	16
LEW 88037	3.8	H-5 CHONDRITE	B/C	A	18	16
LEW 88040	10.6	H-5 CHONDRITE	B/C	A	18	16
LEW 88041	9.2	L-6 CHONDRITE	B/C	A	24	20
LEW 88044	7.9	L-5 CHONDRITE	B	B	24	20
LEW 88046	5.5	H-5 CHONDRITE	B/C	A	18	16
LEW 88047	6.8	H-5 CHONDRITE	Ce	B	18	16
LEW 88051	7.2	H-5 CHONDRITE	B/C	A	18	16
LEW 88052	.5	H-5 CHONDRITE	B/C	A	17	15
LEW 88053	6.3	H-5 CHONDRITE	B/C	B	19	16
LEW 88054	6.1	H-5 CHONDRITE	B/C	A	18	16
LEW 88055	1.7	IRON-ANOMALOUS		A		
LEW 88057	8.4	H-5 CHONDRITE	B/Ce	A	18	16
LEW 88059	10.8	L-6 CHONDRITE	B/C	A	24	20
LEW 88062	8.9	H-5 CHONDRITE	B/C	A	18	16
LEW 88064	28.9	H-5 CHONDRITE	B/C	A	18	16
LEW 88065	9.1	H-5 CHONDRITE	B/C	B	18	16
LEW 88068	8.0	L-4 CHONDRITE	B	A	23	20
LEW 88070~	5.5	H-6 CHONDRITE	B/C	A		
LEW 88071~	8.3	H-6 CHONDRITE	B/C	A		
LEW 88072~	32.6	H-6 CHONDRITE	B/C	A		
LEW 88073~	3.2	L-6 CHONDRITE	B/C	A		
LEW 88074~	2.2	H-6 CHONDRITE	C	A		
LEW 88075~	6.9	L-6 CHONDRITE	B	A		
LEW 88076~	4.2	H-6 CHONDRITE	C	A		
LEW 88077	20.6	H-6 CHONDRITE	B/C	A	17	15
LEW 88078	9.7	L-5 CHONDRITE	B	A	23	20
LEW 88079	7.0	H-5 CHONDRITE	B/C	A	18	16
LEW 88080	11.0	H-5 CHONDRITE	B/C	A	18	16
LEW 88081	11.5	H-5 CHONDRITE	B/C	A	18	16
LEW 88082~	27.2	L-6 CHONDRITE	B/C	A		
LEW 88083~	7.9	H-6 CHONDRITE	B/C	A		
LEW 88084~	36.2	H-6 CHONDRITE	B/C	A		
LEW 88085	7.3	H-5 CHONDRITE	B/C	A	19	17
LEW 88086	4.4	H-6 CHONDRITE	B/C	A	17	15
LEW 88087~	14.3	L-6 CHONDRITE	B/C	A		
LEW 88088	25.5	H-5 CHONDRITE	B/C	A	19	17
LEW 88089	7.7	L-5 CHONDRITE	B	A	23	19
LEW 88090~	7.8	H-6 CHONDRITE	B/C	A		
LEW 88091	3.5	H-5 CHONDRITE	B/C	A	18	16
LEW 88092	11.9	H-5 CHONDRITE	B	B	19	17
LEW 88093	3.8	H-5 CHONDRITE	B/C	A	17	15
LEW 88094~	12.3	H-6 CHONDRITE	B/C	A		
LEW 88095~	11.9	H-6 CHONDRITE	B/C	A		

~Classified by using refractive indices.
*Classification change.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	%Fa	%Fs
LEW 88096	5.2	H-5 CHONDRITE	B	A	18	16
LEW 88097	9.1	H-5 CHONDRITE	B/C	A	18	16
LEW 88098~	12.3	L-6 CHONDRITE	B	A		
LEW 88099	7.0	H-5 CHONDRITE	B/C	A	19	17
LEW 88100	21.6	H-6 CHONDRITE	B/C	B	19	17
LEW 88102~	10.9	H-6 CHONDRITE	B/C	A		
LEW 88103~	3.8	L-6 CHONDRITE	B	A		
LEW 88104~	11.9	H-6 CHONDRITE	B/Ce	A		
LEW 88105	9.5	H-5 CHONDRITE	B/C	A	18	16
LEW 88107	9.0	H-5 CHONDRITE	B/C	A	18	16
LEW 88108	12.6	L-5 CHONDRITE	B	A	23	19
LEW 88109	19.8	L-5 CHONDRITE	B/C	A	23	20
LEW 88110~	33.7	H-6 CHONDRITE	B/C	A		
LEW 88111	25.2	H-5 CHONDRITE	B/C	A	17	15
LEW 88112	9.9	L-4 CHONDRITE	A/B	A	23	20
LEW 88113~	7.4	L-6 CHONDRITE	B	A		
LEW 88114	9.3	H-5 CHONDRITE	B/C	A	19	17
LEW 88115	17.0	H-5 CHONDRITE	B/C	A	18	16
LEW 88116	73.1	H-5 CHONDRITE	B/C	A	18	16
LEW 88117	7.1	H-5 CHONDRITE	B/C	A	18	16
LEW 88118~	11.1	L-6 CHONDRITE	B/C	A		
LEW 88119	39.4	H-6 CHONDRITE	B/Ce	A		
LEW 88120	32.1	H-5 CHONDRITE	B/C	A	18	16
LEW 88121	15.6	H-3 CHONDRITE	B/C	A	1-23	8-17
LEW 88122	8.3	H-5 CHONDRITE	B/C	A	18	16
LEW 88123~	3.8	L-6 CHONDRITE	B/C	A		
LEW 88124~	4.3	LL-6 CHONDRITE	B	A		
LEW 88125~	23.4	L-6 CHONDRITE	B	A		
LEW 88126	3.8	H-5 CHONDRITE	B/C	A	18	16
LEW 88127	8.8	H-5 CHONDRITE	C	A	18	16
LEW 88128~	3.4	H-6 CHONDRITE	B/C	A		
LEW 88129~	17.9	H-6 CHONDRITE	B	A		
LEW 88131~	4.5	H-6 CHONDRITE	B/C	A		
LEW 88134~	5.7	L-6 CHONDRITE	B/C	A		
LEW 88136~	34.6	H-6 CHONDRITE	B/C	A		
LEW 88137	26.1	H-4 CHONDRITE	B	A	18	13-16
LEW 88139~	5.1	L-6 CHONDRITE	B	A		
LEW 88143	53.4	H-5 CHONDRITE	B/C	A	18	16
LEW 88146	5.0	L-3 CHONDRITE	A/B	A	14-28	6-21
LEW 88156	32.0	H-4 CHONDRITE	B/C	A	18	16
LEW 88157	22.1	H-5 CHONDRITE	B/C	A	19	17
LEW 88158	35.1	H-5 CHONDRITE	B/C	A	19	17
LEW 88159	32.8	H-5 CHONDRITE	B/C	A	18	16
LEW 88160	21.1	H-5 CHONDRITE	B/C	A	19	17
LEW 88161	22.0	H-4 CHONDRITE	B/C	A	17	8-14
LEW 88162	29.1	H-5 CHONDRITE	B/C	A	17	15
LEW 88163	79.1	H-4 CHONDRITE	B/C	A	19	12-23
LEW 88164~	74.2	L-6 CHONDRITE	B	A		
LEW 88165~	52.3	L-6 CHONDRITE	B	A		
LEW 88166~	26.4	H-6 CHONDRITE	B/C	A/B		
LEW 88167	59.1	H-5 CHONDRITE	B/C	A	18	16
LEW 88168	23.0	H-4 CHONDRITE	B/C	A	18	10-19
LEW 88169~	100.8	L-6 CHONDRITE	B/C	A		

~Classified by using refractive indices.
*Classification change.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	%Fa	%Fs
LEW 88170	14.9	L-5 CHONDRITE	B	A	23	20
LEW 88171	21.4	H-5 CHONDRITE	B/C	A	18	16
LEW 88172	20.0	H-5 CHONDRITE	B/C	A	19	17
LEW 88173	51.3	H-5 CHONDRITE	B/C	A/B	18	16
LEW 88174	103.8	H-4 CHONDRITE	B/C	A	19	9-18
LEW 88175	111.3	LL-3 CHONDRITE	B/Ce	A	5-31	2-25
LEW 88177~	83.8	L-6 CHONDRITE	B	A/B		
LEW 88178~	55.4	L-6 CHONDRITE	A/B	A		
LEW 88179~	18.6	H-6 CHONDRITE	B/C	A		
LEW 88180	46.5	E-6 CHONDRITE	B/Ce	A		0-13
LEW 88181	34.7	H-5 CHONDRITE	B/C	A	19	16
LEW 88182~	53.0	L-6 CHONDRITE	B	A		
LEW 88183~	17.5	H-6 CHONDRITE	B/C	A		
LEW 88184	47.6	L-5 CHONDRITE	B	A	23	20
LEW 88185	45.5	L-5 CHONDRITE	A/B	A	23	20
LEW 88186	47.1	H-6 CHONDRITE	B/C	A	18	16
LEW 88187~	35.4	L-6 CHONDRITE	B	A		
LEW 88188~	45.1	L-6 CHONDRITE	B/C	A		
LEW 88189~	43.8	L-6 CHONDRITE	B	A		
LEW 88190~	131.3	L-6 CHONDRITE	A	A		
LEW 88191~	32.0	H-6 CHONDRITE	B/C	A		
LEW 88192	39.2	L-5 CHONDRITE	B	A	24	21
LEW 88193	37.5	H-5 CHONDRITE	B/C	A	19	16
LEW 88194	20.5	L-5 CHONDRITE	B/C	A	25	21
LEW 88195~	45.1	L-6 CHONDRITE	B/Ce	A		
LEW 88196~	36.2	L-6 CHONDRITE	B/C	A		
LEW 88197~	48.0	H-6 CHONDRITE	B/C	A		
LEW 88198~	71.7	H-6 CHONDRITE	B/C	A		
LEW 88199	69.0	H-5 CHONDRITE	B/C	A	18	16
LEW 88200	56.0	H-5 CHONDRITE	B/C	A	18	16
LEW 88201	46.4	UREILITE	B/Ce	A	8	8
LEW 88202	36.4	H-5 CHONDRITE	B/C	A	19	16
LEW 88203	30.9	H-5 CHONDRITE	B/C	A	18	16
LEW 88204	21.3	L-5 CHONDRITE	B/C	A	24	21
LEW 88205	44.0	H-5 CHONDRITE	B/Ce	A	18	16
LEW 88206	34.4	H-5 CHONDRITE	B/C	A	19	16
LEW 88207	21.3	H-5 CHONDRITE	B/C	A	19	17
LEW 88208	30.5	L-5 CHONDRITE	B/C	A	24	21
LEW 88210~	60.9	L-6 CHONDRITE	B/C	A		
LEW 88211~	33.4	L-6 CHONDRITE	B/C	A		
LEW 88212	47.5	H-5 CHONDRITE	B/C	A	18	16
LEW 88213	34.3	H-5 CHONDRITE	B/C	A	18	16
LEW 88214	76.5	H-5 CHONDRITE	B/C	A	18	16
LEW 88215	29.8	H-6 CHONDRITE	B/C	A	19	16
LEW 88216~	13.1	L-6 CHONDRITE	B/C	A		
LEW 88217~	13.5	L-6 CHONDRITE	B/C	A		
LEW 88218	37.0	H-6 CHONDRITE	B/C	A	18	16
LEW 88219	38.7	H-5 CHONDRITE	B/C	A	19	16
LEW 88220~	5.2	L-6 CHONDRITE	B/C	A		
LEW 88223~	6.7	H-6 CHONDRITE	B/C	A		
LEW 88224~	4.3	H-6 CHONDRITE	B/C	A		
LEW 88225~	21.0	L-6 CHONDRITE	B/C	A		
LEW 88226~	9.8	L-6 CHONDRITE	B/C	A		

~Classified by using refractive indices.
*Classification change.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	%Fa	%Fs
LEW 88227~	7.9	L-6 CHONDRITE	B/C	A		
LEW 88229~	3.4	H-6 CHONDRITE	B/C	A		
LEW 88231~	2.5	H-6 CHONDRITE	B/C	A		
LEW 88233~	12.8	H-6 CHONDRITE	B/C	A/B		
LEW 88234~	7.3	L-6 CHONDRITE	B/C	A		
LEW 88240~	9.8	H-6 CHONDRITE	B/C	A		
LEW 88244	3.9	L-5 CHONDRITE	C	A	23	20
LEW 88245~	6.3	L-6 CHONDRITE	B/C	A		
LEW 88248~	13.5	L-6 CHONDRITE	B/C	A		
LEW 88250~	5.5	H-6 CHONDRITE	B/C	A		
LEW 88251	3.8	H-4 CHONDRITE	B/C	A	19	8-20
LEW 88252~	1.8	H-6 CHONDRITE	B/C	A		
LEW 88253~	20.4	H-6 CHONDRITE	B/C	A		
LEW 88254	13.5	L-3 CHONDRITE	B/C	A	1-30	1-22
LEW 88255~	3.8	L-6 CHONDRITE	B/C	A		
LEW 88256~	4.6	H-6 CHONDRITE	B/C	A		
LEW 88260~	6.4	H-6 CHONDRITE	B/C	A		
LEW 88261	17.6	L-3 CHONDRITE	B	A	3-41	5-19
LEW 88263	8.8	L-3 CHONDRITE	B/C	A	3-36	2-23
LEW 88268~	2.7	L-6 CHONDRITE	B/C	A		
LEW 88270~	9.3	H-6 CHONDRITE	B/C	A/B		
LEW 88271~	11.9	L-6 CHONDRITE	B	A		
LEW 88272~	3.1	L-6 CHONDRITE	B/C	A		
LEW 88273~	4.1	L-6 CHONDRITE	B/C	A		
LEW 88275~	11.7	L-6 CHONDRITE	B/C	A		
LEW 88277	5.2	LL-5 CHONDRITE	B/C	A	29	24
LEW 88280	6.0	ACHONDRITE (UNIQUE)	B	A	13	12
LEW 88281	9.7	UREILITE	B	A	9	8
LEW 88282~	3.3	L-6 CHONDRITE	B/C	A		
LEW 88284~	2.4	L-6 CHONDRITE	B/C	A		
LEW 88285~	3.9	L-6 CHONDRITE	B/C	A/B		
LEW 88288~	3.0	L-6 CHONDRITE	B/C	A		
MAC 87320*	16.2	CARBONACEOUS C2R	Be	A	1-30	1-7
MAC 88134	159.8	H-5 CHONDRITE	B/C	A	18	16
MAC 88135	101.6	H-5 CHONDRITE	B	A	17	15
MAC 88138	115.6	H-5 CHONDRITE	Be	A	17	15
MAC 88139	91.8	H-5 CHONDRITE	B	A	17	15
MAC 88140	30.0	L-6 CHONDRITE	B	A	23	20
MAC 88142	16.6	L-6 CHONDRITE	A/B	A	23	20
MAC 88143	33.6	H-5 CHONDRITE	B/C	A	17	15
MAC 88147	98.4	H-5 CHONDRITE	B	B	17	15
MAC 88149	52.5	H-6 CHONDRITE	C	B/C	19	17
MAC 88153	24.9	H-4 CHONDRITE	A/B	A	17	14-17
MAC 88154	79.1	H-6 CHONDRITE	Ce	B	18	16
MAC 88155	21.9	L-6 CHONDRITE	A	A	23	20
MAC 88158	42.6	H-5 CHONDRITE	B	A/B	17	15
MAC 88160	30.8	H-5 CHONDRITE	B	A	17	15
MAC 88161	14.3	H-4 CHONDRITE	B/C	A	17	13-20
MAC 88163	106.2	H-5 CHONDRITE	B/Ce	B/C	19	16
MAC 88164	113.3	H-5 CHONDRITE	A/B	A	17	15
MAC 88165	52.7	H-5 CHONDRITE	B/C	A	17	15

~Classified by using refractive indices.
*Classification change.

Sample Number	Weight (g)	Classification	Weathering	Fracturing	%Fa	%Fs
MAC 88166	94.0	H-5 CHONDRITE	B/C	A	18	16
MAC 88169	5.9	H-5 CHONDRITE	B/C	A	17	15
MAC 88171	17.0	H-4 CHONDRITE	C	A	17	14-16
MAC 88179	19.2	H-5 CHONDRITE	C	A	17	15
MAC 88183	62.2	H-5 CHONDRITE	B/C	A	17	15
MAC 88185	12.7	H-5 CHONDRITE	B/C	A	18	16
MAC 88186	20.7	H-5 CHONDRITE	A/B	A	17	15
MAC 88188	14.0	H-4 CHONDRITE	B	A	19	14-19
MAC 88189	31.4	H-5 CHONDRITE	B/C	A	17	15
MAC 88190	49.8	H-5 CHONDRITE	B/C	A	17	15
MAC 88192	41.3	H-5 CHONDRITE	B/C	A	17	15
MAC 88195	71.6	H-5 CHONDRITE	B/C	A	17	15
MAC 88196	107.9	H-5 CHONDRITE	B	A/B	17	15
MAC 88198	36.9	H-5 CHONDRITE	B	A	18	16
MAC 88199	28.9	L-3 CHONDRITE	B	A	1-29	2-23
MAC 88200	35.1	H-4 CHONDRITE	B	B	17	15
MAC 88202	2.3	LL-5 CHONDRITE	B	A	28	23

~Classified by using refractive indices.
*Classification change.

TABLE 2

Newly Classified Specimens Listed By Type **

Sample Number	Weight (g	Classification	Weathering	Fracturing	%Fa	%Fs
		Achondrites				
LEW 88280	6.0	ACHONDRITE (UNIQUE)	B	A	13	12
ALHA81313*	.5	EUCRITE				38
LEW 88201	46.4	UREILITE	B/Ce	A	8	8
LEW 88281	9.7	UREILITE	B	A	9	8
		Non-Ordinary Chondrites				
ALH 85151*	13.9	CHONDRITE (UNIQUE)	B	A/B	0.4-41	6-30
MAC 87320*	16.2	CARBONACEOUS C2R	Be	A	1-30	1-7
LEW 88180	46.5	E-6 CHONDRITE	B/Ce	A		0-13
		Ordinary Chondrites - Type 3				
LEW 86102	21.8	H-3 CHONDRITE	C	A	1-48	1-41
LEW 86105	6.4	H-3 CHONDRITE	C	A	1-50	1-32
LEW 88121	15.6	H-3 CHONDRITE	B/C	A	1-23	8-17
LEW 88033	1.9	L-3 CHONDRITE	B	A	1-32	2-19
LEW 88146	5.0	L-3 CHONDRITE	A/B	A	14-28	6-21
LEW 88254	13.5	L-3 CHONDRITE	B/C	A	1-30	1-22
LEW 88261	17.6	L-3 CHONDRITE	B	A	3-41	5-19
LEW 88263	8.8	L-3 CHONDRITE	B/C	A	3-36	2-23
MAC 88199	28.9	L-3 CHONDRITE	B	A	1-29	2-23
EET 83213*	2727.0	LL-3 CHONDRITE	Be	A	13-30	3-26
LEW 88175	111.3	LL-3 CHONDRITE	B/Ce	A	5-31	2-25
		Irons				
LEW 88055	1.7	IRON-ANOMALOUS		A		

~Classified by using refractive indices.
*Classification change.

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 AMN 9(2) (June, 1986).

H3 CHONDRITE:
LEW86102, 86105.

L3 CHONDRITE:
LEW88254, 88261, 88263.

UREILITE:
LEW88201, 88281 with LEW85440.

Sample No:	**LEW86102: 86105**	Location:	Lewis Cliff
Dimensions (cm):	3.5 x 1.5 x 1.5; 1.5 x 1 x 1	Field Number:	3004; 3016
Weight (g):	21.8; 6.4		
Meteorite Type:	H3 chondrite		

Macroscopic Description: Cecilia Satterwhite
Shiny smooth brown/black fusion crust completely covers both of these specimens. The interior consists of black matrix with abundant small weathered chondrules. Oxidation is scattered throughout the interior with LEW86105 being more weathered.

Thin Section (LEW86102,3; 86105,2) Description: Brian Mason
These sections are so similar that a single description will suffice; the meteorites are probably paired. Chondrules and chondrule fragments are abundant, ranging up to 2.1 mm across; most are porphyritic or granular olivine and olivine-pyroxene, but a few radiating or cryptocrystalline pyroxene chondrules were noted. They are surrounded by a dark finely granular groundmass containing some metal and a little sulfide, often as rims to chondrules; the metal is extensively altered to limonite. Microprobe analyses show olivine and pyroxene of highly variable composition; olivine, Fa_{1-50} (CV FeO is 70); pyroxene, Fs_{1-41}. The meteorites are tentatively classified as H3 chondrites (estimated H3.3).

Sample No:	**LEW88033**	Location:	Lewis Cliff
Dimensions (cm):	1 x 1.1 x 0.7	Field Number:	4156
Weight (g):	1.9		
Meteorite Type:	L3 chondrite		

Macroscopic Description: Carol Schwarz
Dull fusion crust covers ~ 90% of the exterior of LEW88033 and one surface has a frothy texture. Abundant small inclusions (1mm) are obvious in the dark gray matrix. Oxidation is moderate.

Thin Section (,2) Description: Brian Mason
The section shows numerous chondrules and chondrule fragments, up to 1.8 mm across, in a small amount of dark fine-grained matrix. A little metal and sulfide is present, concentrated as black rims to the chondrules. Most of the chondrules are porphyritic or granular olivine and olivine-pyroxene, but fine-grained to cryptocrystalline pyroxene chondrules are also present. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa_{1-32} (CV FeO is 77); pyroxene, Fs_{2-19}. The small amount of metal indicates L group, and the variability of olivine and pyroxene compositions type 3, hence the meteorite is classified as an L3 chondrite (estimated L3.3).

Sample No:	**LEW88055**	Location:	Lewis Cliff
Dimensions (cm):	1.2 x 0.8 x 0.5	Field Number:	4160
Weight (g):	1.7		
Meteorite Type:	Anomalous iron containing silicates		

Macroscopic Description: Roy S. Clarke, Jr.
Irregular shaped nodule covered with a dark brown oxide coating containing patches of both darker and lighter colored material. The surface appearance suggested that the specimen might not be all metal.

Thin Section Description: Roy S. Clarke, Jr.
A median slice of 116 mg was removed for section preparation, leaving butts of 383 and 901 mg, and a chip of 30 mg. The surfaces of the slice and butts contained 30 to 40 area percent silicates. The slice was made into a polished thin section containing several mm-size silicate areas. The only silicate mineral recognized on preliminary optical and electron microprobe examination was a fairly coarse-grained magnesian enstatite. Iron in the few tenths percent range was present in some analyses, but its concentration correlated with the intensity of iron staining due to terrestrial weathering.

The metal matrix is a Si-free kamacite containing a high concentration of Neumann bands, many of which are distorted. The kamacite within 1 mm of about two-thirds of the exterior edge has been transformed to α_2 by atmospheric ablation. Three very small taenite areas containing martensitic plessite are clustered along a part of the edge that is not heat altered. They are associated with grain boundary schreibersite. These observations suggest that the specimen is anomalous.

Sample No:	**LEW88121**	Location:	Lewis Cliff
Dimensions (cm):	2 x 2 x 1.5	Field Number:	4655
Weight (g):	15.6		
Meteorite Type:	H3 chondrite		

Macroscopic Description: Cecilia Satterwhite
This blocky shaped meteorite is 95% covered with fusion crust. The overall color of the interior is yellow brown. Although the oxidation masks most of the features present, abundant inclusions are still visible in a small area where the matrix is 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 matrix consisting of fine-grained silicates, a moderate amount of nickel-iron, and minor troilite. Most of the chondrules are granular to porphyritic olivine and olivine-pyroxene, but some radiating and cryptocrystalline pyroxene chondrules were noted. The meteorite is considerably weathered, with small areas of brown limonite throughout the section. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa_{1-23}, mean Fa_{12} (CV FeO is 54); pyroxene, Fs_{8-17}. The amount of metal indicates H group, and the variability of olivine and pyroxene compositions type 3, hence the meteorite is classified as an H3 chondrite (estimated H3.4).

Sample No:	**LEW88146**	Location:	Lewis Cliff
Dimensions (cm):	1.5 x 1.4 x 1.0	Field Number:	4476
Weight (g):	5.0		
Meteorite Type:	L3 chondrite		

Macroscopic Description: Cecilia Satterwhite
Thirty percent of this meteorite fragment is covered with black fusion crust. Areas devoid of fusion crust are yellowish-green in color. The interior shows two distinct lithologies with a sharp contact between them, each making up 50% of the exposed interior. One lithology has light to medium gray matrix with abundant dark chondrules/inclusions. The other lithology has dark gray matrix with abundant light chondrules/inclusions.

Thin Section (.2) Description: Brian Mason
The section shows a close-packed aggregate of chondrules and chondrule fragments, up to 2.9 mm across; some of the chondrules are rimmed with granules of nickel-iron and troilite. The matrix is fine-grained olivine and pyroxene, with a minor amount of nickel-iron and troilite. The meteorite is almost unweathered. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa_{14-28}, mean Fa_{22} (CV FeO is 35); pyroxene, Fs_{6-21}. The amount of nickel-iron indicates L group, and the variability of olivine and pyroxene compositions type 3. Hence the meteorite is classified as an L3 chondrite (estimated L3.6).

Sample No:	**LEW88175**	Location:	Lewis Cliff
Dimensions (cm):	5 x 4 x 2.5	Field Number:	5170
Weight (g):	111.3		
Meteorite Type:	LL3 chondrite		

Macroscopic Description: Cecilia Satterwhite
The exterior has a small amount of dull black pitted fusion crust. Areas devoid of fusion crust are rough in texture, brown in color, and show the clastic nature of the meteorite. Oxidation is heavy in areas obscuring the interior features present. Some evaporite deposits are visible on both interior and exterior surfaces.

Thin Section (.2) Description: Brian Mason
The section shows a close-packed aggregate of chondrules and chondrule fragments, up to 1.8 mm across, in a matrix of fine-grained 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_{5-31}, mean Fa_{22} (CV FeO is 19); pyroxene, Fs_{2-25}. The small amount of nickel-iron suggests LL group, and the variability of olivine and pyroxene compositions type 3, hence the meteorite is classified as an LL3 chondrite (estimated LL3.8).

Sample No:	**LEW88180**	Location:	Lewis Cliff
Dimensions (cm):	3.8 x 2 x 1	Field Number:	5171
Weight (g):	46.5		
Meteorite Type:	E6 chondrite		

Macroscopic Description: Cecilia Satterwhite
This smooth and rounded meteorite is covered with brown weathered fusion crust. A large deposit of evaporite minerals covers some of the fusion crust. The interior is composed of fine-grained blue-black matrix. Oxidation is moderate but evaporite deposit is abundant in the interior.

Thin Section (.2) Description: Brian Mason
Chondrules and chondrule fragments are barely recognizable, the section consisting largely of enstatite in prisms up to 0.3 mm long; the section also shows a considerable amount (~25%) of nickel-iron and minor amounts of sulfides and plagioclase. The meteorite appears to be unweathered. Microprobe analyses show that most of the enstatite is almost pure $MgSiO_3$, with FeO less than 0.3%, but rare grains with FeO up to 9.2% were measured. One grain of plagioclase was analysed; it is almost pure albite, with CaO 0.5%, K_2O 1.1%. The nickel-iron contains 2.4% Si. Rare grains of a silica polymorph, tridymite or cristobalite, were detected. The meteorite is an enstatite chondrite, classified E6.

Sample No: **LEW88201**
Dimensions (cm): 3 x 3.2 x 2.5
Weight (g): 46.4
Meteorite Type: Ureilite

Location: Lewis Cliff
Field Number: 5693

Macroscopic Description: Cecilia Satterwhite

Shiny black and some frothy fusion crust covers this ureilite. One exterior surface has regmaglypts. The interior is bluish-black and has a crystalline texture. A small amount of evaporite deposit is present.

Thin Section (,2) Description: Brian Mason

This section shows an equigranular aggregate of olivine and pyroxene, as rounded to subhedral grains 0.3-0.6 mm across. The grains are rimmed with black carbonaceous material, which contains trace amounts of nickel-iron (largely weathered to brown limonite) and troilite. Microprobe analyses show olivine and pyroxene of uniform composition: olivine, Fa_8 (CaO 0.3%); pyroxene, Wo_5Fs_8. The meteorite is a ureilite; it is very similar in texture and mineral compositions to LEW 85440 and 88012, and the possibility of pairing should be considered.

Sample No: **LEW88254; 88261; 88263**
Dimensions (cm): 3 x 2 x 1.7; 1.7 x 1.5 x 1; 2.4 x 2 x 1.3
Weight (g): 13.5; 17.6; 8.8
Meteorite Type: L3 chondrite

Location: Lewis Cliff
Field Number: 6045; 6090; 6080

Macroscopic Description: Cecilia Satterwhite

Black fusion crust covers most of these 3 specimens. LEW88263 has one fracture surface. The interior matrix of all three specimens is dark gray to black with abundant 1-3 mm sized chondrules/inclusions. Weathering is moderate.

Thin Section (LEW88254,2; 88261,2; 88263,2) Description: Brian Mason

These meteorites are so similar that a single description will suffice; the possibility of pairing should be considered. They are highly chondritic, with chondrules ranging up to 2.9 mm across. The chondrules are rimmed with dark matrix, which contains a small amount of nickel-iron and troilite. Most of the chondrules are granular or porphyritic olivine and olivine-pyroxene, but radiating and cryptocrystalline pyroxene chondrules were noted; transparent brown glass was seen in one chondrule. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa_{1-41}, mean Fa_{16} (CV FeO is 54); pyroxene, Fs_{1-23}. The small amount of nickel-iron suggests L group, and the variability of olivine and pyroxene compositions type 3, hence these meteorites are classified as L3 chondrites (estimated L3.4).

Sample No: **LEW88280**
Dimensions (cm): 1.5 x 1.5 x 1.1
Weight (g): 6.0
Meteorite Type: Achondrite (Unique)

Location: Lewis Cliff
Field Number: 6086

Macroscopic Description: Cecilia Satterwhite

This achondrite's interior is entirely composed of coarse-grained crystalline material. The minerals easily disaggregated while working with the meteorite, making mineral separation a breeze! A small amount of metal was noted. Oxidation is present throughout the sample.

Thin Section (,3) Description: Brian Mason
The section shows an equigranular aggregate of anhedral to subhedral olivine and pyroxene grains, 0.6-1.2 mm across, with about 20% of intergranular nickel-iron and a little troilite. The meteorite is unweathered. Microprobe analyses show olivine and pyroxene of uniform composition: olivine, Fa_{13}; pyroxene, Wo_3Fs_{12}. The meteorite is tentatively classified as a unique achondrite. Mineral compositions are similar to those in the Acapulco-like meteorites, but the texture is much coarser. It also resembles some inclusions from iron meteorites.

Sample No:	**LEW88281**	Location:	Lewis Cliff
Dimensions (cm):	3 x 2 x 1	Field Number:	6037
Weight (g):	9.7		
Meteorite Type:	Ureilite		

Macroscopic Description: Cecilia Satterwhite
Some thin polished fusion crust remains on the exterior of this ureilite. The interior is bluish-black in color, crystal faces are easily noticed and oxidation is moderate.

Thin Section (,2) Description: Brian Mason
The section shows an equigranular aggregate of olivine and pyroxene, as rounded to subhedral grains 0.3-0.6 mm across. The grains are rimmed with black carbonaceous material, which contains trace amounts of nickel-iron (largely weathered to brown limonite) and troilite. Microprobe analyses give the following compositions: olivine, Fa_9; pyroxene, Wo_5Fs_8. The meteorite is a ureilite; it is very similar in texture and mineral compostions to LEW 85440, 88012, and 88201, with which it is probably paired.

Sample No:	**MAC88174**	Location:	MacAlpine Hills
Dimensions (cm):	6 x 4 x 3.2	Field Number:	6156
Weight (g):	98.4		
Meteorite Type:	H3 chondrite		

Macroscopic Description: Robbie Marlow
The exterior of MAC88174 is mostly covered with thin, very smooth dark brown fusion crust. This meteorite is quite coherent, making it difficult to break. The interior matrix is dark gray with abundant millimeter sized white chondrules/inclusions. A 2mm thick weathering rind is present. Evaporite minerals were noted.

Thin Section (,4) Description: Brian Mason
The section shows a close-packed aggregate of chondrules and chondrule fragments, up to 1.5 mm across, in a finely granular matrix which contains some nickel-iron and troilite. Most chondrules consist of granular to porphyritic olivine and olivine-pyroxene, but barred olivine and cryptocrystalline pyroxene chondrules were noted. Microprobe analyses show olivine and pyroxene of variable composition; olivine, Fa_{1-24} (CV FeO is 67); pyroxene, Fs_{2-12}. The variability of olivine and pyroxene compositions indicates type 3, and the amount of nickel-iron suggests H group, hence the meteorite is tentatively classified as an H3 chondrite (estimated H3.3).

Sample No: **MAC88199**
Dimensions (cm): 2.5 x 2 x 1.5
Weight (g): 28.9
Meteorite Type: L3 chondrite

Location: MacAlpine Hills
Field Number: 5743

Macroscopic Description: Cecilia Satterwhite
Ninety-five percent of this unequilibrated chondrite is covered with black, frothy and pitted fusion crust. This chondrite is composed of brownish black matrix with abundant chondrules/inclusions that have a range in color from white to yellow to orange and a range in size from 0.1 to 0.3 mm.

Thin Section (.2) Description: Brian Mason
Chondrules and chondrule fragments are abundant, ranging up to 1.2 mm across, with one exceptionally large one 4.2 mm across. They are set in a dark matrix which contains a little nickel-iron and troilite, sometimes concentrated on the rims of chondrules. Microprobe analyses show olivine and pyroxene of variable composition: olivine, Fa_{1-29} (CV FeO is 55); pyroxene, is Fs_{2-23}. The variability of olivine and pyroxene compositions indicates type 3, and the small amount of nickel-iron L group; hence the meteorite is classified L3 (estimated L3.4).

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, LPS XX, 383-384). For meteorites whose NTL lies between 5 and 100 krad the natural TL is related primarily to terrestrial age. We suggest meteorites with NTL > 100 krad are candidates for an unusual history involving high radiation doses and/or low temperatures. 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". Included in this table are data for seven meteorites (ALHA and MBRA samples) measured as part of an interlaboratory comparison in collaboration with W.A. Cassidy (University of Pittsburgh). (July 1990 data set).

Sample	Class	NTL [krad at 250 deg. C]		
LEW 88008	DIO	6.4	+/-	0.4
LEW 88006	URE	<1		
LEW 88001	C2	<1		
MAC 88122	LL5	108.2	+/-	0.3
MAC 88106	LL6	93.9	+/-	0.4
MAC 88113	LL6	21.8	+/-	0.1
MAC 88109	L5	28.4	+/-	0.1
MAC 88118	L5	1.7	+/-	0.1
MAC 88127	L5	10.2	+/-	0.1
ALHA77155	L6	25.4	+/-	0.1
ALHA79007	L6	27.6	+/-	0.1
ALHA79033	L6	0.2	+/-	0.1
ALHA81099	L6	2.6	+/-	0.1
ALH 84066	L6	0.4	+/-	0.1
LEW 88015	L6	12.0	+/-	0.1
LEW 88016	L6	110.7	+/-	0.4
LEW 88017	L6	23.0	+/-	0.1
LEW 88018	L6	14.6	+/-	0.1
LEW 88058	L6	69.7	+/-	0.8
MAC 88112	L6	52.5	+/-	0.1
MAC 88117	L6	7.2	+/-	0.1
MAC 88121	L6	6.7	+/-	0.1
MAC 88126	L6	20.4	+/-	0.1
MAC 88137	L6	23.4	+/-	0.1
MAC 88148	L6	87.0	+/-	0.8
MAC 88159	L6	13.4	+/-	0.1
MAC 88162	L6	9.6	+/-	0.1
MAC 88181	L6	15.0	+/-	0.2
MAC 88193	L6	15.6	+/-	0.1
MAC 88197	L6	14.0	+/-	0.2
MAC 88174	H3	20	+/-	8
LEW 88019	H4	55.7	+/-	0.3
LEW 88020	H4	56.5	+/-	0.1
MAC 88111	H4	29.0	+/-	0.1
MAC 88124	H4	10.7	+/-	0.1
LEW 88013	H5	14.8	+/-	0.2
LEW 88014	H5	39.4	+/-	0.2
MAC 88103	H5	74.6	+/-	0.2
MAC 88108	H5	65.2	+/-	0.4
MAC 88110	H5	81.6	+/-	0.5
MAC 88114	H5	20.3	+/-	0.1
MAC 88115	H5	167	+/-	1
MAC 88116	H5	3.7	+/-	0.1
MAC 88119	H5	103.0	+/-	0.4
MAC 88120	H5	77.5	+/-	0.2
MAC 88128	H5	127.7	+/-	0.4
MAC 88129	H5	111.8	+/-	0.5
MAC 88134	H5	0.5	+/-	0.1
MAC 88135	H5	40.3	+/-	0.2

MAC 88138	H5	40.2	+/-	0.3	MAC 88123	H6	51.0	+/-	0.5
MAC 88139	H5	41.7	+/-	0.1	MAC 88125	H6	21.9	+/-	0.1
MAC 88147	H5	31.7	+/-	0.1	MAC 88130	H6	47.0	+/-	0.2
MAC 88164	H5	31.3	+/-	0.1	MAC 88132	H6	61.8	+/-	0.6
MAC 88195	H5	87.2	+/-	0.3	MAC 88133	H6	58	+/-	1
MAC 88196	H5	72	+/-	1	MAC 88191	H6	80.3	+/-	0.1
ALHA76008	H6	8.5	+/-	0.3	MBRA76001	H6	10.4	+/-	0.3
HOW 88400	H6	11.4	+/-	0.1					

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

PAIRING OF ANTARCTIC METEORITES BASED ON THERMOLUMINESCENCE DATA

by

Paul Benoit, Hazel Sears, and Derek Sears

The following comments on pairings of meteorites are based on the natural TL data (Table 4), TL sensitivity, the shape of the induced TL glow curve, classifications, and JSC curatorial staff and Arkansas group sample descriptions. The procedures are described in Sears et al. (1990, LPSC XXI, 1121-1122). Unless otherwise noted, suggested pairings are considered "probable" as opposed to "possible" or "tentative".

1. TL data confirm pairings suggested in the Newsletter:

H4: LEW88019 and LEW88020 (AMN 13:2)
H6: MAC88132 and MAC88133 (AMN 12:3)

2. TL data do not confirm pairings suggested in the Newsletter:

H6: MAC88130 is not paired with MAC88132 and MAC88133 (AMN 13:2)

3. Additional pairings suggested by TL data:

L6: LEW88015 and LEW88018 (tentative)
L6: MAC88117 and MAC88121 (possible)
L6: MAC88159, MAC88181, MAC88193, and MAC88197

H5: MAC88103 and MAC88120 (possible)
H5: MAC88135, MAC88138, and MAC88139
H5: MAC88147 and MAC88164

COMMENTS ON THE THERMOLUMINESCENCE PROPERTIES OF SPECIFIC METEORITES

by

Paul Benoit, Hazel Sears, and Derek Sears

1. MAC88174 was tentatively assigned to petrographic type 3.6 by Mason (AMN 13:2). The induced TL measurements indicate that it is type 3.4-3.5.

2. ALHA samples 77155, 79007, 79003, 81099, 84066, and 76008 and MBRA76001 have known ^{26}Al contents and confirm the observations of Hasan et al. (1987, Proc. 17th LPSC E703-709). Specifically, four of the samples (MBRA76001, ALHA81099, ALHA 84066 and ALHA79033) plot in the field of high ^{26}Al and low NTL, described earlier and suggestive of a highly anomalous thermal and/or radiation history. The remainder of the samples fall on the terrestrial age trend.

3. The following comments relate to samples in the TL table reported in AMN(13:2)

A. Euc: LEW85300, LEW85302, LEW85303, and LEW88005 have unusual induced TL properties and have probably been shocked. See Batchelor and Sears (1990, LPSC XXI, 54-55) for details.

B. C2: MAC88107, MAC87300, and MAC87301 have distinct TL properties from other C2 chondrites. The TL properties of these meteorites resemble those of the unusual carbonaceous chondrites Colony, ALHA77307 and LEW85332 (see Sears et al., 1990, LPSC XXI, 1121-1122).

C. L6: EET87536, EET87561 (AMN 12:3), and EET87583 have unusual induced TL suggestive of shock. Petrographic examination by B. Mason shows that EET87536 and EET87561 contain shock-produced maskelynite, while EET87583 does not appear severely shocked but contains a metal veinlet.

D. L6: EET87827 has TL properties similar to the EET87569 group, but appears in hand specimen to be a regolith breccia with light-dark structure.

^{26}Al 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 81237	H5	69.4 ±4.8	ALHA 83052	L6	57.5 ±5.4
ALHA 81238	H5	33.0 ±5.4	ALHA 83053	H5	54.5 ±3.4
ALHA 81239	H5	75.5 ±5.6	ALHA 83069	L5	49.4 ±3.5
ALHA 81240	H5	63.3 ±5.7	ALHA 83101	L6	116.1 ±8.5
ALHA 81241	H5	35.3 ±4.6	ALHA 84116	LL6	48.2 ±3.0
ALHA 81272	L3	43.7 ±4.6	ALHA 84117	H5	63.4 ±4.9
ALHA 81273	H6	44.8 ±3.3	ALHA 84119	LL6	52.5 ±6.9
ALHA 81276	H5	57.5 ±5.3	ALHA 84135	H5	56.4 ±5.4
ALHA 81279	H4	59.9 ±6.1	ALHA 84137	H5	69.8 ±4.2
ALHA 81280	L3	40.0 ±2.9	ALHA 84139	H5	68.7 ±4.1
ALHA 81281	H5	71.4 ±4.0	ALHA 84147	H6	54.2 ±5.1
ALHA 81282	L6	45.5 ±5.0	ALHA 84151	H6	55.1 ±3.3
ALHA 81285	LL6	50.7 ±4.9	ALHA 84157	H5	49.7 ±2.9
ALHA 81286	H5	65.2 ±5.6	ALHA 84167	H5	56.6 ±3.4
ALHA 81287	H5	61.3 ±4.5	ALHA 84170	E3	69.0 ±5.0
ALHA 82109	H5	44.7 ±3.0	ALHA 84184	H5	50.5 ±3.8
ALHA 82111	L6	66.1 ±5.1	ALHA 84264	L6	70.8 ±3.9
ALHA 82112	H5	63.0 ±7.9			
ALHA 82113	H6	63.2 ±4.9	DOM 85500	H5	42.4 ±3.7
ALHA 82115	H5	53.8 ±6.4			
ALHA 82119	H5	62.8 ±5.1	EETA 79009	L5	62.5 ±3.9
ALHA 82124	H6	55.0 ±6.9	EETA 82605	L6	55.0 ±4.8
ALHA 83046	H5	61.2 ±6.0	EETA 82606	L6	46.8 ±4.1

Uncertainties are calculated from counting statistics. All data have been corrected for background effects, counting geometry, and specimen geometry. For more information or to request a copy of all the Battelle ^{26}Al data (for over 500 specimens), please contact John Wacker [telephone: (509) 376-1076; FAX: (509) 376-5021].